NETSCOUT

2019 ANNUAL REPORT

EXTENDING VISIBILITY

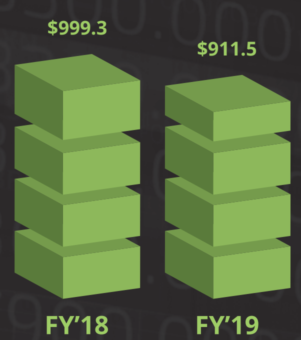
EXTENDING VISIBILITY

In an increasingly connected world, NETSCOUT SYSTEMS, INC. (NASDAQ: NTCT) understands that the stakes have never been higher — network and application downtime, degradations in digital service quality and security breaches can instantly impact revenue, erode profitability and harm reputations. That's why the world's largest and most innovative service providers, enterprises and government agencies trust NETSCOUT to help drive ROI on their infrastructure investments, maximize digital performance, and protect against attacks that threaten availability or compromise critical business assets.

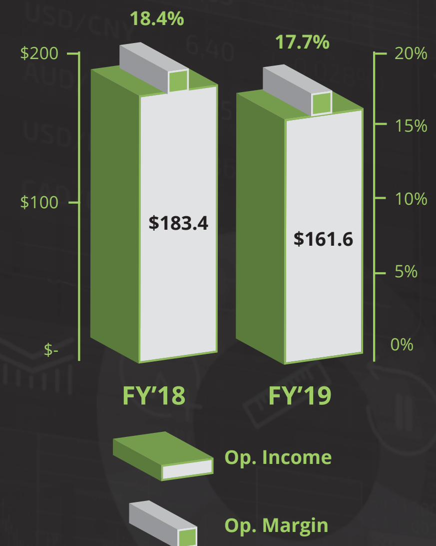
NETSCOUT assures digital business services against disruptions in availability, performance, and security. Regardless of the infrastructure or environment — from on premises to private and public cloud environments — NETSCOUT's solutions provide the real-time visibility required to manage performance and protect against an ever-expanding array of security threats. With deployment flexibility spanning appliances, software-only and virtual machines, NETSCOUT's solutions convert wire data into contextual, high-value 'smart data' at the collection point, enabling customers' operations and security teams to identify issues impacting their digital transformation initiatives, earlier and with more precision, to resolve problems faster.

FINANCIAL PERFORMANCE

REVENUE
(Non-GAAP, $ in millions)



INCOME FROM OPERATIONS
(Non-GAAP, $ in millions)



FREE CASH FLOW[1]
($ in millions)

[1] Free cash flow is defined as cash flow provided by operating activities less purchases of fixed and intangible assets

* Includes ~$17 million related to restructuring payments in conjunction with voluntary separation and other related workforce reduction programs implemented in FY'19.

$ in millions except % and EPS	FY'18 GAAP	FY'18 Non-GAAP	FY'19 GAAP	FY'19 Non-GAAP
Revenue	$ 986.8	$ 999.3	$ 909.9	$ 911.5
Income from Operations	$ (4.1)	$ 183.4	$ (71.6)	$ 161.6
Income from Operations %	-0.4%	18.4%	-7.9%	17.7%
Net Income	$ 79.8	$ 124.7	$ (73.3)	$ 109.2
Diluted Net Income per Share	$ 0.90	$ 1.41	$ (0.93)	$ 1.38
Free Cash Flow	$ 205.9	-	$ 126.3	-

A reconciliation of each non-GAAP metric with the applicable GAAP metric is available on page R-1.

TO OUR STOCKHOLDERS

Fiscal year 2019 was marked by important progress that we believe will pave the road for better, more sustainable performance into the future. We delivered on our product development roadmaps to further elevate our value proposition, which contributed to improved results in our enterprise customer segment and helped us address the evolving requirements of our service provider customers. Just as important, we took steps to improve our profitability by restructuring key operations, selling non-core product lines and carefully managing spending. These efforts also enabled us to achieve our diluted non-GAAP EPS target even as we fell short of our revenue ambitions. We move into fiscal year 2020 with optimism that the most severe top-line headwinds have substantially dissipated, with excitement about the ongoing adoption of our software-centric product portfolio, and with enthusiasm about the potential of our newest product innovations.

FY'19 Results

NETSCOUT's FY'19 revenue performance was impacted by a challenging service provider spending environment, which affected both our service assurance and DDoS product areas. Additionally, we divested our handheld network test (HNT) tools business mid-way through the year. Despite these challenges, our restructuring and other cost-containment actions enabled us to deliver FY'19 non-GAAP diluted EPS above the mid-point of our original targets. We also produced solid free cash flow that once again exceeded non-GAAP net income.

FY'19 Progress & Achievements

During the past fiscal year, we continued to advance our product strategy, highlighted by completing the integration of key products and technologies that were acquired as part of the Danaher Communications Business acquisition. We move forward into fiscal year 2020 with a broader range of higher-margin, software-centric solutions that provide visibility across any type of infrastructure and into any service or application. Our solutions now address a larger range of use cases — from network, application and infrastructure performance management to big data, DDoS and advanced threat security analytics and across all network infrastructures and application environments.

We are starting to see our significant technology investments yield tangible results. We stabilized revenue from our two largest service provider customers and have successfully migrated most of our other tier-one operators to our software-based platform for service assurance. We delivered solid organic revenue growth in our enterprise customer segment over the last three quarters of the year. This reflected improved adoption of our broadened range of enterprise service assurance products in support of our customers' digital transformation initiatives, as well as better traction for our enterprise DDoS offerings.

At the same time, we took actions to improve our go-to-market effectiveness and reduce spending. We began the process of combining Arbor's security sales resources with our larger service assurance enterprise sales teams, which improves our sales coverage, particularly in international markets, and strengthens our ability to maximize cross-selling opportunities across network and security operations. Selling our HNT tools business in September 2018 further intensified our focus on our core enterprise service assurance offerings and removed approximately $30 million of annual operating expenses from our cost structure. To further realign costs, we completed a restructuring with a voluntary separation program designed to generate annual run-rate savings of approximately $23 million.

We also continued to control expenses without compromising important investments in product development, sales and marketing, and support. All totaled, these initiatives enabled us to remove over $70 million from our run-rate operating costs.

Board Changes

Over the past few years, we have reshaped our Board of Directors by adding new directors with relevant domain expertise experience that can help us further advance key elements of our strategy. Al Grasso and Susan Spradley joined our Board at the start of fiscal year 2019, bringing decades of experience and insight into the security and service provider markets, respectively. In February 2019, we welcomed Vivian Vitale, a proven technology HR executive with expertise in helping industry leaders further scale their organizations. We also appointed Michael Szabados, NETSCOUT's COO, to our Board as Vice Chairman. In conjunction with these appointments, Vin Mullarkey retired from our Board after many years of service. I would like to thank Vin for his counsel and service over the past two decades.

Looking Ahead

As we move forward, we believe that NETSCOUT's focus on providing ultra high-definition visibility into real-time transactions embedded in network traffic is increasingly resonating in the marketplace. Our customers are challenged to efficiently and effectively transform and protect their infrastructures to support digital transformation without compromising their current capabilities. Data center transformation continues to open up new enterprise opportunity for us. Additionally, security represents a promising adjacency as our value proposition expands beyond DDoS. Although we do not expect substantial near-term improvement in carrier capital spending, we are well positioned to further fortify our incumbency in service assurance and DDoS while making the necessary investments to benefit from the eventual buildout of new 5G networks.

As we move into fiscal year 2020, our top priority is to produce top-line growth, which is fundamental to driving operating leverage, EPS growth and stronger free cash flow. More specifically, as outlined on our Fourth Quarter and Full Fiscal Year-End 2019 Earnings Call in May of this year, our FY'20 targets call for stable to low-single digit organic revenue growth through a mid-single digit increase in product revenue, which, at the higher end of our plans, can then be converted into mid-single digit EPS growth.

In closing, I would like to extend my gratitude to our stockholders for their continued support. I'd also like to thank my fellow Guardians at NETSCOUT for their efforts. I look forward to sharing our continued progress and achievements with you over the course of the coming year.

Sincerely,

Anil Singhal
Co-Founder, President, Chief Executive Officer and Chairman of the Board

NETSCOUT's service assurance and security solutions are enabling the world's largest and most innovative organizations to optimize network performance, ensure delivery of mission-critical services and applications, gain insight into the end-user experience and protect the network from attack.

Service Providers

Across fixed line, 3G, 4G and next-gen 5G network architectures, NETSCOUT's service assurance solutions are helping digital service providers gain end-to-end, real-time, reliable visibility into their network and the services they deliver over them. As a result, service providers gain timely insight into network problems, quickly pinpoint issues, automate key processes, and better understand the subscriber experience. And as tier-one operators across North America and other major geographic regions invest in 5G, NETSCOUT is well-positioned to leverage its incumbency to help carriers in each phase of the network lifecycle from planning and launch to monetization and optimization.

Carriers worldwide also rely on NETSCOUT's Arbor family of market-leading DDoS solutions to detect and mitigate an ever-expanding range of distributed denial of service (DDoS) attacks that are aimed at disrupting network or service availability. As DDoS attacks continue to increase in frequency, volume and complexity, NETSCOUT's enhanced capabilities are enabling service providers to realize significant benefits including increased efficiency of their DDoS defenses and broader network infrastructure, greater insight into their network topologies, customers and traffic patterns via powerful, new big data analytics and visualizations, and opportunities to monetize their investment in NETSCOUT Arbor technology through managed DDoS services for their enterprise customers.

Enterprises

Enterprises worldwide are advancing major digital transformation initiatives to improve the delivery of new products and services, enhance mission-critical operational workflows and drive operational and capital efficiency — all while taking overall quality, performance and security to new levels. To keep pace with this innovation, IT operations teams are turning to NETSCOUT for a holistic approach to real-time network, application and infrastructure performance management based on end-to-end visibility into all service delivery interdependencies — across physical and virtual, on-premises and off-premises, private and public clouds.

NETSCOUT's ability to capture and analyze wire data in real-time is helping drive increased collaboration between network and security operations teams. The Company's new Arbor Edge Defense, or AED, augments market-leading DDoS capabilities with an innovative threat intelligence gateway to identify outgoing threats that indicate compromised communications. Over the coming quarters, NETSCOUT plans to launch Arbor Threat Analytics, a new enterprise security platform that leverages NETSCOUT's existing footprint inside its enterprise customers' infrastructure. This analytic platform combines the Company's historical strength in packet forensics with Arbor's robust catalog of known security threats, thereby enabling network and security teams to work faster and more efficiently to identify and investigate potential network-based security breaches.

NETSCOUT

Reconciliation of GAAP to Non-GAAP Financial Measures

(in millions, except % and EPS data)	**NETSCOUT FY'18 Reported**	**NETSCOUT FY'19 Reported**
GAAP revenue		
Product	$ 520.4	$ 467.3
Service	466.4	442.6
Total GAAP revenue	$ 986.8	$ 909.9
Non-GAAP adjustments	12.5	1.6
Non-GAAP revenue		
Non-GAAP product	$ 523.5	$ 467.7
Non-GAAP service	475.8	443.8
Total non-GAAP revenue	$ 999.3	$ 911.5
Total GAAP cost of revenue	$ 271.9	$ 254.1
Non-GAAP adjustments	(43.7)	(38.7)
Total non-GAAP cost of revenue	$ 228.2	$ 215.4
Gross profit - GAAP	$ 714.9	$ 655.8
Non-GAAP adjustments	56.2	40.3
Gross profit - non-GAAP	$ 771.1	$ 696.1
Non-GAAP gross profit margin	77.2%	76.4%
Total operating expenses - GAAP	$ 718.9	$ 727.4
Non-GAAP adjustments	(131.2)	(192.8)
Total operating expenses - non-GAAP	$ 587.7	$ 534.5
Income from operations - GAAP	$ (4.1)	$ (71.6)
Non-GAAP adjustments	187.5	233.2
Income from operations - non-GAAP	$ 183.4	$ 161.6
Non-GAAP income from operations margin	18.4%	17.7%
Net income - GAAP	$ 79.8	$ (73.3)
Non-GAAP adjustments	44.9	182.6
Net income - non-GAAP	$ 124.7	$ 109.2
Diluted net income per share - GAAP	$ 0.90	$ (0.93)
Share impact of non-GAAP adjustments identified above	0.51	2.31
Diluted net income per share - non-GAAP	$ 1.41	$ 1.38
Diluted weighted average common shares outstanding - non-GAAP	88.3	79.3
Net cash provided by operating activities	$ 222.5	$ 149.8
Purchase of fixed assets and intangible assets	(16.6)	(23.5)
Free cash flow	$ 205.9	$ 126.3

Certain numbers may not total due to rounding.

Non-GAAP adjustments include revenue related to deferred revenue revaluation and revenue impacted by the amortization of intangible assets as well as expenses related to the amortization of acquired intangible assets, stock-based compensation, certain expenses relating to acquisitions including depreciation costs, compensation for post-combination services, business development and integration costs, expenses tied to implementing new accounting standards, restructuring costs, charges tied to the impairment of intangible assets, loss related to divested assets and income associated with transitional services agreements. For the specific detail on the value of each non-GAAP adjustment, please refer to the Company's quarterly earnings press releases available on the IR section of www.netscout.com.

Detailed Reconciliation of Adjustments: GAAP to Non-GAAP Financial Measures

	FY'18		FY'19	
GAAP revenue	$	986.8	$	909.9
Product deferred revenue fair value adjustment		3.1		0.4
Service deferred revenue fair value adjustment		9.4		1.2
Amortization of acquired intangible assets		0.0		-
Total non-GAAP adjustments		12.5		1.6
Non-GAAP revenue	$	999.3	$	911.5
Income from operations - GAAP	$	(4.1)	$	(71.6)
Product deferred revenue fair value adjustment		3.1		0.4
Service deferred revenue fair value adjustment		9.4		1.2
Share-based compensation expense		47.3		56.3
Amortization expense related to acquired intangible assets		114.0		105.5
Business development and integration expense		2.7		0.9
New standard implementation expense		2.6		0.9
Compensation for post combination services		1.1		0.8
Restructuring charges		5.2		18.7
Impairment of intangible assets		-		35.9
Acquisition-related depreciation expense		2.1		0.9
Loss on divestiture		-		9.5
Transitional service agreement income		-		2.2
Total non-GAAP adjustments		187.5		233.2
Income from operations - non-GAAP	$	183.4	$	161.6
Net income - GAAP	$	79.8	$	(73.3)
Product deferred revenue fair value adjustment		3.1		0.4
Service deferred revenue fair value adjustment		9.4		1.2
Share-based compensation expense		47.3		56.3
Amortization expense related to acquired intangible assets		114.0		105.5
Business development and integration expense		2.7		0.9
New standard implementation expense		2.6		0.9
Compensation for post combination services		1.1		0.8
Restructuring charges		5.2		18.7
Impairment of intangible assets		-		35.9
Acquisition-related depreciation expense		2.1		0.9
Loss on divestiture		-		9.5
Transitional service agreement income		-		(0.0)
Change in contingent consideration		-		1.5
Other income		(0.1)		-
Income tax adjustments		(142.5)		(49.9)
Total non-GAAP adjustments		44.9		182.6
Net income - non-GAAP	$	124.7	$	109.2
Diluted net income per share - GAAP	$	0.90	$	(0.93)
Share impact of non-GAAP adjustments identified above		0.51		2.31
Diluted net income per share - non-GAAP	$	1.41	$	1.38
Diluted weighted average common shares outstanding		88.3		79.3

Certain numbers may not total due to rounding.

NETSCOUT™

Notice of 2019 Annual Meeting
and
Proxy Statement

NETSCOUT™

July 24, 2019

Dear Stockholder:

You are cordially invited to attend the 2019 Annual Meeting of Stockholders of NetScout Systems, Inc. on Thursday, September 12, 2019 at 10:00 a.m. local time at NetScout Systems, Inc., 310 Littleton Road, Westford, Massachusetts 01886 (the "Annual Meeting").

At the Annual Meeting, you will be asked to:

1. elect three directors nominated by our board of directors;
2. approve the NetScout Systems, Inc. 2019 Equity Incentive Plan;
3. ratify the selection of PricewaterhouseCoopers LLP as our independent registered public accounting firm for the fiscal year ending March 31, 2020;
4. approve, on an advisory basis, the compensation of our named executive officers; and
5. consider any other business properly brought before the meeting or any adjournment.

The accompanying proxy statement describes these matters in more detail.

It is important that your shares be voted regardless of whether you attend the meeting. Please follow the voting instructions on the Notice of Internet Availability of Proxy Materials that you received. If you received a proxy card or voting instruction form, please complete the proxy card or voting instruction form promptly. If your shares are held in a bank or brokerage account, you may be eligible to vote electronically or by telephone – please refer to your voting instruction form. If you attend the meeting, you may vote in person even if you have previously returned your vote in accordance with the foregoing. We appreciate your cooperation.

Very truly yours,

Anil K. Singhal
Chairman, President, and Chief Executive Officer

NETSCOUT SYSTEMS, INC.
310 Littleton Road
Westford, MA 01886

NOTICE OF THE 2019 ANNUAL MEETING OF STOCKHOLDERS
To be held September 12, 2019

To the Stockholders of NetScout Systems, Inc.:

The 2019 Annual Meeting of Stockholders of NetScout Systems, Inc. (the "Annual Meeting") will be held on Thursday, September 12, 2019, at 10:00 a.m. local time at NetScout Systems, Inc., 310 Littleton Road, Westford, Massachusetts 01886, for the following purposes:

1. To elect three Class II directors nominated by our Board of Directors, each to serve for a three-year term or until their successors are elected and qualified;
2. To approve the NetScout Systems, Inc. 2019 Equity Incentive Plan;
3. To ratify the appointment of PricewaterhouseCoopers LLP as our independent registered public accounting firm for the fiscal year ending March 31, 2020;
4. To approve, on an advisory basis, the compensation of our named executive officers, as disclosed in our proxy statement, in accordance with Securities and Exchange Commission rules; and
5. To consider any other business properly brought before the meeting or any adjournment.

Stockholders of record at the close of business on July 19, 2019, the record date for determining stockholders entitled to vote at the Annual Meeting, will be entitled to vote at the meeting and any adjournments.

We are mailing our stockholders a Notice of Internet Availability of Proxy Materials, or Notice, instead of a paper copy of our proxy statement and our Annual Report to Stockholders for the fiscal year ended March 31, 2019, or the 2019 Annual Report. Stockholders who have requested a paper copy of our proxy materials will continue to receive them by mail. The Notice contains instructions on how to access those documents over the internet and how to request a paper copy of our proxy statement, our 2019 Annual Report, and a form of proxy card or voting instruction card.

All stockholders are cordially invited to attend the meeting in person. However, to assure your representation at the meeting, you are urged to complete, sign, date, and return the proxy card mailed or made available to you or to vote over the telephone or the internet as instructed in these materials so that your shares can be voted at the Annual Meeting in accordance with your instructions. If your shares are held in a bank or brokerage account, you may be eligible to vote electronically or by phone; please refer to your Notice. If you attend the meeting, you may vote in person even if you have previously returned your vote in accordance with one of the foregoing methods.

Important notice regarding the availability of proxy materials for the Annual Meeting to be held on September 12, 2019. Our proxy statement and the 2019 Annual Report are available free of charge at www.edocumentview.com/NTCT.

By Order of the Board of Directors,

Anil K. Singhal
Chairman, President, and Chief Executive Officer

Westford, Massachusetts
July 24, 2019

NETSCOUT SYSTEMS, INC.
310 Littleton Road
Westford, MA 01886

PROXY STATEMENT

July 24, 2019

Questions and Answers about these Proxy Materials and Voting

What is the purpose of the Annual Meeting?

The purpose of the 2019 Annual Meeting of Stockholders of NetScout Systems, Inc., a Delaware corporation, or the Annual Meeting, is to:

- elect three Class II directors nominated by our Board of Directors, or our Board, each to serve for a three-year term or until their successors are elected and qualified;
- approve the NetScout Systems, Inc. 2019 Equity Incentive Plan, or the 2019 Plan;
- ratify the appointment of PricewaterhouseCoopers LLP as our independent registered public accounting firm for the fiscal year ending March 31, 2020;
- approve, on an advisory basis, the compensation of our named executive officers, as defined and disclosed in this proxy statement in accordance with Securities and Exchange Commission, or SEC, rules, or our Named Executive Officers; and
- consider any other business properly brought before the Annual Meeting or any adjournment.

Why did I receive a notice regarding the availability of proxy materials on the internet?

We intend to mail the Notice of Internet Availability of Proxy Materials, or the Notice, on or about July 24, 2019 to all stockholders of record as of the close of business on July 19, 2019, or the Record Date, who are entitled to vote at the Annual Meeting, and we will make available the proxy statement and form of proxy to such stockholders on such date. Unless the context suggests otherwise, references in this proxy statement to “NetScout,” the “Company, “we,” “us,” and “our” refer to NetScout Systems, Inc. and, where appropriate, its subsidiaries. The matters to be voted on at the Annual Meeting are set forth in the Notice of the Annual Meeting of Stockholders and further described below.

We are providing access to our proxy materials over the internet. Accordingly, we have sent you the Notice because our Board is soliciting your proxy to vote at the Annual Meeting, including at any adjournments or postponements of the Annual Meeting. All stockholders will have the ability to access the proxy materials on the website referred to in the Notice or request to receive a printed set of the proxy materials. The proxy materials include the proxy statement, form of proxy, and our Annual Report to Stockholders for the fiscal year ended March 31, 2019, which contains financial statements for the fiscal year ended March 31, 2019.

You are invited to attend the Annual Meeting on Thursday, September 12, 2019 at 10:00 a.m. local time at NetScout Systems, Inc., 310 Littleton Road, Westford, Massachusetts 01886.

How does the Board recommend that I vote?

The Board recommends that you vote “FOR” the election of the three nominees to serve as Class II directors on our Board, each for a three-year term; “FOR” the approval of the 2019 Plan; “FOR” the ratification of the appointment of PricewaterhouseCoopers LLP as our independent registered public accounting firm for the fiscal year ending March 31, 2020, and “FOR” the approval, on an advisory basis, of the compensation of our named executive officers.

What if another matter is properly brought before the meeting?

The Board knows of no other matters that will be presented for consideration at the Annual Meeting. If any other matters are properly brought before the meeting, it is the intention of the persons named in the proxy to vote on those matters in accordance with their best judgment.

Will I receive any proxy materials by mail?

We may send you a proxy card, along with a second Notice by mail, before the Annual Meeting.

Who can vote?

Stockholders of record as of the close of business on the Record Date, may vote. As of the Record Date, 75,920,680 shares of our common stock were issued and outstanding. Holders of common stock are entitled to one vote per share on proposals presented at the Annual Meeting.

Can I vote my shares by filling out and returning the Notice?

No. The Notice identifies the items to be voted on at the Annual Meeting, but you cannot vote by marking the Notice and returning it. The Notice provides instructions on how to vote by telephone or through the internet, by requesting and returning a printed proxy card, or by submitting a ballot in person at the Annual Meeting.

What does it mean if I receive more than one Notice?

If you receive more than one Notice, your shares may be registered in more than one name or in different accounts. Please follow the voting instructions on each of the Notices to ensure that all of your shares are voted.

Who is paying for this proxy solicitation?

We will pay for the entire cost of soliciting proxies. In addition to these proxy materials, our directors, officers, and employees may also solicit proxies in person, by telephone, or by other means of communication. Directors, officers and employees will not be paid any additional compensation for soliciting proxies. We may also reimburse brokerage firms, banks, and other agents for the cost of forwarding proxy materials to beneficial owners.

What is the difference between holding shares as a stockholder of record and as a beneficial owner?

If your shares are registered directly in your name with our transfer agent, Computershare Inc., you are considered a “stockholder of record” of those shares.

If your shares are held in an account at a bank, broker, or other intermediary, you are not a stockholder of record but instead are a “beneficial owner” or a “street name owner” of shares. In this case, the intermediary would be considered the stockholder of record for purposes of voting at the Annual Meeting. As a beneficial owner, you have the right to direct your bank, broker, or other intermediary, which we collectively refer to as your “Broker,” to vote the shares held in your account.

How do I vote my shares?

You may either vote “FOR” all the nominees to the Board or you may “WITHHOLD” your vote for any nominee you specify. For each of the other matters to be voted on, you may vote “FOR” or “AGAINST” the proposal, or “ABSTAIN.”

The procedures for voting are as follows:

Stockholder of Record: Shares Registered in Your Name

If you are a stockholder of record, you may vote in person at the Annual Meeting or vote by proxy over the phone, through the internet, or using a proxy card that you may request or that we may elect to deliver at a later time. Whether or not you plan to attend the Annual Meeting, we urge you to vote by proxy to ensure your vote is counted. You may still attend the Annual Meeting and vote in person even if you have already voted by proxy.

- To vote in person, come to the annual meeting, and we will give you a ballot when you arrive.
- To vote using the proxy card, simply complete, sign, and date the proxy card that may be delivered and return it promptly in the envelope provided. If we receive your signed proxy card before the Annual Meeting, we will vote your shares as you direct.
- To vote over the telephone, dial toll free 1-800-652-8683 using a touch-tone phone and follow the recorded instructions. You will be asked to provide the company number and control number from the Notice. Your telephone vote must be received by 11:59 p.m., Eastern time on September 11, 2019 to be counted.
- To vote through the internet, go to www.envisionreports.com/NTCT to complete an electronic proxy card. You will be asked to provide the company number and control number from the Notice. Your internet vote must be received by 11:59 p.m., Eastern time on September 11, 2019 to be counted.

Beneficial Owner: Shares Registered in the Name of Broker

If you are a beneficial owner of shares registered in the name of your Broker, you should have received a Notice containing voting instructions from your Broker rather than from us. Simply follow the voting instructions in the Notice to ensure that your vote is counted. To vote in person at the Annual Meeting, you must obtain a valid proxy from your Broker.

Internet proxy voting allows you to vote your shares online, with procedures designed to ensure the authenticity and correctness of your proxy vote instructions. Please be aware that you bear costs associated with your internet access.

What happens if I do not vote?

Stockholder of Record: Shares Registered in Your Name

If you are a stockholder of record and do not vote by telephone, through the internet, by completing the proxy card that may be delivered to you or in person at the Annual Meeting, your shares will not be voted.

Beneficial Owner: Shares Registered in the Name of Broker

If you are a beneficial owner of shares held in street name and you do not instruct your Broker how to vote your shares, your Broker may still be able to vote your shares in its discretion. In this regard, under the rules of the New York Stock Exchange, or NYSE, Brokers that are subject to NYSE rules may use their discretion to vote your "uninstructed" shares with respect to matters considered to be "routine" under NYSE rules, but not with respect to "non-routine" matters. Proposals 1, 2 and 4 are considered to be "non-routine" under NYSE rules, meaning that your broker may not vote your shares on those proposals in the absence of your voting instructions. However, Proposal 3 is considered to be a "routine" matter under NYSE rules, meaning that if you do not return voting instructions to your broker by its deadline, your shares may be voted by your broker in its discretion on Proposal 3.

What if I return a proxy card or otherwise vote but do not make specific choices?

Our Board named Anil K. Singhal and Jean Bua as attorneys-in-fact in the proxies. If your proxy has been properly executed and returned in time to be counted at the Annual Meeting, the shares represented by your proxy will be voted in accordance with your voting instructions. If you have returned a signed proxy but have not indicated your vote, your proxy will be voted “FOR” the election of the three Class II directors nominated by our Board, each to serve for a three year term, “FOR” the approval of the 2019 Plan, “FOR” the ratification of the appointment of PricewaterhouseCoopers LLP as our independent registered public accounting firm for the fiscal year ending March 31, 2020, and “FOR” the approval, on an advisory basis, of the compensation of our Named Executive Officers. Our Board knows of no other matters to be presented at the Annual Meeting. For other matters that may properly come before the Annual Meeting, the attorneys-in-fact will use their judgment in voting your shares.

May I change or revoke my proxy?

You may revoke your proxy before it is voted at the Annual Meeting. If you are a stockholder of record, you may do so by (1) filing a written notice of revocation (dated after the original proxy) with the Secretary of NetScout before the vote at the Annual Meeting, (2) completing a later-dated proxy, including by internet or phone, and delivering it to the Secretary of NetScout before the vote at the Annual Meeting, or (3) attending the Annual Meeting and voting in person. Stockholders of record should deliver any written notice of revocation before the Annual Meeting, to NetScout Systems, Inc., 310 Littleton Road, Westford, MA 01886, Attention: Secretary. If you hold shares through a Broker, you must contact that Broker directly to revoke any prior voting instructions.

How are votes counted?

Votes will be counted by the inspector of election appointed for the meeting, who will separately count, with respect to the proposal to elect directors, votes “FOR” or “WITHHOLD” and broker non-votes; and, with respect to the other proposals, votes “FOR” or “AGAINST,” abstentions and, if applicable, broker non-votes.

What are “broker non-votes”?

As discussed above, when a beneficial owner of shares held in “street name” does not give instructions to the Broker or nominee holding the shares as to how to vote on matters deemed by the NYSE to be “non-routine,” the Broker or nominee cannot vote the shares. These unvoted shares are counted as “broker non-votes.”

What is the quorum requirement?

A quorum of stockholders is necessary to hold a valid meeting. A quorum will be present if a majority of the issued and outstanding shares of our common stock entitled to vote at the Annual Meeting are present at the meeting in person or represented by proxy. On the Record Date, there were 75,920,680 shares outstanding and entitled to vote.

Your shares will be counted toward the quorum only if you submit a valid proxy (or one is submitted on your behalf by your broker, bank, or other nominee) or if you vote in person at the meeting. Abstentions and broker non-votes will be counted towards the quorum requirement. If there is no quorum, the chairman of the meeting or the holders of a majority of the voting power of the shares of stock entitled to vote who are present, in person or by proxy, may adjourn the Annual Meeting to another place, date or time.

What vote is required to approve each proposal?

Proposal 1: Election of Directors: For the election of directors, the three nominees to serve as Class II directors receiving the most “FOR” votes from the holders of shares present in person or represented by proxy and entitled to vote on the election of directors (also known as a “plurality” of the votes cast) will be elected. Only votes “FOR” will affect the outcome. Withheld votes and broker non-votes will have no effect.

Proposal 2: Approval of the 2019 Plan: The affirmative vote of the holders of a majority of the shares present or represented by proxy and voting on this proposal is required to approve the 2019 Plan. Abstentions and broker non-votes will not be counted towards the vote total and will have no effect on the results of this vote.

Proposal 3: Ratification of Appointment of Independent Registered Public Accounting Firm: The affirmative vote of a majority of the shares present or represented by proxy and voting on this proposal is required to ratify the appointment of PricewaterhouseCoopers LLP as our independent registered public accounting firm for the fiscal year ending March 31, 2020. Abstentions and broker non-votes will not be counted towards the vote total and will have no effect on the results of this vote. However, this proposal is considered a routine matter, and therefore no broker non-votes are expected to exist in connection with this proposal. We are not required to obtain the approval of our stockholders to appoint PricewaterhouseCoopers LLP as our independent registered public accounting firm. However, if our stockholders do not ratify the appointment of PricewaterhouseCoopers LLP as our independent registered public accounting firm for our fiscal year ending March 31, 2020, the Audit Committee of our Board will consider the results of this vote when selecting auditors in the future.

Proposal 4: Advisory Vote on Executive Compensation: The affirmative vote of a majority of the shares present or represented and voting on this proposal is required to approve, on an advisory basis, the compensation of our Named Executive Officers. Abstentions and broker non-votes will not be counted towards the vote total and will have no effect on the results of this vote.

When are stockholder proposals and director nominations for next year’s annual meeting due?

To be considered for inclusion in next year’s proxy materials, your proposal must be submitted in writing to our principal executive offices at 310 Littleton Road, Westford, Massachusetts 01886, Attention: Secretary and must be received by us no later than March 26, 2020. We suggest that you submit your proposals by registered mail, return receipt requested. Proposals must satisfy the requirements set forth in Rule 14a-8 under the Securities Exchange Act of 1934, as amended, or the Exchange Act.

If you wish to submit a proposal for next year’s annual meeting that is not to be included in next year’s proxy materials or wish to nominate a director, you must submit such proposal or nomination in writing to our executive offices at 310 Littleton Road, Westford, Massachusetts 01886, Attention: Secretary, and such proposal or nomination must be received by us no earlier than the close of business of May 15, 2020 and no later than the close of business of June 14, 2020 and must satisfy the requirements described below under “Stockholder Recommendations for Nominees as Directors and the Proposal of Other Business.” If the date of next year’s Annual Meeting is advanced by more than 30 days before or delayed by more than 60 days after the anniversary of the 2019 Annual Meeting, any stockholder recommendation or proposal must be received by us no earlier than the close of business on the 90th day prior to such advanced or delayed annual meeting date and no later than the close of business on the later of (i) the 60th day prior to such advanced or delayed annual meeting date or (ii) the 10th day following the day on which the first public announcement of the meeting date is first made by us. You are also advised to review our by-laws, which contain additional requirements about advance notice of stockholder proposals and director nominations.

PROPOSAL 1
ELECTION OF DIRECTORS

The following table sets forth information regarding our continuing directors and the nominees standing for election at the Annual Meeting:

Nominee or Director's Name and Year First Became Director	Positions with NetScout	Year Term Will Expire	Class
Nominees:			
Anil K. Singhal (1984)	Chairman, President, and Chief Executive Officer	2022	II
John R. Egan (2000)	Director	2022	II
Robert E. Donahue (2013)	Director	2022	II
Continuing Directors:			
Joseph G. Hadzima, Jr. (1998)	Director	2020	III
Christopher Perretta (2014)	Director	2020	III
Susan L. Spradley (2018)	Director	2020	III
Alfred Grasso (2018)	Director	2021	I
Michael Szabados (2019)	Vice Chairman, Chief Operating Officer	2021	I
Vivian Vitale (2019)	Director	2021	I

The Nominees for Class II Director are Messrs. Singhal, Egan, and Donahue

Messrs. Singhal, Egan, and Donahue are Class II directors whose current terms of service expire at the Annual Meeting and who are nominees for re-election for terms that will expire upon the election and qualification of directors at the annual meeting to be held in 2022. Each was previously elected by the stockholders in September 2016.

Continuing Directors

The Board is also composed of three Class III directors, Messrs. Hadzima and Perretta and Ms. Spradley, whose terms expire at the annual meeting to be held in 2020, and three Class I directors, Messrs. Grasso and Szabados and Ms. Vitale, whose terms expire at the annual meeting to be held in 2021.

As of the Record Date, the size of the Board has been fixed at nine members. NetScout's by-laws and certificate of incorporation divide the Board into three classes. The members of each class of directors serve for staggered three-year terms.

Proposal and Recommendation

Our Board has nominated and recommended that Messrs. Singhal, Egan, and Donahue be re-elected as Class II directors, to hold office until the annual meeting to be held in the year 2022 or until their successors have been duly elected and qualified or until their earlier resignation or removal.

The Board knows of no reason any nominee would be unable or unwilling to serve, but if any nominee should be unable or unwilling to serve, the proxies will be voted for the election of such other person for the office of director as the Board may recommend in the place of such nominee. Unless otherwise instructed, the proxy holders will vote the proxies received by them for the nominees named above.

Vote Required

Directors are elected by a plurality of the votes cast by the stockholders entitled to vote at such election. Accordingly, the three nominees receiving the highest number of affirmative votes will be elected.

THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS A VOTE "FOR" EACH OF THE NOMINEES FOR DIRECTOR.

PROPOSAL 2
APPROVAL OF THE 2019 EQUITY INCENTIVE PLAN

Introduction

On July 9, 2019, our Board approved the 2019 Plan, subject to the approval of our stockholders. The 2019 Plan is intended to be the successor to the NetScout Systems, Inc. 2007 Equity Incentive Plan, or the 2007 Plan.

Our Board is requesting stockholder approval of the 2019 Plan. If the 2019 Plan is approved by our stockholders, no additional equity awards will be granted under the 2007 Plan.

Why We Are Asking Our Stockholders to Approve the 2019 Plan

We are market leaders in highly competitive technology markets. To continue to fortify and extend our leadership, we must continue to attract and retain talented employees at all levels of our Company. Like many other technology companies, equity awards are a critical component of our compensation philosophy and our annual compensation structure. Having the ability to grant equity awards is essential for us to be able to attract, motivate and retain a talented workforce.

We are seeking stockholder approval of the 2019 Plan to increase the number of shares available for the grant of restricted stock unit awards and other equity awards by 5,500,000 new shares, which will enable us to have a competitive equity incentive program to compete for key talent.

Approval of the 2019 Plan by our stockholders will allow us to continue to grant restricted stock unit awards and other equity awards at levels determined appropriate by our Board or Compensation Committee. The 2019 Plan will also allow us to further utilize a broad array of equity incentives in order to secure and retain the services of our employees, and to continue to provide long-term incentives that align the interests of our employees with the interests of our stockholders.

Requested Shares

If this Proposal 2 is approved by our stockholders, then subject to adjustment for certain changes in our capitalization, the aggregate number of shares of our common stock that may be issued under the 2019 Plan will not exceed the sum of (i) 5,500,000 new shares, (ii) the number of unallocated shares remaining available for grant under the 2007 Plan as of the effective date of the 2019 Plan, and (iii) certain shares subject to outstanding equity awards granted under the 2007 Plan that may become available for issuance under the 2019 Plan as such shares become available from time to time (as further described below in "Description of the 2019 Equity Incentive Plan – Shares Available for Awards").

Why You Should Vote for the 2019 Plan

We Manage Our Equity Award Use Carefully and Our Dilution and Burn Rate Are Reasonable

While we recognize that equity awards may have a dilutive impact on existing stockholders, we believe that we have demonstrated our ability to carefully manage the share reserve of the 2007 Plan. In particular, we believe that our current level of dilution and the pace at which we grant equity awards (referred to as the "burn rate") is reasonable and in line with those of our peer companies, as demonstrated in the tables below. We are committed to effectively monitoring our equity compensation share reserve, including our burn rate, to ensure that we maximize stockholders' value by granting the appropriate number of equity awards necessary to attract, reward, and retain employees.

The following tables provide certain information regarding our equity incentive program.

	As of March 31, 2019
Total number of shares of common stock subject to outstanding stock options	0
Total number of shares of common stock subject to outstanding full value awards	4,210,655
Total number of shares of common stock available for grant under the 2007 Plan(1)	3,811,505

(1) We do not maintain any other equity incentive plans.

	As of the Record Date
Total number of shares of common stock outstanding	75,920,680
Per-share closing price of common stock as reported on Nasdaq Global Select Market	$ 25.84

The following table shows our responsible historical dilution and burn rate percentages.

	Fiscal Year 2017	Fiscal Year 2018	Fiscal Year 2019
Full Dilution(1)	11.69%	10.38%	9.26%
Gross Burn Rate (as discussed in greater detail below)(2)	2.19%	2.24%	2.77%

(1) Full Dilution is calculated as (shares available for grant + shares subject to outstanding equity awards)/(weighted average common stock outstanding + shares available for grant + shares subject to outstanding equity awards).

(2) Gross Burn Rate is calculated as (shares subject to options granted + shares subject to other equity awards granted)/weighted average common stock outstanding.

The following table provides detailed information regarding the activity related to the 2007 Plan for our last three fiscal years. Our only equity incentive plan is the 2007 Plan.

	Fiscal Year 2017	Fiscal Year 2018	Fiscal Year 2019
Total number of shares of common stock subject to stock options granted	0	0	0
Total number of shares of common stock subject to full value awards granted	2,020,536	1,962,590	2,178,339
Weighted-average number of shares of common stock outstanding	92,226,000	87,425,000	78,617,000
Burn Rate	2.19%	2.24%	2.77%

The Size of Our Share Reserve Request Is Reasonable

If this Proposal 2 is approved by our stockholders, we will have 5,500,000 new shares available for grant after the Annual Meeting, and absent any unforeseen circumstances, we anticipate returning to stockholders for additional shares in 2020.

The 2019 Plan Combines Compensation and Corporate Governance Best Practices

The 2019 Plan includes provisions that are designed to protect our stockholders' interests and to reflect corporate governance best practices, including the following:

- ***Repricing is not allowed***. The 2019 Plan prohibits the repricing of outstanding stock options and stock appreciation rights and the cancellation of any outstanding stock options or stock appreciation rights that have an exercise or strike price greater than the then-current fair market value of our common stock in exchange for cash or other awards under the 2019 Plan without prior stockholder approval.

- ***Stockholder approval is required for additional shares***. The 2019 Plan does not contain an annual "evergreen" provision. The 2019 Plan authorizes a fixed number of shares, so that stockholder approval is required to issue any additional shares, thereby allowing our stockholders to have direct input on our equity compensation programs.

- ***Fungible share counting structure***. The 2019 Plan contains a "fungible share counting" structure, whereby the number of shares of our common stock available for issuance under the 2019 Plan will be reduced by: (i) one share for each share issued pursuant to a stock option or stock appreciation right with an exercise or strike price that is at least 100% of the fair market value of our common stock on the date of grant (an "Appreciation Award"); and (ii) 2.76 shares for each share issued pursuant to an equity award that is not an Appreciation Award (a "Full Value Award"). This structure helps to ensure that we are using the share reserve effectively and with regard to the value of each type of equity award.

- ***No liberal share counting of Appreciation Awards***. The following shares will not become available again for issuance under the 2019 Plan: (i) shares that are reacquired or withheld (or not issued) by us to satisfy the exercise or strike price of an Appreciation Award; (ii) shares that are reacquired or withheld (or not issued) by us to satisfy a tax withholding obligation in connection with an Appreciation Award; (iii) shares repurchased by us on the open market with the proceeds of the exercise or strike price of an Appreciation Award; and (iv) in the event that a stock appreciation right is settled in shares, the gross number of shares subject to such stock appreciation right.

- ***No discounted stock options or stock appreciation rights***. All stock options and stock appreciation rights granted under the 2019 Plan must have an exercise or strike price equal to or greater than the fair market value of our common stock on the date the stock option or stock appreciation right is granted.

- ***Limit on non-employee director compensation***. The aggregate value of all cash and equity-based compensation paid or granted by us to any individual for service as a non-employee director of our Board with respect to any fiscal year of the Company will not exceed $750,000, calculating the value of any equity awards based on the grant date fair value of such awards for financial reporting purposes.

- ***Restrictions on dividends***. The 2019 Plan provides that (i) no dividends or dividend equivalents may be paid with respect to any shares of our common stock subject to an equity award before the date such shares have vested, (ii) any dividends or dividend equivalents that are credited with respect to any such shares will be subject to all of the terms and conditions applicable to such shares under the terms of the applicable equity award agreement (including any vesting conditions), and (iii) any dividends or dividend equivalents that are credited with respect to any such shares will be forfeited to us on the date such shares are forfeited to or repurchased by us due to a failure to vest.

- ***Specific disclosure of equity award vesting upon a change in control***. The 2019 Plan specifically provides that in the event of a change in control of the Company, if the surviving or acquiring corporation (or its parent company) does not assume or continue outstanding equity awards under the 2019 Plan, or substitute similar equity awards for such outstanding equity awards, then with respect to any such equity awards that have not been assumed, continued or substituted and that are held by participants whose continuous service has not terminated prior to the change in control, the vesting of such equity awards will be accelerated in full (and with respect to any performance-based equity awards, vesting will be deemed to be satisfied at the greater of (i) the target level of performance or (ii) the actual level of performance measured in accordance with the applicable performance goals as of the date of the change in control).

- ***No liberal change in control definition***. The definition of a "change in control" in the 2019 Plan requires the consummation of an actual transaction in order for the change in control provisions in the 2019 Plan to be triggered.

Stockholder Approval

If this Proposal 2 is approved by our stockholders, the 2019 Plan will become effective as of the date of the Annual Meeting and no additional equity awards will be granted under the 2007 Plan. In the event that our stockholders do not approve this Proposal 2, the 2019 Plan will not become effective and the 2007 Plan will continue in its current form.

Description of the 2019 Plan

The material features of the 2019 Plan are described below. The following description of the 2019 Plan is a summary only and is qualified in its entirety by reference to the complete text of the 2019 Plan. Stockholders are urged to read the actual text of the 2019 Plan in its entirety, which is attached to this proxy statement as Appendix A.

Purpose

The 2019 Plan is designed to secure and retain the services of our employees, directors and consultants, and to provide incentives for such individuals to exert maximum efforts for the success of the Company and its affiliates, while providing a means by which such individuals may be given an opportunity to benefit from increases in the value of our common stock. We also believe that such long-term equity awards align the interests of employees with the interests of our stockholders.

Types of Awards

The 2019 Plan provides for the grant of incentive stock options, nonstatutory stock options, stock appreciation rights, restricted stock awards, restricted stock unit awards, and other stock awards.

Shares Available for Awards

Subject to adjustment for certain changes in our capitalization, the aggregate number of shares of our common stock that may be issued under the 2019 Plan will not exceed the sum of (i) 5,500,000 new shares, (ii) the number of unallocated shares remaining available for grant under the 2007 Plan as of the effective date of the 2019 Plan, and (iii) the 2007 Plan Returning Shares (as defined below), as such shares become available from time to time.

The term "2007 Plan Returning Shares" refers to the following shares of our common stock subject to any outstanding award granted under the 2007 Plan: (i) any shares subject to such award that are not issued because such award expires or otherwise terminates without all of the shares covered by such award having been issued; (ii) any shares subject to such award that are not issued because such award is settled in cash; (iii) any shares issued pursuant to such award that are forfeited back to or repurchased by us because of a failure to vest; and (iv) any shares that are reacquired or withheld (or not issued) by us to satisfy a tax withholding obligation in connection with any such award that is a Full Value Award.

The following shares of our common stock (collectively, the "2019 Plan Returning Shares") will also become available again for issuance under the 2019 Plan: (i) any shares subject to an award granted under the

2019 Plan that are not issued because such award expires or otherwise terminates without all of the shares covered by such award having been issued; (ii) any shares subject to an award granted under the 2019 Plan that are not issued because such award is settled in cash; (iii) any shares issued pursuant to an award granted under the 2019 Plan that are forfeited back to or repurchased by us because of a failure to vest; and (iv) any shares that are reacquired or withheld (or not issued) by us to satisfy a tax withholding obligation in connection with any such award granted under the 2019 Plan that is a Full Value Award.

The following shares of our common stock will not become available again for issuance under the 2019 Plan: (i) any shares that are reacquired or withheld (or not issued) by us to satisfy the exercise or strike price of an Appreciation Award granted under the 2019 Plan or the 2007 Plan (including any shares subject to such award that are not delivered because such award is exercised through a reduction of shares subject to such award); (ii) any shares that are reacquired or withheld (or not issued) by us to satisfy a tax withholding obligation in connection with an Appreciation Award granted under the 2019 Plan or the 2007 Plan; (iii) any shares repurchased by us on the open market with the proceeds of the exercise or strike price of an Appreciation Award granted under the 2019 Plan or the 2007 Plan; and (iv) in the event that a stock appreciation right granted under the 2019 Plan or the 2007 Plan is settled in shares, the gross number of shares subject to such award.

The number of shares of our common stock available for issuance under the 2019 Plan will be reduced by: (i) one share for each share issued pursuant to an Appreciation Award granted under the 2019 Plan; and (ii) 2.76 shares for each share issued pursuant to a Full Value Award granted under the 2019 Plan.

The number of shares of our common stock available for issuance under the 2019 Plan will be increased by: (i) one share for each 2007 Plan Returning Share or 2019 Plan Returning Share subject to an Appreciation Award; and (ii) 2.76 shares for each 2007 Plan Returning Share or 2019 Plan Returning Share subject to a Full Value Award.

Eligibility

All of our (including our affiliates') employees, non-employee directors and consultants are eligible to participate in the 2019 Plan and may receive all types of awards other than incentive stock options. Incentive stock options may be granted under the 2019 Plan only to our (including our affiliates') employees.

As of the Record Date, we (including our affiliates) had approximately 2,569 employees, seven non-employee directors and 239 consultants.

Non-Employee Director Compensation Limit

The aggregate value of all cash and equity-based compensation paid or granted by us to any individual for service as a non-employee director of our Board with respect to any fiscal year of the Company will not exceed $750,000, calculating the value of any equity awards based on the grant date fair value of such awards for financial reporting purposes.

Administration

The 2019 Plan will be administered by our Board, which may in turn delegate authority to administer the 2019 Plan to a committee. Our Board has delegated concurrent authority to administer the 2019 Plan to our Compensation Committee, but may, at any time, re-vest in itself some or all of the power delegated to our Compensation Committee. Our Board and Compensation Committee are each considered to be a Plan Administrator for purposes of this Proposal 2.

Subject to the terms of the 2019 Plan, the Plan Administrator may determine the recipients, the types of awards to be granted, the number of shares of our common stock subject to awards or the cash value of awards, and the terms and conditions of awards granted under the 2019 Plan, including the period of their exercisability and vesting. The Plan Administrator also has the authority to provide for accelerated exercisability and vesting of awards. Subject to the limitations set forth below, the Plan Administrator also determines the fair market value applicable to awards and the exercise or strike price of stock options and stock appreciation rights granted under the 2019 Plan.

The Plan Administrator may also delegate to one or more officers the authority to designate employees who are not officers (within the meaning of Section 16 of the Securities Exchange Act of 1934, as amended) to be recipients of certain awards and the number of shares of our common stock subject to such awards. Under any such delegation, the Plan Administrator will specify the total number of shares of our common stock that may be subject to the awards granted by such officer. The officer may not grant an award to himself or herself.

Repricing; Cancellation and Re-Grant of Awards

Under the 2019 Plan, the Plan Administrator does not have the authority to reprice any outstanding stock option or stock appreciation right by reducing the exercise or strike price of the stock option or stock appreciation right or to cancel any outstanding stock option or stock appreciation right that has an exercise or strike price greater than the then-current fair market value of our common stock in exchange for cash or other awards without obtaining the approval of our stockholders. Such approval must be obtained within 12 months prior to such an event.

Acceleration upon Death or Disability

Under the 2019 Plan, unless specifically provided otherwise in the applicable award agreement, if a participant's service relationship with us or any of our affiliates (referred to in this Proposal 2 as "continuous service") terminates as a result of the participant's death or disability, each of the participant's awards will become fully vested (and exercisable, if applicable) as of the date of such termination, to the extent that such awards are outstanding and unvested as of such date.

Dividends and Dividend Equivalents

The 2019 Plan provides that dividends or dividend equivalents may be paid or credited with respect to any shares of our common stock subject to an award, as determined by the Plan Administrator and contained in the applicable award agreement; *provided, however*, that (i) no dividends or dividend equivalents may be paid with respect to any such shares before the date such shares have vested, (ii) any dividends or dividend equivalents that are credited with respect to any such shares will be subject to all of the terms and conditions applicable to such shares under the terms of the applicable award agreement (including any vesting conditions), and (iii) any dividends or dividend equivalents that are credited with respect to any such shares will be forfeited to us on the date such shares are forfeited to or repurchased by us due to a failure to vest.

Stock Options

Stock options may be granted under the 2019 Plan pursuant to stock option agreements. The 2019 Plan permits the grant of stock options that are intended to qualify as incentive stock options ("ISOs") and nonstatutory stock options ("NSOs").

The exercise price of a stock option granted under the 2019 Plan may not be less than 100% of the fair market value of our common stock on the date of grant and, in some cases (see "Limitations on Incentive Stock Options" below), may not be less than 110% of such fair market value.

The term of stock options granted under the 2019 Plan may not exceed seven years from the date of grant and, in some cases (see "Limitations on Incentive Stock Options" below), may not exceed five years from the date of grant. Except as otherwise provided in a participant's stock option agreement or other written agreement with us or one of our affiliates, if a participant's continuous service terminates (other than for cause and other than upon the participant's death or disability), the participant may exercise any vested stock options for up to three months following the participant's termination of continuous service. Except as otherwise provided in a participant's stock option agreement or other written agreement with us or one of our affiliates, if a participant's continuous service terminates due to the participant's disability or death (or the participant dies within a specified period, if any, following termination of continuous service), the participant, or his or her beneficiary, as applicable, may exercise any vested stock options for up to 12 months following the participant's termination due to the participant's disability or for up to 18 months following the participant's death. Except as explicitly provided otherwise in a participant's stock option agreement or other written agreement with us or one of our affiliates, if a participant's continuous service is terminated for cause (as defined in the 2019 Plan), all stock options held by the participant will terminate upon the participant's termination of continuous service and the participant will be prohibited from exercising any stock option from and after such termination date. Except as otherwise provided in a participant's stock option agreement or other written agreement with us or one of our affiliates, the term of a stock option may be extended if the exercise of the stock option following the participant's termination of continuous service (other than for cause and other than upon the participant's death or disability) would be prohibited by applicable securities laws or if the sale of any common stock received upon exercise of the stock option following the participant's termination of continuous service (other than for cause) would violate our insider trading policy. In no event, however, may a stock option be exercised after its original expiration date.

Acceptable forms of consideration for the purchase of our common stock pursuant to the exercise of a stock option under the 2019 Plan will be determined by the Plan Administrator and may include payment: (i) by cash, check, bank draft or money order payable to us; (ii) pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board; (iii) by delivery to us of shares of our common stock (either by actual delivery or attestation); (iv) by a net exercise arrangement (for NSOs only); or (v) in other legal consideration approved by the Plan Administrator.

Stock options granted under the 2019 Plan may vest and become exercisable in cumulative increments, as determined by the Plan Administrator at the rate specified in the stock option agreement (subject to the vesting acceleration provision described in "Acceleration upon Death or Disability" above). Shares covered by different stock options granted under the 2019 Plan may be subject to different vesting schedules as the Plan Administrator may determine.

The Plan Administrator may impose limitations on the transferability of stock options granted under the 2019 Plan in its discretion. Generally, a participant may not transfer a stock option granted under the 2019 Plan other than by will or the laws of descent and distribution or, subject to approval by the Plan Administrator, pursuant to a domestic relations order or an official marital settlement agreement. However, the Plan Administrator may permit transfer of a stock option in a manner that is not prohibited by applicable tax and securities laws. In addition, subject to approval by the Plan Administrator, a participant may designate a beneficiary who may exercise the stock option following the participant's death. Notwithstanding the foregoing, no stock option may be transferred to any financial institution without prior stockholder approval.

Limitations on Incentive Stock Options

The aggregate fair market value, determined at the time of grant, of shares of our common stock with respect to ISOs that are exercisable for the first time by a participant during any calendar year under all of our stock plans may not exceed $100,000. The stock options or portions of stock options that exceed this limit or otherwise fail to qualify as ISOs are treated as NSOs. No ISO may be granted to any person who, at the time of grant, owns or is deemed to own stock possessing more than 10% of our total combined voting power or that of any affiliate unless the following conditions are satisfied:

- the exercise price of the ISO must be at least 110% of the fair market value of our common stock on the date of grant; and
- the term of the ISO must not exceed five years from the date of grant.

Subject to adjustment for certain changes in our capitalization, the aggregate maximum number of shares of our common stock that may be issued pursuant to the exercise of ISOs under the 2019 Plan is 11,000,000 shares.

Stock Appreciation Rights

Stock appreciation rights may be granted under the 2019 Plan pursuant to stock appreciation right agreements. Each stock appreciation right is denominated in common stock share equivalents. The strike price of each stock appreciation right will be determined by the Plan Administrator, but will in no event be less than 100% of the fair market value of our common stock on the date of grant. The term of stock appreciation rights granted under the 2019 Plan may not exceed seven years from the date of grant. The Plan Administrator may also impose restrictions or conditions upon the vesting of stock appreciation rights that it deems appropriate (subject to the vesting acceleration provision described in "Acceleration upon Death or Disability" above). The appreciation distribution payable upon exercise of a stock appreciation right may be paid in shares of our common stock, in cash, in a combination of cash and stock, or in any other form of consideration determined by the Plan Administrator and set forth in the stock appreciation right agreement. Stock appreciation rights will be subject to the same conditions upon termination of continuous service and restrictions on transfer as stock options under the 2019 Plan.

Restricted Stock Awards

Restricted stock awards may be granted under the 2019 Plan pursuant to restricted stock award agreements. A restricted stock award may be granted in consideration for cash, check, bank draft or money order payable to us, the participant's services performed for us or any of our affiliates, or any other form of legal consideration acceptable to the Plan Administrator. Shares of our common stock acquired under a restricted stock award may be subject to forfeiture to or repurchase by us in accordance with a vesting schedule to be determined by the Plan Administrator (subject to the vesting acceleration provision described in "Acceleration upon Death or Disability" above). Rights to acquire shares of our common stock under a restricted stock award may be transferred only upon such terms and conditions as are set forth in the restricted stock award agreement; *provided, however*, that no restricted stock award may be transferred to any financial institution without prior stockholder approval. Upon a participant's termination of continuous service for any reason, any shares subject to restricted stock awards held by the participant that have not vested as of such termination date may be forfeited to or repurchased by us.

Restricted Stock Unit Awards

Restricted stock unit awards may be granted under the 2019 Plan pursuant to restricted stock unit award agreements. Payment of any purchase price may be made in any form of legal consideration acceptable to the Plan Administrator. A restricted stock unit award may be settled by the delivery of shares of our common stock, in cash, in a combination of cash and stock, or in any other form of consideration determined by the Plan Administrator and set forth in the restricted stock unit award agreement. Restricted stock unit awards may be subject to vesting in accordance with a vesting schedule to be determined by the Plan Administrator (subject to the vesting acceleration provision described in "Acceleration upon Death or Disability" above). Except as otherwise provided in a participant's restricted stock unit award agreement or other written agreement with us or one of our affiliates, restricted stock units that have not vested will be forfeited upon the participant's termination of continuous service for any reason.

Other Stock Awards

Other forms of stock awards valued in whole or in part by reference to, or otherwise based on, our common stock may be granted either alone or in addition to other stock awards under the 2019 Plan. Subject to the terms of the 2019 Plan (including the vesting acceleration provision described in "Acceleration upon Death or Disability" above), the Plan Administrator will have sole and complete authority to determine the persons to whom and the time or times at which such other stock awards will be granted, the number of shares of our common stock to be granted and all other terms and conditions of such other stock awards.

Clawback/Recoupment

Awards granted under the 2019 Plan will be subject to recoupment in accordance with any clawback policy that we are required to adopt pursuant to the listing standards of any national securities exchange or association on which our securities are listed or as is otherwise required by the Dodd-Frank Wall Street Reform and Consumer Protection Act or other applicable law. In addition, the Plan Administrator may impose other clawback, recovery or recoupment provisions in a participant's award agreement or other written agreement with us or one of our affiliates, including a reacquisition right in respect of previously acquired shares or other cash or property upon the occurrence of cause.

Changes to Capital Structure

In the event of certain capitalization adjustments, the Plan Administrator will appropriately adjust: (i) the class(es) and maximum number of securities subject to the 2019 Plan; (ii) the class(es) and maximum number of securities that may be issued pursuant to the exercise of ISOs; and (iii) the class(es) and number of securities and price per share of stock subject to outstanding stock awards.

Change in Control

The following provisions will apply to outstanding awards under the 2019 Plan in the event of a change in control (as defined in the 2019 Plan and described below) unless otherwise provided in the instrument evidencing the award, in any other written agreement between us or one of our affiliates and the participant, or in our director compensation policy.

In the event of a change in control, any surviving or acquiring corporation (or its parent company) may assume or continue any or all outstanding awards under the 2019 Plan, or may substitute similar stock awards for such outstanding awards (including, but not limited to, awards to acquire the same consideration paid to the stockholders of the Company pursuant to the change in control), and any reacquisition or repurchase rights held by the Company in respect of shares issued pursuant to any outstanding awards under the 2019 Plan may be assigned by the Company to the surviving or acquiring corporation (or its parent company). The terms of any such assumption, continuation or substitution will be set by the Plan Administrator.

In the event of a change in control in which the surviving or acquiring corporation (or its parent company) does not assume or continue outstanding awards under the 2019 Plan, or substitute similar stock awards for such outstanding awards, then with respect to any such awards that have not been assumed, continued or substituted and that are held by participants whose continuous service has not terminated prior to the effective time of the change in control (the "Current Participants"), the vesting (and exercisability, if applicable) of such awards will be accelerated in full (and with respect to any such awards that are subject to performance-based vesting conditions or requirements, vesting will be deemed to be satisfied at the greater of (i) the target level of performance or (ii) the actual level of performance measured in accordance with the applicable performance goals as of the date of the change in control) to a date prior to the effective time of the change in control (contingent upon the closing or completion of the change in control) as the Plan Administrator will determine (or, if the Plan Administrator does not determine such a date, to the date that is five days prior to the effective time of the change in control), and such awards will terminate if not exercised (if applicable) prior to the effective time of the change in control in accordance with the exercise procedures determined by the Plan Administrator, and any reacquisition or repurchase rights held by the Company with respect to such awards will lapse (contingent upon the closing or completion of the change in control).

In the event of a change in control in which the surviving or acquiring corporation (or its parent company) does not assume or continue outstanding awards under the 2019 Plan, or substitute similar stock awards for such outstanding awards, then with respect to any such awards that have not been assumed, continued or substituted and that are held by participants other than the Current Participants, such awards will terminate if not exercised (if applicable) prior to the effective time of the change in control in accordance with the exercise procedures determined by the Plan Administrator; *provided, however*, that any reacquisition or repurchase rights held by the Company with respect to such awards will not terminate and may continue to be exercised notwithstanding the change in control.

Notwithstanding the foregoing, in the event any outstanding award under the 2019 Plan held by a participant will terminate if not exercised prior to the effective time of a change in control, the Plan Administrator may provide that the participant may not exercise such award but instead will receive a payment, in such form as may be determined by the Plan Administrator, equal in value to the excess, if any, of (i) the value of the property the participant would have received upon the exercise of such award immediately prior to the effective time of the change in control, over (ii) any exercise price payable by the participant in connection with such exercise.

Unless provided otherwise in the participant's award agreement, in any other written agreement or plan with us or one of our affiliates, or in our director compensation policy, outstanding awards under the 2019 Plan will not be subject to additional acceleration of vesting and exercisability upon or after a change in control.

For purposes of the 2019 Plan, a "change in control" generally means the consummation of any of the following events: (i) any merger or consolidation after which the voting securities of the Company outstanding immediately prior thereto represent (either by remaining outstanding or by being converted into voting securities of the surviving or acquiring entity) less than 50% of the combined voting power of the voting securities of the Company or such surviving or acquiring entity outstanding immediately after such event; (ii) any sale of all or substantially all of the assets or capital stock of the Company (other than in a spin-off or similar transaction); or (iii) any other acquisition of the business of the Company, as determined by the Plan Administrator; *provided, however*, that no change in control (or any analogous term) will be deemed to occur upon an announcement or commencement of a tender offer or upon a "potential" takeover or upon stockholder approval of a merger or other transaction, in each case without a requirement that the change in control actually occur.

Plan Amendments and Termination

The Plan Administrator has the authority to amend or terminate the 2019 Plan at any time. However, except as otherwise provided in the 2019 Plan or an award agreement, no amendment or termination of the 2019 Plan may materially impair a participant's rights under his or her outstanding awards without the participant's consent.

We will obtain stockholder approval of any amendment to the 2019 Plan as required by applicable law and listing requirements. No incentive stock options may be granted under the 2019 Plan after July 9, 2029, which is the tenth anniversary of the date the 2019 Plan was originally adopted by our Board.

U.S. Federal Income Tax Consequences

The following is a summary of the principal United States federal income tax consequences to participants and us with respect to participation in the 2019 Plan. This summary is not intended to be exhaustive and does not discuss the income tax laws of any local, state or foreign jurisdiction in which a participant may reside. The information is based upon current federal income tax rules and therefore is subject to change when those rules change. Because the tax consequences to any participant may depend on his or her particular situation, each participant should consult the participant's tax adviser regarding the federal, state, local and other tax consequences of the grant or exercise of an award or the disposition of stock acquired under the 2019 Plan. The 2019 Plan is not qualified under the provisions of Section 401(a) of the Internal Revenue Code of 1986, as amended, or the Code, and is not subject to any of the provisions of the Employee Retirement Income Security Act of 1974. Our ability to realize the benefit of any tax deductions described below depends on our generation of taxable income as well as the requirement of reasonableness, the provisions of Section 162(m) of the Code and the satisfaction of our tax reporting obligations.

Nonstatutory Stock Options

Generally, there is no taxation upon the grant of an NSO if the stock option is granted with an exercise price equal to the fair market value of the underlying stock on the grant date. Upon exercise, a participant will recognize ordinary income equal to the excess, if any, of the fair market value of the underlying stock on the date of exercise of the stock option over the exercise price. If the participant is employed by us or one of our affiliates, that income will be subject to withholding taxes. The participant's tax basis in those shares will be equal to their fair market value on the date of exercise of the stock option, and the participant's capital gain holding period for those shares will begin on that date.

We will generally be entitled to a tax deduction equal to the taxable ordinary income realized by the participant.

Incentive Stock Options

The 2019 Plan provides for the grant of stock options that are intended to qualify as "incentive stock options," as defined in Section 422 of the Code. Under the Code, a participant generally is not subject to ordinary income tax upon the grant or exercise of an ISO. If the participant holds a share received upon exercise of an ISO for more than two years from the date the stock option was granted and more than one year from the date the stock option was exercised, which is referred to as the required holding period, the difference, if any, between the amount realized on a sale or other taxable disposition of that share and the participant's tax basis in that share will be long-term capital gain or loss.

If, however, a participant disposes of a share acquired upon exercise of an ISO before the end of the required holding period, which is referred to as a disqualifying disposition, the participant generally will recognize ordinary income in the year of the disqualifying disposition equal to the excess, if any, of the fair market value of the share on the date of exercise of the stock option over the exercise price. However, if the sales proceeds are less than the fair market value of the share on the date of exercise of the stock option, the amount of ordinary income recognized by the participant will not exceed the gain, if any, realized on the sale. If the amount realized on a disqualifying disposition exceeds the fair market value of the share on the date of exercise of the stock option, that excess will be short-term or long-term capital gain, depending on whether the holding period for the share exceeds one year.

For purposes of the alternative minimum tax, the amount by which the fair market value of a share of stock acquired upon exercise of an ISO exceeds the exercise price of the stock option generally will be an adjustment included in the participant's alternative minimum taxable income for the year in which the stock option is exercised. If, however, there is a disqualifying disposition of the share in the year in which the stock option is exercised, there will be no adjustment for alternative minimum tax purposes with respect to that share. In computing alternative minimum taxable income, the tax basis of a share acquired upon exercise of an ISO is increased by the amount of the adjustment taken into account with respect to that share for alternative minimum tax purposes in the year the stock option is exercised.

We are not allowed a tax deduction with respect to the grant or exercise of an ISO or the disposition of a share acquired upon exercise of an ISO after the required holding period. If there is a disqualifying disposition of a share, however, we will generally be entitled to a tax deduction equal to the taxable ordinary income realized by the participant, provided that either the employee includes that amount in income or we timely satisfy our reporting requirements with respect to that amount.

Stock Appreciation Rights

Generally, if a stock appreciation right is granted with an exercise price equal to the fair market value of the underlying stock on the grant date, the recipient will recognize ordinary income equal to the fair market value of the stock or cash received upon such exercise.

We will generally be entitled to a tax deduction equal to the taxable ordinary income realized by the recipient of the stock appreciation right.

Restricted Stock Awards

Generally, the recipient of a restricted stock award will recognize ordinary income at the time the stock is received equal to the excess, if any, of the fair market value of the stock received over any amount paid by the recipient in exchange for the stock. If, however, the stock is not vested when it is received (for example, if the employee is required to work for a period of time in order to have the right to sell the stock), the recipient generally will not recognize income until the stock becomes vested, at which time the recipient will recognize ordinary income equal to the excess, if any, of the fair market value of the stock on the date it becomes vested over any amount paid by the recipient in exchange for the stock. A recipient may, however, file an election with the Internal Revenue Service, within 30 days following his or her receipt of the stock award, to recognize ordinary income, as of the date the recipient receives the award, equal to the excess, if any, of the fair market value of the stock on the date the award is granted over any amount paid by the recipient for the stock.

The recipient's basis for the determination of gain or loss upon the subsequent disposition of shares acquired from a restricted stock award will be the amount paid for such shares plus any ordinary income recognized either when the stock is received or when the stock becomes vested.

We will generally be entitled to a tax deduction equal to the taxable ordinary income realized by the recipient of the restricted stock award.

Restricted Stock Unit Awards

Generally, the recipient of a restricted stock unit award structured to comply with the requirements of Section 409A of the Code or an exemption to Section 409A of the Code will recognize ordinary income at the time the stock is delivered equal to the excess, if any, of the fair market value of the stock received over any amount paid by the recipient in exchange for the stock. To comply with the requirements of Section 409A of the Code, the stock subject to a restricted stock unit award may generally only be delivered upon one of the following events: a fixed calendar date (or dates), separation from service, death, disability or a change in control. If delivery occurs on another date, unless the restricted stock unit award otherwise complies with or qualifies for an exemption to the requirements of Section 409A of the Code, in addition to the tax treatment described above, the recipient will owe an additional 20% federal tax and interest on any taxes owed.

The recipient's basis for the determination of gain or loss upon the subsequent disposition of shares acquired from a restricted stock unit award will be the amount paid for such shares plus any ordinary income recognized when the stock is delivered.

We will generally be entitled to a tax deduction equal to the taxable ordinary income realized by the recipient of the restricted stock unit award.

Section 162(m) Limitations

Under Section 162(m) of the Code ("Section 162(m)"), compensation paid to any publicly held corporation's "covered employees" that exceeds $1 million per taxable year for any covered employee is generally non-deductible. Awards granted under the 2019 Plan will be subject to the deduction limit under Section 162(m) and will not be eligible to qualify for the performance-based compensation exception under Section 162(m) pursuant to the transition relief provided by the Tax Cuts and Jobs Act. For further information regarding the deduction limit under Section 162(m) and such transition relief, see the section entitled "Compensation Discussion and Analysis – Regulatory Requirements – Tax Deductibility of Executive Compensation."

New Plan Benefits

The following table is provided in accordance with SEC rules regarding compensation plans subject to stockholder approval and sets forth certain information regarding benefits or amounts that will be received by or allocated to certain individuals under the 2019 Plan.

2019 Plan

Name and Position	Number of Shares
Anil K. Singhal Chairman, Chief Executive Officer and President	(1)
Michael Szabados Vice Chairman, Chief Operating Officer	(1)
Jean Bua Executive Vice President, Chief Financial Officer and Treasurer	(1)
John W. Downing Executive Vice President, Worldwide Sales Operations	(1)
All current executive officers as a group	(1)
All current directors who are not executive officers as a group	49,000 per fiscal year (2)
All employees, including all current officers who are not executive officers, as a group	(1)

(1) Awards granted under the 2019 Plan to our executive officers and other employees are discretionary and are not subject to set benefits or amounts under the terms of the 2019 Plan, and our Board and Compensation Committee have not granted any awards under the 2019 Plan subject to stockholder approval of this Proposal 2. Accordingly, the benefits or amounts that will be received by or allocated to our executive officers and other employees under the 2019 Plan are not determinable.

(2) Awards granted under the 2019 Plan to our non-employee directors are discretionary and are not subject to set benefits or amounts under the terms of the 2019 Plan. However, pursuant to our current compensation arrangements for non-employee directors, each of our current non-employee directors is eligible to receive an annual restricted stock unit award for 7,000 shares. After the Annual Meeting, any such awards will be granted under the 2019 Plan if this Proposal 2 is approved by our stockholders. For additional information regarding our current compensation arrangements for non-employee directors, please see the information following the Director Compensation Table for Fiscal Year 2019 in "Compensation and Other Information Concerning Directors and Executive Officers" below.

Vote Required

The affirmative vote of the holders of a majority of the shares present or represented and voting on this proposal is required to approve the 2019 Plan.

THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS A VOTE "FOR" THE APPROVAL OF THE 2019 PLAN.

PROPOSAL 3
RATIFICATION OF APPOINTMENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

The Audit Committee of the Board has appointed PricewaterhouseCoopers LLP to serve as our independent registered public accounting firm for the fiscal year ending March 31, 2020. PricewaterhouseCoopers LLP has served as our auditors since 1993. We expect that a member of PricewaterhouseCoopers LLP will attend the Annual Meeting, will have an opportunity to make a statement if so desired, and will be available to respond to appropriate questions from our stockholders. We are incorporated in Delaware, and Delaware law does not require the ratification of the Audit Committee's appointment, but the Audit Committee will consider the results of this vote when selecting auditors in the future.

Vote Required

The affirmative vote of the holders of a majority of the shares present or represented and voting on this proposal is required to approve the ratification of the appointment of PricewaterhouseCoopers LLP as our independent registered public accounting firm for the fiscal year ending March 31, 2020.

THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS A VOTE "FOR" THE RATIFICATION OF THE APPOINTMENT OF PRICEWATERHOUSECOOPERS LLP AS OUR INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM.

PROPOSAL 4
ADVISORY VOTE ON EXECUTIVE COMPENSATION

We encourage stockholders to review the Compensation Discussion and Analysis, or "CD&A," included below. The CD&A provides additional details of our executive compensation program, including our compensation philosophy and objectives, the individual elements of our executive compensation program, and details on the administration of our executive compensation program. In addition, we have included the amounts of compensation of our Named Executive Officers for fiscal years 2017, 2018, and 2019 in the compensation tables below and in the related disclosures contained in this Proxy Statement.

At our 2017 Annual Meeting of Stockholders, our stockholders indicated their preference that the Company solicit a non-binding advisory vote on the compensation of our Named Executive Officers, commonly referred to as a "say-on-pay" vote, every year. The Board adopted a policy to hold annual "say-on-pay" votes that is consistent with that preference. Therefore, we are asking stockholders to approve, on an advisory basis, the compensation of our Named Executive Officers as disclosed in this proxy statement in accordance with SEC rules. This vote is not intended to address any specific item of compensation but rather the overall compensation of our Named Executive Officers and the philosophy, policies, and practices described in this proxy statement. At the 2018 Annual Meeting of Stockholders, or the 2018 Annual Meeting, our stockholders approved our say-on-pay proposal with 95% of the total votes cast voting in favor.

The Compensation Committee carefully considers the results of the advisory vote on our say-on-pay proposal in the context of its annual review of executive compensation and the on-going work of the Compensation Committee. Additionally, the Compensation Committee engages the services of an independent compensation consultant to review and make recommendations regarding various aspects of our compensation program.

The goal of our executive officer compensation program is to retain and reward highly qualified, talented leaders who create long-term stockholder value. In addition, our program is designed to align management's interests with those of our stockholders and to motivate senior executives to increase our long-term growth and profitability. Our compensation philosophy has not significantly changed in recent years.

As described more fully in the CD&A, we continue to emphasize pay-for-performance. For example, as in the past, for the fiscal year ending March 31, 2020, or fiscal year 2020, our Named Executive Officers will not be eligible for their targeted annual incentive cash bonus until after a threshold profitability (non-GAAP EPS) target is met. Further, the Compensation Committee, with respect to the Named Executive Officers other than the CEO, and the Board, with respect to the CEO, determined that one-third of the shares subject to the RSUs granted to our Named Executive Officers will be granted on the basis of achievement of corporate and individual performance goals in the prior fiscal year. Other points that underscore the continued alignment between stockholders' interests and executive officer performance include, among other items:

- No guaranteed annual incentive cash bonus;
- Limits, or caps, on annual incentive cash bonus;
- No tax gross-ups;
- Prohibition of hedging and pledging of company stock for our directors, executive officers, and employees;
- Significant proportion of total compensation in the form of long-term equity awards; and
- Meaningful minimum stock holding requirements.

Accordingly, the Board is asking our stockholders to indicate their support for the compensation of our Named Executive Officers as described in this proxy statement by casting a non-binding advisory vote "FOR" the following resolution:

RESOLVED, that the Company's stockholders approve, on an advisory basis, the compensation of the named executive officers as disclosed in the Company's Proxy Statement for the 2019 Annual Meeting of Stockholders pursuant to the compensation disclosure rules of the Securities and Exchange Commission.

This "say-on-pay" vote is advisory and, therefore, not binding on us, our Compensation Committee, or our Board. Our Board and compensation committee value the opinions of our stockholders and, to the extent there is any significant vote against the Named Executive Officer compensation as disclosed in this Proxy Statement, we will consider our stockholders' concerns and our Compensation Committee will evaluate whether any actions are necessary to address those concerns.

Vote Required

The affirmative vote of the holders of a majority of the shares present or represented and voting on this proposal is required to approve, on an advisory basis, the compensation of our Named Executive Officers as disclosed in this proxy statement.

THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS A VOTE "FOR" THE ADVISORY APPROVAL OF THE COMPENSATION OF OUR NAMED EXECUTIVE OFFICERS.

DIRECTORS AND EXECUTIVE OFFICERS

Name	Age	Positions
Anil K. Singhal	65	Chairman, President, Chief Executive Officer, and Director
Michael Szabados	67	Vice Chairman, Chief Operating Officer, and Director
John W. Downing	61	Executive Vice President, Worldwide Sales
Jean Bua	61	Executive Vice President, Chief Financial Officer, Chief Accounting Officer, and Treasurer
Robert E. Donahue	71	Director
John R. Egan	61	Director
Alfred Grasso	60	Director
Joseph G. Hadzima, Jr.	67	Director
Christopher Perretta	61	Director
Susan L. Spradley	58	Director
Vivian Vitale	66	Director

Executive Officers

Anil Singhal co-founded the Company in June 1984 and has served as NetScout's Chief Executive Officer and as a director on NetScout's Board since inception. In January 2007, Mr. Singhal was appointed Chairman of the Board, and has been serving as NetScout's President, CEO, and Chairman since that time. In his current role, Mr. Singhal is focused on providing strategic leadership and vision, as well as setting operational priorities for NetScout's management team. Mr. Singhal's vision of "traffic-based instrumentation" has guided NetScout's product direction and focus for the past three decades, helping to shape the evolution for the industry in the process. Under Mr. Singhal's leadership, NetScout has grown substantially during the past three decades, completing its initial public offering in 1999, and acquiring the Danaher Communications Business in 2015 for $2.3 billion, which nearly tripled the size of the Company in terms of revenue, free cash flow, and employees. He is credited with numerous innovations in the field of network traffic monitoring and analysis that have helped NetScout earn numerous industry accolades. During the past decade, Mr. Singhal has also been an instrumental part of a number of strategic acquisitions that have fortified and enhanced NetScout's technology, customer base, and go-to-market capabilities. Mr. Singhal has earned notable recognition for his entrepreneurial success, including the TiE (The Indus Entrepreneur) Boston Lifetime Achievement in 2013, Enterprise Bank's 2013 George L. Duncan Award of Excellence and Ernst & Young's New England Entrepreneur of the Year in 1997. Mr. Singhal holds a BSEE from BITS, Pilani, India and an MS in Computer Science from the University of Illinois, Urbana-Champaign. The Company's Nominating and Corporate Governance Committee believes that Mr. Singhal's experience serving as the Company's Chief Executive Officer since the Company's founding, combined with his business expertise, industry-specific knowledge, and technical know-how, qualify him to serve as a director of the Company.

Michael Szabados has served as NetScout's Chief Operating Officer since April 2007 and as Vice Chairman of NetScout's Board since he was appointed as a director in February 2019. As Chief Operating Officer, Mr. Szabados is focused on executing NetScout's vision and strategy. During his tenure, he has been critical in helping lead NetScout's key functional areas as NetScout nearly tripled in size. During his tenure, NetScout successfully completed and integrated six acquisitions before the 2015 $2.3 billion acquisition of the Danaher Communications Business. His career at NetScout began in 1997 when he joined the Company as Vice President, Marketing, charged with increasing the Company's overall visibility and market awareness. His responsibilities expanded in 2001 to encompass product development, manufacturing and customer support when he was promoted to Senior Vice President, Product Operations. A veteran of the enterprise networking industry, Mr. Szabados held senior leadership roles with companies including UB Networks, SynOptics/Bay Networks and MIPS Corporation following engineering and product management roles at Intel Corporation and later at Apple. Mr. Szabados holds a BSEE from UC Irvine and an MBA from UC Santa Clara. The Nominating and Corporate Governance Committee believes that Mr. Szabados' experience serving as the Company's Chief Operating Officer and in other functional roles, along with his business experience and industry and technical experience, qualify him to serve as a director of the Company.

Jean Bua has served as NetScout's Executive Vice President, Chief Financial Officer, Chief Accounting, Officer and Treasurer since September 2015 and served as NetScout's Senior Vice President, Chief Financial Officer, Chief Accounting Officer, and Treasurer from November 2011 until September 2015. She joined the Company in September 2010 as Vice President, Finance. In her current role, Ms. Bua is responsible for accounting, tax, treasury, investor relations, financial planning and analysis, real estate development, and compliance. Ms. Bua has played a key role in executing on the financial aspects of NetScout's strategy. During her tenure, NetScout successfully completed and integrated five acquisitions before the $2.3 billion acquisition of the Danaher Communications Business in 2015. In May 2017, Ms. Bua joined the board of CoreSite Realty Corporation, a publicly-traded provider of data center and interconnection solutions across the U.S. In November 2018, Ms. Bua also joined the board of AstroNova, Inc., a publicly-traded provider of data visualization technology. Before joining NetScout, Ms. Bua served as Executive Vice President, Finance & Treasurer of American Tower Corporation, where she was a critical contributor to multiple equity and debt financings and numerous acquisitions that helped the company to more than double in revenue and become a leading provider of infrastructure for the wireless telecommunications industry. Prior to American Tower, Ms. Bua spent nine years at Iron Mountain, Inc., in various capacities including as Senior Vice President, Chief Accounting Officer, and Worldwide Controller. During her tenure, Iron Mountain successfully consolidated the records management industry, growing from annual revenue of $100 million to over $2 billion through more than 100 acquisitions. Previously, she held senior positions at Duracraft Corp. and Keithley Instruments. She was a management consultant at Ernst & Young and an auditor at KPMG. Ms. Bua earned her Bachelor of Science in Business Administration, summa cum laude, from Bryant College and her Masters of Business Administration from the University of Rhode Island.

John W. Downing has served as NetScout's Executive Vice President, Worldwide Sales Operations since September 2015, and served as Senior Vice President, Worldwide Sales Operations from 2007 until September 2015. In this role, Mr. Downing is responsible for directing NetScout's sales leadership in both the service provider and enterprise markets. Under Mr. Downing's direction, NetScout has built long-term relationships with leading telecommunications service providers, government agencies and many of the world's largest corporations. He joined NetScout in 2000 as Vice President, Sales Operations, instituting and refining key go-to-market programs and sales processes that have underpinned the Company's revenue growth during the past 19 years. Prior to NetScout, from April 1998 until September 2000, Mr. Downing served as Vice President of Sales at Genrad Corporation, a $300 million manufacturer of electronic testing equipment and production solutions, and was Vice President of North American Sales from January 1996 until March 1998. Mr. Downing earned a Bachelor of Science in Engineering (BSE) in Computer Science and Applied Mathematics from Tufts University and a Master's in Business Administration from Suffolk University.

Non-Employee Directors

Robert E. Donahue has been a NetScout director since March 2013. He served on the board of directors of Sycamore Networks, Inc., an intelligent optical networking and multiservice access provider, from July 2007 until October 2014. Mr. Donahue served on the board of directors of Cybersource Corporation, a leading provider of electronic payment and risk management solutions, from November 2007 to August 2010. From August 2004 to November 2007, Mr. Donahue served as the President and Chief Executive Officer of Authorize.Net Holdings, Inc. (formerly Lightbridge Inc.), a leading transaction processing company, before it was acquired by Cybersource Corporation in November 2007. Mr. Donahue also served as a member of Authorize.Net's board of directors from January 2004 until November 2007. The Company's Nominating and Corporate Governance Committee believes that Mr. Donahue's industry knowledge and his service on other public company boards provide deep experience to the Company and qualify him to serve as a director of the Company.

John R. Egan has been a NetScout director since October 2000 and serves as NetScout's Lead Independent Director. Mr. Egan is a founding managing partner of Egan-Managed Capital, L.P., a Boston-based venture capital fund specializing in New England, information technology, and early-stage investments, which began in the fall of 1996, and is a managing partner of Carruth Associates. From 1992 until 2016, he was a member of the Board of Directors at EMC Corporation, a publicly-held provider of computer storage systems and software prior to its acquisition by Dell. From 2007 until 2016, Mr. Egan also served as a member of the Board of Directors at VMWare, a leader in virtualization and cloud infrastructure. Since 2011, Mr. Egan has served as a member of the Board of Directors and currently serves as Non-Executive Chairman of the Board of Directors and serves on the Nominating and Corporate Governance Committee and M&A Committee at Progress Software Corp., a global software company. Since 2012, Mr. Egan has served as Lead Director of the Board of Directors of Verint Systems, Inc., a publicly-held provider of systems to the internet security market, where he is currently the Chairman of the Corporate Governance and Nominating Committee and a member of the Compensation Committee. Mr. Egan formerly served on the Board of Trustees at Boston College until 2018 and currently serves as a director for two other privately held companies. The Company's Nominating and Corporate Governance Committee believes that Mr. Egan's extensive understanding and involvement in the information technology industry together with his executive leadership roles and his service on other public company boards provide deep experience to the Company and qualify him to serve as a director of the Company.

Alfred Grasso has been a NetScout director since April 2018. Mr. Grasso is the past President and Chief Executive Officer of the MITRE Corporation, a position he held from 2006 to 2017 and he continues to serve as a Consultant for the company. Mr. Grasso's experience includes service on the boards of a number of scientifically-driven organizations and non-profit institutions. Mr. Grasso was elected to the Board of Trustees of Riverside Research in 2019. He is a member of the Defense Science Board and a former member of the Army Science Board. He currently serves as the industry co-chair of the National Academy of Science's Government, University and Industry Research Roundtable and he is a member of the Virginia Tech Hume Center Advisory Board. Mr. Grasso is a Permanent Director and Executive Committee member of the Armed Forces Communications and Electronics Association (AFCEA) International's Board of Directors and served as Chairman from 2012 to 2014 and vice chairman from 2010 to 2012. Mr. Grasso is the former President of the Board of the National GEM Consortium, a non-profit organization that promotes the participation of under-represented groups in the science, technology, engineering and math fields. He has served as a Trustee of the George Mason University Foundation, a member of the Stevens Institute Systems Engineering Research Center Advisory Board, the University of Virginia's Department of Systems and Information Engineering Advisory Board, Howard University's College of Engineering, Architecture and Computer Sciences Board of Visitors, and the Northern Virginia Technology Council. The Company's Nominating and Corporate Governance Committee believes that Mr. Grasso's experience as Chief Executive Officer of the MITRE Corporation provides deep government sector and global business experience to the Company, and his board and leadership experience with numerous other scientific, technical, and other organizations, qualify him to serve as a director of the Company.

Joseph G. Hadzima, Jr. has been a NetScout director since July 1998. Mr. Hadzima has been a Managing Director of Main Street Partners, LLC, a venture capital investing and technology commercialization company, since April 1998. Since 2000, he has also been President of IPVision, Inc., a Main Street Partners portfolio company that provides intellectual property analysis systems and services. Mr. Hadzima is also a Senior Lecturer at MIT Sloan School of Management, of counsel at a law firm, and serves as a director on two private company boards. The Company's Nominating and Corporate Governance Committee believes that Mr. Hadzima's experience with emerging technology companies, his prior legal experience, and his service on other boards provide the Company with valuable business perspective and insight into emerging technologies that may affect the business and strategies of the Company and qualify him to serve as a director of the Company.

Christopher Perretta has been a NetScout director since September 2014. Most recently, Mr. Perretta served as chief information and operations officer at MUFG Americas Holdings Corporation and its U.S. banking subsidiary, MUFG Union Bank, N.A. from April 2016 to January 2019. Previously, he served as Executive Vice President and Chief Information Officer at State Street Corporation from September 2007 until April 2016 and as a member of State Street Corporation's Management Committee from February 2013 until April 2016. From December 1996 to September 2007, Mr. Perretta served in various roles at General Electric Corporation, including as Chief Information Officer for the North American Consumer Financial Services unit, Chief

Technology Officer for General Electric Capital, and, from January 2003 to September 2007, as Chief Information Officer of General Electric Commercial Finance. Mr. Perretta has also served as a member of the board of directors of a privately-held technology company and the Advanced Cyber Security Center. The Company's Nominating and Corporate Governance Committee believes that Mr. Perretta's experience with various Fortune 500 companies and his service on other boards provide the Company with valuable business perspective and insight into global issues that may affect the business and strategies of the Company and qualify him to serve as a director of the Company.

Susan L. Spradley has been a NetScout director since April 2018. Ms. Spradley is a partner in the Tap Growth Group, a position she has held since August 2017, and the Chief Executive Officer of Motion Intelligence, Inc., a private company, which she joined in December 2017. From January 2013 to January 2017, she served in various roles at Viavi Solutions Inc. (formerly JDS Uniphase), most recently as Executive Vice President and General Manager of Product Line Management and Design. Prior to 2013, Ms. Spradley served as Chief Executive Officer and Executive Director of US Ignite, a White House and National Science Foundation initiative focused on applications for smart city implementation. Ms. Spradley also held senior leadership roles at Nokia Siemens Networks, and Nortel Networks prior to that. Ms. Spradley currently serves on the Board of Directors of Qorvo, Inc. (Nasdaq: QRVO), a provider of innovative RF solutions, and Avaya Holdings Corp. (NYSE: AVYA), a digital communications software, services and devices company, and serves as Chairman of the Board of Directors of US Ignite. The Nominating and Corporation Governance Committee believes that Ms. Spradley's executive experience, as well as her experience with technology companies and service on other public company boards, provide valuable insights into issues that affect the Company's business and qualify her to serve as a director of the Company.

Vivian Vitale has been a NetScout director since February 2019. Ms. Vitale operates a consulting practice assisting organizations in the development of human resources and people management practices, a role she has held since April 2018. From April 2012 until March 2018, she served as Executive Vice President of Human Resources at Veracode, Inc., continuing in her role through Veracode, Inc.'s acquisition by CA Technologies in March 2017. Prior to 2012, Ms. Vitale served as Senior Vice President at Care.com, an on-line provider of support services to families. Ms. Vitale has also held senior leadership roles at RSA Security, Unica Corporation and IBM prior to that. Ms. Vitale currently serves on the Board of Directors of Vera3, an investment firm, and on the Advisory Board of Surprise HR, an early stage company which provides an employee recognition product. Ms. Vitale holds a bachelor's degree in communications from the University of Connecticut and a master's degree in corporate and political communication from Fairfield University. The Nominating and Corporation Governance Committee believes that Ms. Vitale's extensive experience and insight in talent management and human resources operations qualifies her to serve as a director of the Company.

There are no family relationships among any of our executive officers and directors.

SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The following table sets forth information regarding beneficial ownership of our common stock as of the Record Date by each Named Executive Officer named in the Summary Compensation Table, each director and nominee for director, all executive officers and directors as a group, all those known by us to be beneficial owners of more than 5% of our common stock.

Name and Address of Beneficial Owner	Number of Shares Beneficially Owned(1)	Percentage of Class Beneficially Owned
Anil K. Singhal(2)	2,533,197	3.33%
Michael Szabados(3)	68,593	*
Jean Bua(4)	83,916	*
John W. Downing(5)	123,172	*
Robert E. Donahue(6)	24,977	*
John R. Egan(7)	88,740	*
Alfred Grasso(8)	9,000	*
Joseph G. Hadzima, Jr.(9)	120,798	*
Christopher Perretta(10)	20,771	*
Susan L. Spradley(11)	9,000	*
Vivian Vitale(12)	3,970	*
BlackRock, Inc.(13) 55 East 52nd Street New York, New York 10055	8,816,596	11.61
The Vanguard Group(14) 100 Vanguard Boulevard Malvern, PA 19335	6,963,554	9.17
Dimensional Fund Advisors LP(15) Building One 6300 Bee Cave Road Austin, Texas, 78746	6,697,908	8.82
Capital Ventures International and affiliates(16) Windward 1 Regatta Office Park, West Bay Road Grand Cayman E9 KY1-1103	5,979,994	7.88
Neuberger Berman Group LLC and affiliates(17) 1290 Avenue of the Americas New York, New York 10104	5,382,244	7.09
Brown Capital Management, LLC(18) 1201 N. Calvert Street Baltimore, Maryland 21202	4,930,426	6.49
AllianceBernstein L.P.(19) 1345 Avenue of the Americas New York, New York 10105	4,167,039	5.49
CIBC Private Wealth Management(20) 3290 Northside Parkway, 7th Floor Atlanta, GA 30327	4,596,467	6.05
All executive officers and directors as a group (11 persons)(21)	3,086,134	4.06

* Represents less than one percent of class.

(1) Under applicable SEC rules and regulations, a person is considered to beneficially own our common stock if such person either has the sole or shared power with any other person to either vote or dispose of such common stock. As a result, more than one person may be reported as the beneficial owner of any particular share of our common stock. Beneficial ownership is determined in accordance with the rules of the SEC. Shares of common stock issuable by the Company to a person or entity named below pursuant to restricted stock units which may vest within 60 days of the Record Date are deemed to be beneficially owned and outstanding for purposes of calculating the number of shares and the percentage beneficially owned by that person or entity. However, these shares are not deemed to be beneficially owned and outstanding for purposes of computing the percentage beneficially owned by any other person or entity. Unless otherwise noted, the address of each person listed on the table is c/o NetScout Systems, Inc., 310 Littleton Road, Westford, MA 01886, and each person has either sole or shared voting or dispositive power over the shares shown below as beneficially owned by such person.

(2) Includes 42,500 shares issuable upon the vesting of restricted stock units within 60 days of the Record Date and 143,390 shares held by a charitable foundation of which Mr. Singhal and his spouse are trustees. As of the Record Date, Mr. Singhal's spouse did not beneficially own at least five percent of the Company's outstanding common stock, and therefore the 1,074,028 shares held by trusts of which Mr. Singhal's spouse is deemed the beneficial owner are reported herein by Mr. Singhal. This amount does not include an aggregate of 776,887 shares held in a trust for the benefit of Mr. Singhal's children for which neither Mr. Singhal nor his spouse is a trustee, and 66,134 shares held in a trust for the benefit of Mr. Singhal's nieces and nephews for which neither Mr. Singhal nor his spouse is a trustee.

(3) Includes 25,000 shares issuable upon the vesting of restricted stock units within 60 days of the Record Date.

(4) Includes 22,500 shares issuable upon the vesting of restricted stock units within 60 days of the Record Date.

(5) Includes 22,500 shares issuable upon the vesting of restricted stock units within 60 days of the Record Date.

(6) Includes 7,000 shares issuable upon the vesting of restricted stock units within 60 days of the Record Date.

(7) Includes 7,000 shares issuable upon the vesting of restricted stock units within 60 days of the Record Date.

(8) Includes 7,000 shares issuable upon the vesting of restricted stock units within 60 days of the Record Date.

(9) Includes 7,000 shares issuable upon the vesting of restricted stock units within 60 days of the Record Date.

(10) Includes 7,000 shares issuable upon the vesting of restricted stock units within 60 days of the Record Date.

(11) Includes 7,000 shares issuable upon the vesting of restricted stock units within 60 days of the Record Date.

(12) Includes 3,970 shares issuable upon the vesting of restricted stock units within 60 days of the Record Date.

(13) This information is based solely on a Schedule 13G/A filed with the SEC on January 31, 2019 (the "BlackRock 13G"). According to the Blackrock 13G, as of December 31, 2018, BlackRock, Inc. had the sole power to vote 8,816,596 shares and sole dispositive power over 8,816,596 shares. Various persons have the right to receive or the power to direct the receipt of dividends from, or the proceeds from the sale of the common stock reported on the BlackRock 13G. The BlackRock 13G provides information only as of December 31, 2018 and, consequently, the beneficial ownership of the aforementioned entity may have changed between December 31, 2018 and the Record Date.

(14) This information is based solely on a Schedule 13G/A filed with the SEC on February 11, 2019 (the "Vanguard 13G"). According to the Vanguard 13G, as of December 31, 2018, The Vanguard Group had sole power to vote 74,643 shares, shared power to vote 11,893 shares, sole dispositive power over 6,885,866 shares and shared dispositive power over 77,688 shares. According to the Vanguard 13G, as of December 31, 2018, The Vanguard Fiduciary Trust Company ("VFTC"), a wholly owned subsidiary of The Vanguard Group, Inc., was the beneficial owner of 65,795 shares as a result of its serving as investment manager of collective trust accounts and Vanguard Investments Australia, Ltd. ("VIA"), a wholly owned subsidiary of The Vanguard Group, Inc., was the beneficial owner of 20,741 shares as a result of its serving as investment manager of Australian investment offerings. The Vanguard 13G provides information only as of December 31, 2018 and, consequently, the beneficial ownership of the aforementioned entity may have changed between December 31, 2018 and the Record Date.

(15) This information is based solely on a Schedule 13G filed with the SEC on February 8, 2019 (the "Dimensional 13G"). According to the Dimensional 13G, as of December 31, 2018, Dimensional Fund

Advisors LP had the sole power to vote 6,697,908 shares and sole dispositive power over 6,697,908 shares. Dimensional Fund Advisors LP, an investment adviser registered under Section 203 of the Investment Advisors Act of 1940, furnishes investment advice to four investment companies registered under the Investment Company Act of 1940, and serves as investment manager or sub-adviser to certain other commingled funds, group trusts and separate accounts (such investment companies, trusts and accounts, collectively referred to as the “Funds”). In certain cases, subsidiaries of Dimensional Fund Advisors LP may act as an adviser or sub-adviser to certain Funds. In its role as investment advisor, sub-adviser and/or manager, Dimensional Fund Advisors LP or its subsidiaries (collectively, “Dimensional”) may possess voting and/or investment power over the securities of the Issuer that are owned by the Funds, and may be deemed to be the beneficial owner of the shares of the Issuer held by the Funds. However, all securities reported in this schedule are owned by the Funds. Dimensional disclaims beneficial ownership of such securities. In addition, the filing of this Schedule 13G shall not be construed as an admission that the reporting person or any of its affiliates is the beneficial owner of any securities covered by this Schedule 13G for any other purposes than Section 13(d) of the Securities Exchange Act of 1934. The Dimensional 13G provides information only as of December 31, 2018 and, consequently, the beneficial ownership of the aforementioned entity may have changed between December 31, 2018 and the Record Date.

(16) Based solely on a Schedule 13G/A filed with the SEC on February 12, 2016. Capital Ventures International has the sole power to vote 5,337,701 of such shares, shared power to vote 5,979,994 of such shares, sole dispositive power over 5,337,701 of such shares and shared dispositive power over 5,979,994 of such shares. Susquehanna Advisors Group, Inc. has shared power to vote 5,979,994 of such shares and shared dispositive power over 5,979,994 of such shares. G1 Execution Services, LLC has the sole power to vote 139 of such shares, shared power to vote 5,979,994 of such shares, sole dispositive power over 139 of such shares and shared dispositive power over 5,979,994 of such shares. Susquehanna Fundamental Investments, LLC has shared power to vote 5,979,994 of such shares and shared dispositive power over 5,979,994 of such shares. Susquehanna Securities has the sole power to vote 642,154 of such shares, shared power to vote 5,979,994 of such shares, sole dispositive power over 642,154 of such shares and shared dispositive power over 5,979,994 of such shares. Susquehanna Advisors Group, Inc. is the investment manager to Capital Ventures International and as such may exercise voting and dispositive power over the 5,337,701 shares directly owned by Capital Ventures International. G1 Execution Services, LLC and Susquehanna Securities are affiliated independent broker-dealers which, together with Capital Ventures International, Susquehanna Advisors Group, Inc. and Susquehanna Fundamental Investments, LLC may be deemed a group and therefore deemed to share voting and dispositive power over all such shares, although each has disclaimed beneficial ownership of shares held by the others.

(17) This information is based solely on a Schedule 13G/A filed with the SEC on February 13, 2019 by Neuberger Berman Group LLC on behalf of itself and on behalf of Neuberger Berman Investment Advisers LLC and Neuberger Berman Equity Funds (the “Neuberger 13G”). According to the Neuberger 13G, as of December 31, 2018, Neuberger Berman Group LLC had the shared power to vote or direct the vote of 5,341,624 shares and shared power to dispose of or direct the disposition of 5,382,244 shares, Neuberger Berman Investment Advisers LLC had the shared power to vote or direct the vote of 5,341,624 shares and shared power to dispose of or direct the disposition of 5,382,244 shares, and Neuberger Berman Equity Funds had the shared power to vote or direct the vote of 3,794,138 shares and shared power to dispose of or direct the disposition of 3,794,138 shares. Neuberger Berman Group LLC and its affiliates may be deemed to be beneficial owners of securities for purposes of Exchange Act Rule 13d-3 because they or certain affiliated persons have shared power to retain, dispose of or vote the securities of unrelated clients. Neuberger Berman Group LLC or its affiliated persons do not, however, have any economic interest in the securities of those clients. The clients have the sole right to receive and the power to direct the receipt of dividends from or proceeds from the sale of such securities. No one client has an interest of more than 5% of the issuer. In addition to the holdings of individual advisory clients, Neuberger Berman Investment Advisers LLC serves as investment manager of Neuberger Berman Group LLC’s various registered mutual funds which hold such shares. The holdings belonging to clients of Neuberger Berman Trust Co N.A., Neuberger Berman Trust Co of Delaware N.A., NB Alternatives Advisers LLC and Neuberger Berman Investment Advisers LLC are also aggregated to comprise the holdings referenced in the Neuberger 13G.

This amount also includes shares from individual client accounts over which Neuberger Berman Investment Advisers LLC has shared power to dispose but does not have voting power over these shares. The holdings of Neuberger Berman Trust Co N.A., Neuberger Berman Trust Co of Delaware N.A., NB Alternatives Advisers LLC and Neuberger Berman Investment Advisers LLC, are also aggregated to comprise the holdings referenced in the Neuberger 13G. Neuberger Berman Trust Co N.A., Neuberger Berman Trust Co of Delaware N.A., NB Alternatives Advisers LLC and Neuberger Berman Investment Advisers LLC and certain affiliated persons may be deemed to beneficially own the securities covered by the Neuberger 13G in their various fiduciary capacities by virtue of the provisions of Exchange Act Rule 13d-3. Neuberger Berman Group LLC, through its subsidiaries Neuberger Berman Fixed Income Holdings LLC, NB Alternatives Holdings LLC and Neuberger Trust Holdings LLC controls Neuberger Berman Trust Co N.A., Neuberger Berman Trust Co of Delaware N.A., NB Alternatives Advisers LLC and Neuberger Berman Investment Advisers LLC and certain affiliated persons. Each of Neuberger Berman Group LLC, Neuberger Berman Fixed Income Holdings LLC, NB Alternatives Holdings LLC, Neuberger Trust Holdings LLC, Neuberger Berman Trust Co N.A., Neuberger Berman Trust Co of Delaware N.A., NB Alternatives Advisers LLC and Neuberger Berman Investment Advisers LLC and certain affiliated persons disclaim beneficial ownership of the securities covered by the Neuberger 13G. The Neuberger 13G provides information only as of December 31, 2018 and, consequently, the beneficial ownership of the aforementioned entities may have changed between December 31, 2018 and the Record Date.

(18) This information is based solely on a Schedule 13G/A filed with the SEC on February 14, 2019 (the "Brown 13G"). According to the Brown 13G, as of December 31, 2018, Brown Capital Management, LLC had the sole power to vote 3,114,795 shares and sole dispositive power over 4,930,426 shares. The Brown 13G provides information only as of December 31, 2018 and, consequently, the beneficial ownership of the aforementioned entity may have changed between December 31, 2018 and the Record Date.

(19) This information is based solely on a Schedule 13G filed with the SEC on February 13, 2019 (the "AllianceBernstein 13G"). According to the AllianceBernstein 13G, as of December 31, 2018, AllianceBernstein L.P. had the sole power to vote 3,525,109 shares, sole dispositive power over 4,082,089 shares and shared dispositive power over 84,950 shares. The AllianceBernstein 13G provides information only as of December 31, 2018 and, consequently, the beneficial ownership of the aforementioned entity may have changed between December 31, 2018 and the Record Date.

(20) This information is based solely on a Schedule 13G/A filed with the SEC on February 8, 2019 (the "CIBC 13G"). According to the CIBC 13G, as of December 31, 2018, CIBC Private Wealth Management had the sole power to vote 4,596,467 shares and sole dispositive power over 4,596,467 shares. The CIBC 13G provides information only as of December 31, 2018 and, consequently, the beneficial ownership of the aforementioned entity may have changed between December 31, 2018 and the Record Date.

(21) Includes an aggregate of 158,470 shares issuable upon the vesting of restricted stock units within 60 days of the Record Date.

CORPORATE GOVERNANCE

Board Leadership Structure

The Board is currently chaired by the President and Chief Executive Officer of the Company, Mr. Singhal. The Board believes combining the position of Chief Executive Officer and Chairman is in the best interest of the Company and its stockholders. As one of the co-founders of the Company, Mr. Singhal provides extensive technology vision, industry expertise and leadership; historical knowledge of the Company, its customers, and solutions; and a deep understanding of the opportunities and challenges facing the Company today. Those attributes, together with his combined role, place him in the best position to ensure that the Board and management act with a common purpose to execute the Company's strategic initiatives and business plans. To reinforce director independence and provide for leadership separate from the Chairman, our Board appointed Mr. Egan as Lead Independent Director.

Director Independence

Our Board has determined that each of Messrs. Donahue, Egan, Grasso, Hadzima and Perretta, Ms. Spradley and Ms. Vitale is, and Mr. Mullarkey (who served on our Board of Directors until February 2019) was, independent within the meaning of the director independence standards of The Nasdaq Stock Market LLC, or Nasdaq, and the SEC. Furthermore, our Board has determined that each current member of our Audit Committee, Compensation Committee, and Nominating and Corporate Governance Committee of our Board, and each director who served as a member of any of the foregoing committees of the Board during the fiscal year ended March 31, 2019 is, or, in the case of Mr. Mullarkey, was, independent within the meaning of the Company's, Nasdaq's, and the SEC's independence standards, as applicable.

Executive Sessions of Independent Directors

Our Board holds executive sessions of the independent members of our Board following each regularly scheduled in-person meeting of our Board. The Lead Independent Director, currently Mr. Egan, chairs the executive sessions.

Policies Governing Director Nominations

Director Qualifications

Our Nominating and Corporate Governance Committee is responsible for reviewing with our Board the appropriate qualities, skills, and characteristics desired of Board members in the context of the needs of the business and current make-up of our Board. This assessment includes consideration of the following minimum qualifications that our Nominating and Corporate Governance Committee believes must be met by all directors:

- directors must be individuals of the highest ethical character and integrity and share our values as reflected in our Code of Business Conduct;
- directors must have reputations, both personal and professional, consistent with our image and reputation;
- directors must be free of conflicts of interest that would interfere with the proper performance of the responsibilities of a director;
- directors must have the ability to exercise sound business judgment;
- directors must be willing and able to devote sufficient time to the affairs of the Company and be diligent in fulfilling the responsibilities of a director and/or committee member, as the case may be;
- directors must have substantial business or professional experience and expertise and be able to offer meaningful and practical advice and guidance to our management based on that experience and expertise; and
- directors must have a commitment to enhancing stockholder value.

The Nominating and Corporate Governance Committee also considers numerous other qualities, skills, and characteristics when evaluating director nominees, such as:

- an understanding of and experience in the network application/performance management solutions market, the market for networking solutions generally, and related accounting, legal, finance, product, sales and/or marketing matters;
- experience on other public or private company boards, unless a director otherwise provides complementary capabilities or qualifies as an "audit committee financial expert" under the rules of the SEC;
- leadership experience with public companies or other major organizations; and
- diversity of the Board, taking into account the business and professional experience, educational background, reputation, industry expertise across various market segments and technologies relevant to our business, as well as other relevant attributes of the candidates.

Board members are expected to prepare for, attend, and participate in Board meetings and meetings of committees on which they serve. In addition, directors must stay abreast of our business and markets.

Process for Identifying and Evaluating Director Nominees

The Board is responsible for nominating persons for election as directors of the Company. Our Board delegates the initial selection process to our Nominating and Corporate Governance Committee, with the expectation that other members of our Board, and of management, will take part in the process as appropriate.

Generally, the Nominating and Corporate Governance Committee identifies candidates for director nominees in consultation with management, through the use of search firms or other advisers, or through such other methods as our Nominating and Corporate Governance Committee deems to be helpful to identify candidates. The Nominating and Corporate Governance Committee seeks to identify and recruit diverse candidates (including women and minority candidates), as part of the search process for new Board members. Once candidates have been identified, our Nominating and Corporate Governance Committee confirms that the candidates meet all of the minimum qualifications for director nominees established by the Nominating and Corporate Governance Committee and set forth in the Corporate Governance Guidelines. The Nominating and Corporate Governance Committee may gather information about the candidates through interviews, questionnaires, background checks, or any other means that the Nominating and Corporate Governance Committee deems to be helpful in the evaluation process. The Nominating and Corporate Governance Committee then meets to discuss and evaluate the qualities and skills of each candidate in light of the criteria set forth above or established by the Nominating and Corporate Governance Committee from time to time, both on an individual basis and taking into account the overall composition and needs of our Board. Based on the results of the evaluation process, the Nominating and Corporate Governance Committee recommends candidates for our Board's approval as director nominees for election to the Board. The Nominating and Corporate Governance Committee also recommends candidates for the Board's appointment to the committees of our Board.

Stockholder Recommendations for Nominees As Directors, Director Nominations and the Proposal of Other Business

Our Nominating and Corporate Governance Committee will consider recommendations for candidates for nominees as directors and proposals for business other than director recommendations that are properly submitted by stockholders. Any recommendation of a nominee for the Board or any proposal for business other than director recommendations by our stockholders with respect to our Annual Meeting of Stockholders for the fiscal year ended March 31, 2020, or the 2020 Annual Meeting, must be submitted in writing to our principal executive offices at 310 Littleton Road, Westford, Massachusetts 01886, attention: Secretary, and must be received by us and comply with the requirements set forth in our Corporate Governance Guidelines. Stockholders may also nominate directors or submit proposals for business other than director nominations by following the detailed requirements set forth in our by-laws, as the same may be amended from time to time.

Any communication with respect to nominees as directors should (i) describe why the candidate meets the Board's criteria described above; (ii) include the candidate's and recommender's names and addresses and provide biographical information about the recommended candidate that would be required to be disclosed in solicitations of proxies for election of directors; (iii) include the proposed nominee's written consent to serve as a nominee, if nominated, and as a director, if elected; and (iv) contain any additional information otherwise required by Regulation 14A under the Exchange Act.

Any communication with respect to the proposal of business other than director nominations should include, among other matters required by our by-laws, a brief description of the business desired to be brought before the meeting, the reasons for conducting such business at the meeting and any material interest in such business of such stockholder or any stockholder associated person (as defined in our by-laws), if any, on whose behalf the proposal is made.

The requirements for stockholder director nominations and proposals other than director nominations appear in our by-laws. Only such individuals who are nominated in accordance with the procedures described above and in our by-laws will be eligible for election by stockholders as directors and only such business brought before the meeting in accordance with the procedures set forth above and in our by-laws will be conducted at a meeting of stockholders. We have not received any stockholder recommendations or nominations with respect to our Annual Meeting.

To be considered for inclusion in next year's proxy materials, your proposal must be submitted in writing to our principal executive offices at 310 Littleton Road, Westford, Massachusetts 01886, attention: Secretary, and must be received by us no later than March 26, 2020. Proposals must satisfy the procedures set forth in Rule 14a-8 under the Exchange Act. If you wish to submit a proposal for the 2020 Annual Meeting but not have it included in next year's proxy materials for such meeting or wish to nominate a director, you must submit such proposal or nomination in writing to our principal executive offices at the address noted above, which must be received by us no earlier than the close of business of May 15, 2020 and no later than the close of business of June 14, 2020 and must satisfy the requirements described above and in our by-laws. In order to curtail controversy as to the date on which a proposal was received by us, we suggest that you submit your proposals by registered mail, return receipt requested.

Policy Governing Security Holder Communications with the Board of Directors

The Board provides to every stockholder the ability to communicate with the Board as a whole and with individual directors through an established process for security holder communication (as that term is defined by the rules of the SEC) as follows:

For communications directed to the Board as a whole or to a specific member of the Board, stockholders may send such communications to the attention of the Chairman of the Board with respect to general communications or to the attention of the specific director, in each case, by one of the three methods listed below:

By U.S. mail (including courier or other expedited delivery service): NetScout Systems, Inc., 310 Littleton Road, Westford, MA 01886 Attn: [Chairman of the Board]/[Individual Director], c/o Investor Relations

By facsimile: (978) 614-4004, Attn: [Chairman of the Board]/[Individual Director], c/o Investor Relations

By email: ir@netscout.com

We will forward any such stockholder communications to the Chairman of our Board, as a representative of our Board, and/or to the director to whom the communication is addressed.

Policy Governing Director Attendance at Annual Meetings of Stockholders

Our policy is that one of the regularly scheduled in-person meetings of our Board will be scheduled on the same day as our annual meeting of stockholders, and all directors are encouraged to attend our annual meeting of stockholders. All of the then members of our Board, except for James Lico (whose term expired at the conclusion of the 2018 Annual Meeting) and Vincent Mullarkey, attended the 2018 Annual Meeting, either in-person or via teleconference.

Code of Ethics

We have adopted a code of ethics as defined by regulations promulgated under the Securities Act of 1933, as amended, and the Exchange Act, which applies to all of the employees, officers, and directors of the Company and our subsidiaries, including our principal executive officer, principal financial officer, principal accounting officer, and controller, and persons performing similar functions. A current copy of the Code of Business Conduct is available at the Corporate Governance section of our website at http://ir.netscout.com/. NetScout intends to disclose amendments to or waivers from provisions of the Code of Business Conduct that apply to our principal executive officer, principal financial officer, principal accounting officer, or controller, and persons performing similar functions, by posting such information on our website, available at http://ir.netscout.com/.

For more corporate governance information, you are invited to visit the Corporate Governance section of our website, available at http://ir.netscout.com/. Contents of our website are not part of or incorporated by reference into this proxy statement.

Majority Vote Policy

It is the policy of NetScout that any nominee for election to the Board who receives a greater number of votes “withheld” from his or her election than votes “for” such election shall submit his or her offer of resignation for consideration by the Nominating and Corporate Governance Committee. The Nominating and Corporate Governance Committee shall consider all of the relevant facts and circumstances and recommend to the Board the action to be taken with respect to such offer of resignation. The Board will then act on the Nominating and Corporate Governance Committee’s recommendation.

THE BOARD OF DIRECTORS AND ITS COMMITTEES

The table below indicates the composition of each of the committees of our Board of Directors:

		Audit Committee	Compensation Committee	Nomination & Governance Committee	Finance Committee
INDEPENDENT DIRECTORS					
Robert E. Donahue	Financial Expert	Chairperson	Member		Member
John R. Egan		Member	Chairperson		Member
Alfred Grasso			Member	Member	Chairperson
Joseph G. Hadzima, Jr.		Member		Chairperson	Member
Christopher Perretta			Member	Member	
Susan L. Spradley		Member		Member	
Vivian Vitale					
INSIDE DIRECTORS					
Anil K. Singhal	★				
Michael Szabados	V				

Chairperson   Member   Financial Expert   ★ Chairman of the Board   V Vice Chair of the Board

Board of Directors

The Board met eight times during the fiscal year ended March 31, 2019, or fiscal year 2019. Each of the directors attended at least 75% of the aggregate of (i) total number of meetings of our Board and (ii) the total number of meetings held by all committees of the Board on which such director served during fiscal year 2019. The Board has standing Audit, Compensation, Nominating and Corporate Governance, and Finance Committees.

Audit Committee

Current Members Messrs. Donahue (Chair) Egan Hadzima Ms. Spradley **Meetings** Eight meetings during the fiscal year ended March 31, 2019. *A copy of the Audit Committee Charter can be found at* http://ir.netscout.com/ **Audit Committee Designated "Financial Expert"** is Mr. Donahue. Ms. Spradley was appointed to the Audit Committee in May 2018. Mr. Hadzima was re- appointed to the Audit Committee in October 2018. Mr. Mullarkey concluded his service to the Audit Committee in October 2018.	**Responsibilities** Discharging the responsibilities of the Board relating to, among other items: • Reviewing and overseeing the financial reports we provide to the SEC, our stockholders, and general public and our accounting policies, internal accounting controls, internal control over financial reporting, auditing functions, and financial reporting practices • Appointing, and ensuring the independence of, our independent auditor and thereby furthering the integrity of our financial reporting • Establishing and overseeing procedures designed to facilitate the receipt, retention, and handling of complaints regarding disclosure controls and procedures, internal control over financial reporting and accounting, internal accounting control, or auditing matters; and the receipt of confidential, anonymous submissions by our employees of concerns regarding questionable accounting or auditing matters • Reviewing and monitoring our compliance with the related party transaction approval policy • Reviewing and monitoring our compliance programs and related enterprise risk management programs • Reviewing and overseeing our internal audit function **Independence**: Our Board has determined that each current member of our Audit Committee is, and each member of our Audit Committee during fiscal year 2019 was, independent within the meaning of Nasdaq's director independence standards and the SEC's heightened director independence standards for audit committee members.

Compensation Committee

Current Members Messrs. Egan (Chair) Donahue Grasso Perretta **Meetings** Six meetings during the fiscal year ended March 31, 2019. *A copy of the Compensation Committee Charter can be found at* http://ir.netscout.com/ Mr. Egan was appointed as Chair of the Audit Committee in September 2018. Mr. Grasso was appointed to the Compensation Committee in September 2018. Mr. Hadzima concluded his service to the Compensation Committee in September 2018.	**Responsibilities** Discharging the responsibilities of the Board relating to, among other items: • Establishing the compensation of our executives other than the Chief Executive Officer • Reviewing and making recommendations to the Board with respect to the compensation of our Chief Executive Officer • Administering our incentive compensation, stock plans, benefit plans, and human resources activities • Reviewing with our management and recommending for inclusion in our proxy statements and incorporation by reference in our Annual Reports on Form 10-K the Compensation Disclosure and Analysis • Reviewing and considering the results of any advisory vote on executive compensation • Managing compensation policy and practice-related risk **Independence**: The Board has determined that each current member of our Compensation Committee is, and each member of our Compensation Committee during fiscal year 2019 was, independent within the meaning of Nasdaq's director independence standards and is a "non-employee director" as defined by applicable SEC rules and regulations.

Nominating and Corporate Governance Committee

Current Members Messrs. Hadzima (Chair) Grasso Perretta Spradley **Meetings** Two meetings during the fiscal year ended March 31, 2019. *A copy of the Nominating and Corporate Governance Committee Charter can be found at* http://ir.netscout.com/ Mr. Hadzima was appointed as Chair of the Nominating and Corporate Governance Committee in September 2018. Mr. Egan concluded his service to the Nominating and Corporate Governance Committee in September 2018. Mr. Grasso was appointed to the Nominating and Corporate Governance Committee in May 2018. Ms. Spradley was appointed to the Nominating and Corporate Governance Committee in October 2018.	**Responsibilities** Discharging the responsibilities of the Board relating to, among other items: • Identifying individuals qualified to become directors • Recommending to our Board the director nominees for election • Monitoring compliance with and periodically reviewing our Code of Business Conduct and Corporate Governance Guidelines **Independence**: The Board has determined that each current member of the Nominating and Corporate Governance Committee is, and each member of our Nominating and Corporate Governance Committee during fiscal year 2019 was, independent within the meaning of Nasdaq's director independence standards.

Finance Committee

Current Members Messrs. Grasso (Chair) Donahue Egan Hadzima **Meetings** Two meetings during the fiscal year ended March 31, 2019. Mr. Grasso was appointed as Chair of the Finance Committee in October 2018. Mr. Mullarkey concluded his service to the Finance Committee in October 2018.	**Responsibilities** Discharging the responsibilities of the Board relating to, among other items: • Considering strategic initiatives and other opportunities that may become available to the Company from time to time and such other tasks as the Board may designate from time to time. **Independence**: The Board has determined that each member of the Finance Committee is independent within the meaning of Nasdaq's director independence standards.

Report of Audit Committee of the Board of Directors[1]

The Audit Committee has reviewed and discussed the audited financial statements for the fiscal year ended March 31, 2019 with our management and PricewaterhouseCoopers LLP (PwC), our independent registered public accounting firm. Management is responsible for the preparation, presentation and integrity of the financial statements, accounting and financial reporting principles and internal control over financial reporting. PwC is responsible for performing an independent audit of the financial statements in accordance with the standards of the Public Company Accounting Oversight Board (PCAOB) and for expressing opinions on the conformity of the financial statements with accounting principles generally accepted in the United States.

The Audit Committee has discussed with PwC the matters required to be discussed by Auditing Standard No. 1301, *Communications with Audit Committees*, as adopted by PCAOB and has received the written disclosures and the letter from PwC required by applicable requirements of the PCAOB regarding the independent auditor's communications with the Audit Committee concerning independence. The Audit Committee has also discussed with PwC their independence.

Based on its reviews and discussions referred to above, the Audit Committee recommended to the Board that the audited financial statements be included in our Annual Report on Form 10-K for the fiscal year ended March 31, 2019 for filing with the SEC.

Respectfully submitted by the Audit Committee

Robert E. Donahue, Chair
John R. Egan
Joseph G. Hadzima, Jr.
Susan J. Spradley

The Board's Role in Risk Oversight

The Board administers risk management and oversight through the Board as a whole, as well as through various Board committees that address risks inherent in their respective areas of oversight. The Board seeks to ensure that risk management principles are incorporated in our strategic planning and management processes and oversees our enterprise risk management program. This comprehensive approach is reflected in the reporting processes by which our management provides timely and comprehensive information to the Board to support the Board's role in oversight, approval, and decision-making.

The Board monitors the information it receives and requests from management and provides oversight and guidance to our senior management team concerning the assessment and management of risk. The Board approves the Company's high-level goals, strategies, and policies to set the tone and direction for appropriate risk taking within the business. The Board and its committees then emphasize this tone and direction in its oversight of management's implementation of our goals, strategies and policies.

Our senior executives regularly attend meetings of the Board and its committees and provide the Board and its committees with reports regarding our operations, strategies, and objectives, and the risks inherent within them. Board and committee meetings also provide a forum for directors to discuss issues with, request additional information from, and provide guidance to, senior management. In addition, our directors have direct access to senior management to discuss any matters of interest, including those related to risk. Those members of management most knowledgeable of the issues regularly attend Board and committee meetings to provide additional insight into items being discussed, including risk exposures.

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1 The material in this report is not "soliciting material," is not deemed "filed" with the SEC and is not to be incorporated by reference in any filing of the Company under the Securities Act or the Exchange Act, other than our Annual Report on Form 10-K, where it shall be deemed "furnished," whether made before or after the date hereof and irrespective of any general incorporation language in any such filing.

The Board has delegated oversight for matters involving certain specific areas of risk exposure to its three principal committees. Each committee reports to the Board at regularly scheduled Board meetings, and more frequently if appropriate, with respect to the matters and risks for which the committee provides oversight. Each committee is also authorized and empowered to retain independent advisors as the committee deems appropriate to discharge its responsibilities under such committee's charter.

The Audit Committee oversees the integrity of our financial statements, reporting process and internal controls, the relationship with our independent registered public accounting firm, including their qualifications, independence and performance, and the Company's corporate finance matters, including its capital structure. The Audit Committee also provides oversight with respect to our risk management process and litigation and compliance programs, discussing with management our significant financial risk exposures, steps management has taken to monitor, control, and report such exposures, and our policies with respect to risk assessment and risk management.

The Audit Committee oversees our enterprise risk management program, in which the Company has identified strategic, operational, financial, and legal risks as well as emerging risks, considering the likelihood and magnitude of such risks and other criteria management deems appropriate in consultation with the Audit Committee. Under the program, management identifies and evaluates the effectiveness of risk management and mitigation methods and periodically reports to the Audit Committee and at least annually to the Board to allow the Audit Committee and Board to monitor and manage our ongoing enterprise risk management process.

Our Compensation Committee is responsible primarily for the design and oversight of our executive compensation policies, plans and practices. A key objective of the Compensation Committee is to ensure that the Company's overall executive compensation program appropriately links pay to performance and aligns the interests of our executives with our stockholders. The Compensation Committee also monitors the design and administration of our overall incentive compensation programs to ensure that they include appropriate safeguards to avoid encouraging unnecessary or excessive risk taking by Company employees. Elements of our executive compensation program that mitigate excessive risk taking, such as our combination of short and long-term incentives, are described below in the Compensation Discussion and Analysis.

The Nominating and Corporate Governance Committee oversees risks related to our corporate governance, including Board and director performance, director succession, director education, and our Corporate Governance Guidelines and other governance documents. The Nominating and Corporate Governance Committee also oversees our overall compliance program.

COMPENSATION AND OTHER INFORMATION CONCERNING DIRECTORS AND EXECUTIVE OFFICERS

The following summary compensation table sets forth the total compensation paid or accrued for the fiscal year ended March 31, 2019 to our Chief Executive Officer, Chief Financial Officer, and each of our two other most highly compensated executive officers during the fiscal year ended March 31, 2019. The executives listed below may be referred to as our "Named Executive Officers."

Summary Compensation Table for Fiscal Year 2019

Name and Principal Position	Fiscal Year	Salary($)	Stock Awards(1)($)	Non-Equity Incentive Plan Compensation($)	All Other Compensation(2)($)	Total($)
Anil K. Singhal	2019	500,000	1,836,000	333,200	76,334	2,745,534
Chairman, Chief Executive	2018	456,250	2,085,000	0	71,747	2,612,997
Officer, and President	2017	325,000	1,451,400	520,800	69,204	2,366,404
Michael Szabados	2019	360,000	1,071,000	168,008	25,233	1,624,241
Chief Operating Officer	2018	338,750	1,216,250	0	21,944	1,576,944
	2017	275,000	846,650	240,000	17,805	1,379,455
Jean Bua	2019	330,000	918,000	154,008	23,252	1,425,260
Executive Vice President, Chief	2018	313,752	1,042,500	0	14,210	1,370,462
Financial Officer, Chief	2017	265,008	725,700	168,000	13,050	1,171,758
Accounting Officer, and Treasurer						
John W. Downing(3)	2019	240,000	918,000	230,447	15,164	1,403,611
Executive Vice President,	2018	239,375	1,042,500	103,687	16,376	1,401,938
Worldwide Sales Operations	2017	237,500	725,700	215,372	14,249	1,192,821

(1) Amounts shown represent the aggregate full grant date fair value of RSUs calculated in accordance with FASB ASC 718. The grant date fair value of the RSU awards was calculated by multiplying the closing price of our common stock on the Nasdaq Global Select Market on the date of grant by the number of RSUs granted. The fair value shown above may not be indicative of the value realized on the date the RSUs vest due to variability in the share price of our common stock.

(2) Includes 401(k) contributions made by the Company on behalf of the Named Executive Officer. See the All Other Compensation Table below for additional information. The present value of Mr. Singhal's retirement benefits decreased from $1,600,000 in fiscal year 2018 to $1,237,949 in fiscal year 2019 as a result of a decrease in healthcare costs and a change in the discount rate applied.

(3) The information presented for Mr. Downing under the "Non-Equity Incentive Plan Compensation" column consists of sales commissions and annual incentive bonus awards for the fiscal years ended March 31, 2017 and 2019, and sales commissions for the fiscal year ended March 31, 2018.

Option Awards. We did not make any option grants during the fiscal years ended March 31, 2017, 2018, or 2019 to any of our Named Executive Officers. Therefore, we have omitted this column.

Nonqualified Deferred Compensation Earnings. We currently do not provide a non-qualified defined contribution plan or other deferred compensation plan to any of our Named Executive Officers.

All Other Compensation Table for Fiscal Year 2019

Name	Fiscal Year	Car Usage($)	Financial and Legal Counseling($)	401(k) Match($)	Other(1)($)	Total($)
Anil K. Singhal	2019	18,235	38,836	8,250	11,014	76,334
Michael Szabados	2019	—	1,000	8,250	15,983	25,233
Jean Bua	2019	—	—	8,250	15,002	23,252
John W. Downing	2019	—	—	8,475	6,689	15,164

(1) This column reports the total amount of other benefits provided, none of which individually exceeded the greater of $25,000 or 10% of the total amount of All Other Compensation for the Named Executive Officer. These other benefits include the value of supplemental life insurance premiums, personal use of sporting event tickets and spousal attendance at Company sponsored events.

Grants of Plan-Based Awards in Fiscal Year 2019

The following table sets forth grants of plan-based awards to each of our Named Executive Officers for the fiscal year ended March 31, 2019:

Name	Grant Date	Grant Type	Estimated Possible Payouts Under Non-Equity Incentive Plan Awards			All other Stock Awards: Number of shares of stock or units(#)(2)	Grant Date Fair Value of Stock and Option Awards ($)(3)
			Threshold ($)	Target ($)	Maximum ($)(1)		
Anil K. Singhal	7/25/18	RSU				60,000	1,836,000
	7/3/18	Cash	—	476,000	—		
Michael Szabados	7/18/18	RSU				35,000	1,095,500
	7/3/18	Cash	—	240,000	—		
Jean Bua	7/18/18	RSU				30,000	939,000
	7/3/18	Cash	—	220,000			
John W. Downing	7/18/18	RSU				30,000	939,000
	7/3/18	Cash	—	310,000(4)	—		

(1) Actual non-equity incentive plan awards are made based on various factors including the Company's overall performance, as described more fully in the Compensation Discussion and Analysis. As described below, the Company has not set prescribed maximum payments, and the possible award could exceed 100% of an individual's target annual incentive cash bonus if the Company exceeded its goals and the individual met or exceeded his or her goals.
(2) The reported RSUs were granted pursuant to the 2007 Plan and vest in four equal annual installments with the first installment vesting on August 1, 2019.
(3) Amounts shown represent the aggregate full grant date fair value calculated in accordance with FASB ASC 718. The grant date fair value of the RSU awards was calculated by multiplying the closing price of our common stock on the Nasdaq Global Select Market on the date of grant by the number of RSUs granted. The fair value shown above may not be indicative of the value realized on the date the RSUs vest due to variability in the share price of our common stock.
(4) Represents a target annual incentive cash bonus of $166,250 and target commission payment of $143,750.

During the fiscal year ended March 31, 2019, we did not make any "other stock awards" or "other option awards" and have therefore omitted those columns.

Outstanding Equity Awards at Fiscal Year 2019 End Table

Name	Grant Date	Stock Awards: Number of Shares or Units of Stock That Have Not Vested(#)(1)	Stock Awards: Market Value of Shares or Units of Stock That Have Not Vested($)
Anil K. Singhal	7/25/18	60,000	1,684,200
	8/1/17	45,000	1,263,150
	6/1/16	30,000	842,100
	9/4/15	12,500	350,875
Michael Szabados	7/18/18	35,000	982,450
	8/1/17	26,250	736,838
	6/1/16	17,500	491,225
	9/4/15	7,500	210,525
Jean Bua	7/18/18	30,000	842,100
	8/1/17	22,500	631,575
	6/1/16	15,000	421,050
	9/4/15	7,500	210,525
John W. Downing	7/18/18	30,000	842,100
	8/1/17	22,500	631,575
	6/1/16	15,000	421,050
	9/4/15	7,500	210,525

(1) The reported RSUs were granted pursuant to our the 2007 Plan and vest in four equal annual installments with the first installment vesting on the one year anniversary of the grant date, provided that the RSUs granted in fiscal year 2019, the first installment will vest on August 20, 2019.

Option Exercises and Stock Vested in Fiscal Year 2019 Table

The following table sets forth option exercises and vested stock awards for each of our Named Executive Officers for the fiscal year ended March 31, 2019:

	Stock Awards	
Name	**Number of Shares Acquired on Vesting(#)**	**Value Realized on Vesting($)(1)**
Anil K. Singhal	15,000	405,000
	15,000	402,000
	12,500	312,500
	12,500	329,500
Michael Szabados	8,750	236,250
	8,750	234,500
	7,500	187,500
	7,500	197,700
	50	1,297
Jean Bua	7,500	202,500
	7,500	201,000
	7,500	187,500
	6,250	164,750
	50	1,297
John W. Downing	7,500	202,500
	7,500	201,000
	7,500	187,500
	6,250	164,750
	50	1,297

(1) Value is calculated by multiplying the number of shares times the closing price of a share of our common stock on the vesting date.

Potential Payments Upon Termination or Change of Control

The table below sets forth the estimated amount of payments and other benefits each Named Executive Officer would be entitled to receive upon the occurrence of the indicated event, assuming that the event occurred on March 31, 2019. The information is provided relative to the Named Executive Officer's termination or change of control arrangements as of the Record Date and assumes such arrangements were actually in effect as of March 31, 2019. The values relating to vesting of stock options and restricted stock unit awards are based upon a per share fair market value of our common stock of $28.07, the closing price reported on the Nasdaq Global Select Market on March 29, 2019, the last trading day of the fiscal year ended March 31, 2019. Actual payments made at any future date will vary based on various factors including, salary and annual incentive bonus levels, the vesting schedules of the various equity-based awards, and the price of our common stock at the time of termination or change of control. For purposes of the payments associated with a change of control set forth in following table, we have assumed that the respective Named Executive Officer was terminated on March 31, 2019 and that such arrangements were actually in effect as of such date.

Please refer to the heading “Post-Termination Compensation” below in the Compensation Discussion and Analysis for a discussion of the particular terms of the applicable termination or change or control arrangements reflected in the table below.

Name	Termination Event*	Salary and Other Cash Payments ($)	Vesting of Stock Options ($)	Vesting of RSUs ($)(4)	Health and Dental Benefits ($)
Anil K. Singhal	Termination without cause by the Company at any time, or termination by Mr. Singhal for any reason prior to or following a change of control	1,400,000(1)	—	—	100,000
Michael Szabados	Termination without cause or resignation for good reason other than in the context of a change of control	360,000(2)	—	—	—
	Termination without cause or resignation for good reason within one year following a change of control	600,000(3)	—	947,363	—
Jean Bua	Termination without cause or resignation for good reason other than in the context of a change of control	330,000(2)	—	—	—
	Termination without cause or resignation for good reason within one year following a change of control	550,000(3)	—	842,100	—
John W. Downing	Termination without cause or resignation for good reason other than in the context of a change of control	240,000(2)	—	—	—
	Termination without cause or resignation for good reason within one year following a change of control	550,000(3)	—	842,100	—

* All agreements include a clawback provision releasing the Company from its obligation to make additional payments and requiring the relevant executive to repay the Company for amounts paid in the event an investigation by Company reveals the executive engaged in fraudulent, dishonest, or criminal acts. The agreements provide for notice and an opportunity to cure.

(1) See description of Mr. Singhal’s employment arrangement under “Post-Termination Compensation” for details regarding these potential payments.

(2) Payments to be made in equal installments over a 12-month period following termination. In the event of death within the 12-month period, payments will be accelerated and made in a lump sum payment to the deceased’s estate within 30 days.

(3) Represents one year current base salary plus the prorated amount of the officer’s annual incentive bonus target, based on the months elapsed in the year of termination (which may not be less than 50% of such officer’s annual incentive bonus target). This amount to be paid in equal installments over the 12-month period following termination.

(4) Upon a termination without cause or a resignation for good reason within one year following a change in control, Ms. Bua and Messrs. Szabados and Downing are entitled to acceleration of certain unvested equity-based awards. All of such unvested equity-based awards with respect to such Named Executive Officers are assumed to have accelerated as of March 29, 2019, the last trading day of the year ended March 31, 2019. There were no outstanding stock options for the Named Executive Officers on March 31, 2019. For vesting of RSUs, the amount shown in this column represents the fair market value of unvested RSUs based on \$28.07, the closing price for our common stock on March 29, 2019, the last trading day of the year ended March 31, 2019.

Pay Ratio

Under SEC rules, we are required to provide information regarding the relationship between the annual total compensation of Mr. Singhal, in his role as Chief Executive Officer, and the annual total compensation of our "median employee". For our last completed fiscal year, which ended March 31, 2019:

- The median of the annual total compensation of all employees (other than Mr. Singhal, including our consolidated subsidiaries) was approximately \$139,744.
- Mr. Singhal's annual total compensation, as reported in the Summary Compensation Table included in this Proxy Statement, was \$2,745,534.
- Based on the above, for fiscal year 2019, the ratio of Mr. Singhal's annual total compensation to the median of the annual total compensation of all employees was approximately 19.6 to 1.

This pay ratio is a reasonable estimate calculated in a manner consistent with Item 402(u) of Regulation S-K under the Securities Act of 1933, as amended and based upon our reasonable judgment and assumptions. The SEC rules do not specify a single methodology for identification of the median employee or calculation of the pay ratio, and other companies may use assumptions and methodologies that are different from those used by us in calculating their pay ratio. Accordingly, the pay ratio disclosed by other companies may not be comparable to our pay ratio as disclosed above.

The methodology we used to calculate the pay ratio is described below.

- We determined the median of the annual total compensation of our employees as of January 1, 2019 at which time we (including our consolidated subsidiaries) had approximately 2,519 full-time and part-time employees.
- We then compared the sum of (i) the annual base salary of each of these employees for fiscal year 2019, plus (ii) the total annual cash incentive bonus or commission, as applicable, earned by each of these employees for fiscal year 2019 as reflected in our payroll records, plus (iii) the aggregate grant date fair value of equity awards granted to these employees in fiscal year 2019, to determine the median employee. Compensation paid in foreign currency was converted to U.S. dollars using a spot exchange rate.

Once we identified our median employee, we calculated the median employee's annual total compensation in accordance with the requirements of Item 402(c)(2)(x) of Regulation S-K, yielding the median annual total compensation disclosed above. With respect to Mr. Singhal's annual total compensation, we used the amount reported in the "Total" column of our Summary Compensation Table.

Pension Benefits Table for Fiscal Year 2019

The following table sets forth the payments or other benefits at, following, or in connection with retirement of our Named Executive Officers.

Name	Fiscal Year	Number of Years of Credited Service(#)	Present Value of Accumulated Benefit($)	Payments During Last Fiscal Year($)
Anil K. Singhal	2019	12.25	1,237,949	—
	2018	11.25	1,600,000	—
	2017	10.25	1,600,000	—

In January of 2007, we entered into an agreement with Mr. Singhal that provides retirement benefits. Total future severance payments are projected at $1,400,000. Mr. Singhal's retirement benefits also include a projected $100,000 in payments for future health benefits. These benefits are an unfunded obligation. The present value of Mr. Singhal's retirement benefits decreased from $1,600,000 in fiscal year 2018 to $1,237,949 in fiscal year 2019 as a result of a decrease in healthcare costs and a change in the discount rate applied.

Non-Qualified Deferred Compensation Table for Fiscal Year 2019

We do not provide a non-qualified defined contribution plan or other deferred compensation plan to any of our Named Executive Officers and have therefore omitted this table.

Director Compensation Table for Fiscal Year 2019

Name	Fees Earned or Paid in Cash($)(1)	Stock Awards($)(2)	All Other Compensation($)	Total($)
Robert E. Donahue(3)	101,500	174,300		275,800
John R. Egan(4)	132,000	174,300		306,300
Alfred Grasso(5)	72,833	174,300		247,133
Joseph G. Hadzima, Jr.(6)	90,750	174,300		265,050
James A. Lico (7)	30,000	—		30,000
Vincent J. Mullarkey(8)	71,258	194,110		265,368
Christopher Perretta(9)	76,000	174,300		250,300
Susan L. Spradley(10)	73,083	174,300		247,383
Vivian Vitale(11)	6,742	110,088		116,830

(1) Amounts represent the aggregate dollar amount of fiscal year 2019 fees earned or paid in cash for services as a director, including annual retainer fees and committee fees.

(2) Amounts shown do not reflect compensation actually received by the listed directors but represent the aggregate full grant date fair value of restricted stock unit awards granted to our non-employee directors calculated in accordance with FASB ASC 718. The grant date fair value of the RSU awards was calculated by multiplying the closing price of our common stock on the Nasdaq Global Select Market on the date of grant by the number of RSUs granted. The fair value shown above may not be indicative of the value realized on the date the RSUs vest due to variability in the share price of our common stock.

(3) As of March 31, 2019, Mr. Donahue held unvested RSUs covering 7,000 shares of our common stock. The RSUs vest in full at the Annual Meeting.

(4) As of March 31, 2019, Mr. Egan held unvested RSUs covering 7,000 shares of our common stock. The RSUs vest in full at the Annual Meeting.

(5) As of March 31, 2019, Mr. Grasso held unvested RSUs covering 7,000 shares of our common stock. The RSUs vest in full at the Annual Meeting.

(6) As of March 31, 2019, Mr. Hadzima held unvested RSUs covering 7,000 shares of our common stock. The RSUs vest in full at the Annual Meeting.
(7) Mr. Lico's term as a director ended upon the completion of the 2018 Annual Meeting.
(8) Mr. Mullarkey retired from the Board in February 2019. His outstanding equity awards were accelerated in connection with his retirement and resulted in an incremental fair value of $19,810.
(9) As of March 31, 2019, Mr. Perretta held unvested RSUs covering 7,000 shares of our common stock. The RSUs vest in full at the Annual Meeting.
(10) As of March 31, 2019, Ms. Spradley held unvested RSUs covering 7,000 shares of our common stock. The RSUs vest in full at the Annual Meeting.
(11) As of March 31, 2019, Ms. Vitale held unvested RSUs covering 3,970 shares of our common stock. The RSUs vest in full at the Annual Meeting.

Non-employee directors are compensated $60,000 annually for their services and do not receive any additional compensation for any regular Board meetings attended. The cash component of annual compensation is paid on a quarterly basis. The lead non-employee director receives an additional annual retainer of $35,000. Non-employee directors will receive $15,000 annually for serving on the Audit Committee, $10,000 annually for serving on the Compensation Committee, $6,000 annually for serving on the Nominating and Corporate Governance Committee, and $6,000 for serving on the Finance Committee. In addition, directors who are chairpersons of a particular committee are also given additional annual compensation of $15,000 for the Audit Committee, $10,000 for the Compensation Committee, $6,000 for the Nominating and Corporate Governance Committee, and $6,000 for the Finance Committee. Non-employee directors are also reimbursed for their reasonable out-of-pocket expenses incurred in attending meetings of the Board or of any committee and for attendance at approved director education programs.

Non-employee directors are each granted annual equity-based awards in the form of 7,000 restricted stock units. Prior to September 12, 2018, non-employee directors were each granted annual equity-based awards in the amount of $140,000. These restricted stock unit awards vest 100% on the date of our annual meeting provided that during such year, such director attends at least 75%, collectively, of the meetings of the Board and any committee of the Board of which such director is a member. In the event that the foregoing attendance requirements are not met, then 100% of these restricted stock units will vest on the third anniversary of the date of grant. No other equity awards are given to our non-employee directors. The 2019 Plan being submitted to our stockholders for approval at the 2019 Annual Meeting provides that the aggregate value of all cash and equity-based compensation paid or granted, as applicable, by the Company to any individual for service as a Non-Employee Director with respect to any fiscal year of the Company will not exceed $750,000.

Stock Plans

Amended and Restated 2007 Equity Incentive Plan. Our 2007 Plan was initially adopted by the Board in September 2007 and was initially approved by our stockholders at the September 12, 2007 annual meeting of stockholders. This plan was amended and restated in 2011, to, among other items, increase the number of shares available for issuance under the plan by 8,000,000 shares. The amendment and restatement was approved by our stockholders at the September 7, 2011 annual meeting of stockholders. The 2007 Plan was further amended and restated in 2015 to, among other items, increase the number of shares available for issuance under the plan by 8,500,000 shares. The amendment and restatement was approved by our stockholders on September 22, 2015, at the 2015 Annual Meeting.

The 2007 Plan allows us to grant restricted stock units, stock, stock options, and other equity interests to our and our subsidiaries' employees, officers, directors, consultants, and advisors. Under the 2007 Plan, we may grant options that are intended to qualify as incentive stock options within the meaning of Section 422 of the Code, options not intended to qualify as incentive stock options, restricted stock, and other stock-based awards. Incentive stock options may be granted only to our employees. The maximum number of shares as to which equity awards may still be granted under the 2007 Plan as of the Record Date is 4,150,521 shares (subject to certain adjustments under the 2007 Plan), of which no more than 500,000 shares may be granted to any one person in one fiscal year.

The 2007 Plan is administered by our Compensation Committee. Subject to the provisions of the 2007 Plan, our Compensation Committee has the authority to select the persons to whom awards are granted and to determine the terms of each award, including the number of shares of common stock subject to the award.

Payment of the exercise price of an award may be made in cash or, if approved by the Compensation Committee, shares of common stock, a combination of cash and stock, a promissory note, or by any other method approved by the Compensation Committee. Unless otherwise permitted by the Compensation Committee, awards are not assignable or transferable except by will or the laws of descent and distribution and, during the participant's lifetime, may be exercised only by the participant.

The Compensation Committee may, in its sole discretion, amend, modify or terminate any award granted or made under the 2007 Plan, so long as such amendment, modification or termination would not materially and adversely affect the participant. The Compensation Committee may also provide that any option shall become immediately exercisable, in full or in part, or that any restricted stock granted under the 2007 Plan shall be free of some or all restrictions.

As of the Record Date, restricted stock units representing 3,799,810 shares of common stock were outstanding.

As described in Proposal 2 above, if Proposal 2 is approved by our stockholders, the 2019 Plan will become effective as of the date of the Annual Meeting and no additional equity awards will be granted under the 2007 Plan.

2019 Equity Incentive Plan. The 2019 Plan was adopted by the Board on July 9, 2019, subject to the approval of our stockholders. For a summary of the material features of the 2019 Plan, please see the description of the 2019 Plan in Proposal 2.

2011 Employee Stock Purchase Plan. The 2011 Employee Stock Purchase Plan, or the 2011 Purchase Plan was adopted by the Board in June 2011 and was approved by our stockholders at the September 7, 2011 annual meeting of stockholders. A total of 5,500,000 shares of common stock are reserved for issuance under the 2011 Purchase Plan, including the 3,000,000 share increase approved by our stockholders at the 2018 Annual Meeting. The 2011 Purchase Plan grants eligible employees the opportunity to purchase our common stock through regular payroll deductions.

Under the 2011 Purchase Plan, eligible enrolled employees may, during the offering period, purchase shares of common stock through regular payroll deductions, not to exceed 20% of an individual employee's compensation during the offering period. The purchase price per share during an offering period is determined by the Board at the beginning of the offering period, but may not be less than 85% of the lesser of (i) the fair market value per share of our common stock on that purchase date or (ii) the fair market value per share of our common stock on the first day of the offering period. However, no employee is eligible to participate in the 2011 Purchase Plan if, immediately after the grant of purchase rights, the employee would own, directly or indirectly, stock possessing 5% or more of the total combined voting power or value of all classes of our stock, including any stock which such employee may purchase under all outstanding purchase rights and options. In addition, no employee may purchase more than $25,000 worth of our common stock, valued at the time each purchase right is granted, for each calendar year during which those purchase rights are outstanding.

The Board administers the 2011 Purchase Plan and retains the power to interpret both the 2011 Purchase Plan and the purchase rights granted thereunder, including eligibility to participate and the particular provisions of each offering of rights. The Board, in its sole discretion, has the power to delegate administration of the 2011 Purchase Plan to a committee composed of one or more members of the Board.

As of the Record Date, 2,908,143 shares remain available for purchase under the 2011 Purchase Plan.

The following table sets forth securities authorized for issuance under our stock equity incentive plans as of fiscal year ended March 31, 2019:

Equity Compensation Plan Information

Plan category	Number of securities to be issued upon exercise of outstanding options, warrants and rights	Weighted-average exercise price of outstanding options, warrants and rights	Number of securities remaining available for future issuance under equity compensation plans (excluding securities reflected in column (a))
	(a)	(b)	(c)
Equity compensation plans approved by security holders	4,210,655	0.00	3,811,505
Equity compensation plans not approved by security holders	—	—	—
Total	4,210,655	0.00	3,811,505

Stock Ownership Policy

In 2010, the Compensation Committee approved a Stock Ownership Policy for certain of the Company's executive officers and directors. The Stock Ownership Policy, which the Board amended in 2016, states that within four years of the date the policy became effective, or within four years after becoming an executive officer or director, the executive officers and directors will be subject to the following minimum stock ownership requirements:

Title	Ownership Guideline(1)
Chief Executive Officer	4x annual base salary
Chief Operating Officer	3x annual base salary
Officers who are Executive Vice Presidents	2x annual base salary
Directors	4x annual board retainer

(1) The ownership guideline for each participant will be converted into a number of shares on the first day of each fiscal year based on the average closing price of a share of NetScout stock for the previous fiscal year.

The Compensation Committee is responsible for monitoring compliance with the guidelines. As of March 31, 2019, each officer and director had met the requirements of the Stock Ownership Policy. Shares that count toward the ownership target include all shares directly or beneficially owned by the director or executive officer, shares held in trust for the benefit of the director or executive officer, and unvested restricted stock units granted under Company's plans (restricted stock units will be applied toward the ownership requirements based on the value of restricted stock units after taking into account any required share withholding). The Compensation Committee expects to continue to review and make changes to the policy, as appropriate.

401(k) Plan

We maintain a 401(k) plan qualified under Section 401 of the Code. All of our U.S. employees who are at least 18 years of age and work at least 20 hours per week are eligible to participate in the 401(k) plan. Under the 401(k) plan, a participant may contribute a maximum of 80% of his or her pre-tax salary, commissions and bonuses through payroll deductions, up to the statutorily prescribed annual limit, to the 401(k) plan. During the plan year ended December 31, 2018, we matched 50% of employee contributions up to 6% of compensation.

Employer contributions vest over four years at a rate of 25% per year of service. In addition, at the discretion of our Board, we may, but have not done so to date, make profit-sharing contributions to the 401(k) plan for all eligible employees.

Employment and Other Agreements

Mr. Singhal assumed the role of Chairman of our Board, effective January 19, 2007. In conjunction with his additional responsibilities, we entered into a new employment agreement with Mr. Singhal, which provides that he will receive an annual base salary of at least $300,000. The employment agreement provides for a three-year term commencing January 19, 2007 with automatic one-year renewals. During the term of this agreement, Mr. Singhal will also be eligible to receive an annual incentive cash bonus award based on Company performance and individual objectives. The employment agreement is terminable at will by either party and provides that if we elect not to renew the agreement for any reason, or if Mr. Singhal's employment is terminated by us without due cause as defined in the agreement, by Mr. Singhal at any time following the consummation of a sale of the Company, or upon the death or disability of Mr. Singhal, then Mr. Singhal, or his estate, is entitled to receive in a lump sum, a payment equal to the net present value of $16,208 per month for seven years. If Mr. Singhal terminates his employment with us for any reason prior to the consummation of a sale of the Company, he is entitled to such lump sum payment. Mr. Singhal will also receive continued health and dental benefits during such period. Mr. Singhal's employment agreement was amended in May 2012 to address technical requirements of Section 409A of the Internal Revenue Code of 1986, as amended.

We also entered into amended and restated severance agreements in May 2012, which were amended in January 2015, with our Named Executive Officers other than Mr. Singhal, each of which are described under the heading "Post-Termination Compensation" in the Compensation Discussion and Analysis.

Each of these agreements was approved by a majority of our Board and by a majority of the disinterested members of our Board. All future transactions, if any, with our executive officers, directors, and affiliates will be approved in accordance with our related party transaction policy discussed below under "Transactions with Related Persons."

Compensation Discussion and Analysis

Business Context

We are an industry leader in providing service assurance and security solutions that are used by customers worldwide to assure their digital business services against disruption. Service providers and enterprises, including local, state and federal government agencies, rely on our solutions to achieve the visibility necessary to optimize network performance, ensure the delivery of high-quality, mission-critical applications and services, gain timely insight into the end user experience and protect the network from attack. With our offerings, customers can quickly, efficiently and effectively identify and resolve issues that would otherwise result in downtime, interruptions to services, poor service quality or compromised security, thereby driving compelling returns on their investments in their network and broader technology initiatives.

Our company has changed considerably as a result of the transformative acquisition of the Danaher Communications Business in July 2015. Our revenue has grown from just over $450 million in fiscal year 2015 to approximately $910 million in fiscal year 2019, despite revenue decreases in the last two years, and our employee base increased from approximately 1,000 employees pre-acquisition to about 2,600 today.

Over the last few years, we have navigated challenging market conditions, particularly in our service provider customer segment, while completing major integration initiatives, advancing key product development programs, implementing important go-to-market activities, and reducing overall operating costs, all without compromising our ability to address the near and longer-term needs of our customers worldwide.

During fiscal year 2019, we made substantial operational and strategic progress that we believe helped fortify our technology and market leadership while setting the stage for revenue growth, profit margin expansion, earnings per share gains, and robust free cash flow over the coming years. We completed the integration of the technology and product assets we have acquired in recent years, accelerated the transition from traditional appliance-based instrumentation to a range of software-centric deployment options, and funded key development, support, and sales programs. We also took several steps to adjust our cost structure by means of a voluntary separation program and other related measures that resulted in a net reduction of approximately 140 employees. We also divested our handheld network test (HNT) tools business to significantly reduce operating costs as well. We move forward as a company that is increasingly well positioned to help our customers advance their digital transformation initiatives with a broader set of solutions that we expect to further expand in fiscal year 2020.

Executive Summary – Executive Compensation Objectives

We use our compensation program to achieve the following objectives:

- provide compensation opportunities that attract, motivate, and retain the best talent possible to serve our customers and achieve our strategic objectives;
- align management's interests with our success, by linking compensation and performance, based on the attainment of both our corporate goals and individual goals and by including long-term equity incentives;
- increase our revenue, increase our profitability, and accordingly increase stockholder value;
- foster an environment of teamwork and shared success among executives and the entire NetScout workforce; and
- reward effective management of financial and operational risk.

Executive Summary—Fiscal Year 2019 Executive Compensation Highlights

Our compensation programs are structured to provide strong pay-for-performance alignment. While we achieved a number of our strategic objectives during fiscal year 2019, we did not fully achieve our corporate financial objectives. Consistent with our pay-for-performance philosophy and as more fully described below, for fiscal year 2019, we:

- maintained base salaries at the same level as in the fiscal year ending March 31, 2018, or fiscal year 2018, for each of our Named Executive Officers;
- maintained target cash incentive opportunities at the same level as in fiscal year 2018 for each of our Named Executive Officers;
- approved bonus payments at 70% of target for our Named Executive Officers; and
- approved RSU awards with a grant date fair value that was 12% lower than the value of fiscal 2018 awards, in accordance with our long-term equity compensation objectives and consistent with our pay-for-performance philosophy.

Executive Compensation Overview

The goal of our executive officer compensation program is to retain and reward highly qualified, talented leaders who create long-term stockholder value. In addition, our program is designed to align management's interests with those of our stockholders and to motivate senior executives to increase our long-term growth and profitability. We continue to emphasize pay-for-performance. For example, as in the past, for fiscal year 2020, our Named Executive Officers will not be eligible for their target annual incentive cash bonus until after a threshold profitability (non-GAAP earnings per share, or EPS) target is met. Further, the Compensation

Committee, and the Board with respect to the CEO, previously determined that one-third of the shares subject to the RSUs granted to our Named Executive Officers will be granted on the basis of achievement of corporate and individual performance goals in the prior fiscal year. Please see "GAAP vs. Non-GAAP Measures" in Appendix B for a reconciliation between the non-GAAP measures and GAAP results.

As further described below, as a result of our financial performance in which we met our earnings per share targets but fell short of our revenue target, each of our Named Executive Officers received 70% of his or her total annual incentive bonus target for fiscal year 2019. The annual incentive cash bonus awards, which were reduced below the full targeted amount, as well as the 0% bonus payments in the prior fiscal year, are in accordance with our pay-for-performance philosophy. The 70% bonus achievement was based on each Named Executive Officer fully achieving three performance goals and partially meeting the fourth performance goal.

Executive Compensation Highlights

At the 2018 Annual Meeting, our stockholders approved our say-on-pay proposal with 95% of the total votes cast voting in favor. The Compensation Committee carefully considers the results of the advisory vote on our say-on-pay proposal in the context of its annual review of executive compensation and the on-going work of the Compensation Committee. The Compensation Committee and the Board focus significant time and attention on the issues raised by our stockholders. In particular, the Compensation Committee reviews specific feedback when and if it is received from our investors and proxy advisory firms on certain compensation practices and related disclosures.

Corporate Performance Overview

Our fiscal year 2019 financial performance, in particular our revenue shortfall, was affected by delayed revenue recognition on a large service assurance project at an international mobile operator, continued but ameliorating service provider capital spending pressures, and federal funding delays. At the same time, our enterprise sector showed solid organic expansion due to strong growth in our Distributed Denial of Service, or DDoS, mitigation and prevention product area and relatively stable results in the service assurance product area. Our operating profitability was driven by solid gross margins due in part to higher software sales and lower operating expenses, with earnings per share exceeding the mid-point of our original guidance, due to cost management as well as a lower than anticipated tax rate.

In the face of the revenue decline, we took actions to adjust expenses and maintain strong gross margins through increased adoption of our software-based platform. Considering our operating results, we generated solid free cash flow and continued to return capital to shareholders via our share repurchase activities that continued more modestly during fiscal year 2019 after our significant accelerated share repurchase program in fiscal year 2018.

More specifically, for fiscal year 2019:

Total Revenue
• Total revenue (GAAP) was \$909.9 million in fiscal year 2019 versus total revenue (GAAP) of \$986.8 million in fiscal year 2018. Fiscal year 2019 non-GAAP total revenue was \$911.5 million versus \$999.3 million in fiscal year 2018. Non-GAAP revenue for fiscal years 2019 and 2018 included \$18 million and 44.1 million, respectively, from the divested HNT business.
Product Revenue
• Product revenue (GAAP) in fiscal year 2019 was \$467.3 million, compared with \$520.4 million in fiscal year 2018. • Non-GAAP product revenue in fiscal year 2019 was \$467.7 million versus \$523.5 million in fiscal year 2018. Non-GAAP product revenue for the HNT tools business for fiscal year 2019 was \$13.4 million versus \$32.1 million in fiscal year 2018.

Service Revenue
• Service revenue (GAAP) was $442.6 million in fiscal year 2019 versus $466.4 million fiscal year 2018. • Non-GAAP service revenue in fiscal year 2019 was $443.8 million, compared with $475.8 million in fiscal year 2018. The HNT tools business non-GAAP service revenue in fiscal year 2019 was $4.6 million versus $12.0 million in fiscal year 2018.
Operating Income
• Loss from operations (GAAP) in fiscal year 2019 was $71.6 million, compared with a loss from operations (GAAP) of $4.1 million in fiscal year 2018. • Non-GAAP income from operations for fiscal year 2019 was $161.6 million with a non-GAAP operating margin of 17.7%, compared with non-GAAP income from operations in fiscal year 2018 of $183.4 million and a non-GAAP operating margin of 18.4%.
Net Income and Net Income Per Share
• Net loss (GAAP) in fiscal year 2019 was $73.3 million, or $0.93 per share (diluted) compared with net income of $79.8 million, or $0.90 per share (diluted) in fiscal year 2018. Non-GAAP net income in fiscal year 2019 was $109.2 million, or $1.38 per share (diluted) versus non-GAAP net income in fiscal year 2018 of $124.7 million, or $1.41 per share (diluted).
Stock Repurchase
• Following our significant accelerated share repurchase program in fiscal year 2018, during fiscal year 2019, we repurchased a total of 543,251 shares of our common stock at an average price of $26.61 per share, totaling approximately $14.5 million in the aggregate.

Despite our fiscal year 2019 revenue performance we move forward as a company that is increasingly well positioned to help our customers advance their digital transformation initiatives with a broader set of solutions that we expect to further expand in fiscal year 2020.

Compensation Governance Highlights

What We Do	What We Don't Do
☑ Design executive compensation program to align pay with performance	☒ No excessive change in control or severance payments
☑ Maintain executive stock ownership guidelines	☒ No tax gross-ups
☑ Maintain appropriate stock trading policies	☒ No hedging and pledging permitted for officers and directors as part of Insider Trading Policy
☑ Mitigate inappropriate risk taking	☒ No guaranteed annual incentive bonuses

Executive Compensation Objectives

We use our compensation program to achieve the following objectives:

- provide compensation opportunities that attract, motivate, and retain the best talent possible to serve our customers and achieve our strategic objectives;
- align management's interests with our success, by linking compensation and performance, based on the attainment of both our corporate goals and individual goals and by including long-term equity incentives;

- increase our revenue, increase our profitability, and accordingly increase stockholder value;
- foster an environment of teamwork and shared success among executives and the entire NetScout workforce; and
- reward effective management of financial and operational risk.

Compensation Philosophy

The Compensation Committee reviews our compensation program, including elements of compensation, the mix of long-term versus short-term compensation and the mix of cash versus equity compensation, over the course of several meetings each year to evaluate whether the program supports our long-term goals. The Compensation Committee considers our past financial performance and future goals, individual performance and experience, and overall compensation levels when making compensation decisions. In addition, the Compensation Committee uses the following principles to guide its decisions regarding Named Executive Officer compensation.

Pay-for-performance	Total compensation should reflect a "pay-for-performance" philosophy in which a substantial portion of each Named Executive Officer's compensation should be tied to the achievement of performance objectives of both the company and the individual. Cash compensation includes annual incentive cash bonus awards, which are dependent in part upon achievement of Company-wide profitability targets (non-GAAP EPS). In connection with annual incentive bonus awards, Named Executive Officers also have individual goals that require each of them to meet the same revenue target. Past performance by each Named Executive Officer is considered in determining the size of annual grants of long-term incentive equity awards. In fiscal year 2019, and as set out in last year's proxy statement and discussed further under "Equity Awards" below, the Compensation Committee determined that one-third of the shares of the RSUs granted to our Named Executive Officers would be granted based on achievement of corporate and individual performance goals.
Alignment with Stockholders' Interests	Total compensation levels should include a component that reflects our overall performance through the use of equity-based awards in order to align Named Executive Officer and stockholder interests.
Internal Parity	To the extent practicable, and based on individual performance and position, base salaries and short-term and long-term incentive targets for similarly-situated Named Executive Officers within the company should be comparable to avoid divisiveness and encourage teamwork, collaboration, and a cooperative working environment.
External Competitiveness	Named Executive Officers' total compensation should be competitive with peer companies so that we can attract and retain high performing key executive talent. To achieve this goal, our Compensation Committee periodically reviews the compensation practices of other companies in our peer group, as discussed below in the "Use of Third Party Data/Peer Group" section below.

Elements of Our Executive Compensation Program

Compensation for our Named Executive Officers currently consists of three principal elements that are designed to achieve our compensation objectives and reward performance in a simple and straightforward manner: base salaries, annual incentive cash bonus awards, and long-term equity awards. The purpose and key characteristics of each of these elements are summarized below.

Base Salary	
Purpose	**Key Characteristics**
• Provides a fixed level of compensation for performing the essential day-to-day elements of the job • Reflects each Named Executive Officer's qualifications, experience, and responsibilities compared to executives at similar companies • Gives executives a degree of certainty in light of having a majority of their compensation at risk	• Compensation Committee determines base salary levels for Named Executive Officers other than our CEO, and makes recommendations to the Board in the case of our CEO • For Named Executive Officers other than our CEO, typically determined after considering the evaluations and recommendations made by our CEO, who applies his own judgment in making recommendations after reviewing our performance, the performance of each Named Executive Officer against corporate and individual goals, the executive's career with the Company, the amounts of current and long-term compensation, market data from our peer group and special circumstances such as strategic alliances or acquisitions • While we do not target a specific percentile for base salaries relative to our peer group, fiscal year 2019 base salaries for all of our Named Executive Officers were maintained at the same level as for fiscal year 2018
Annual Incentive Bonus Awards (Cash)	
Purpose	**Key Characteristics**
• Provides an incentive to executives to achieve both financial operating goals and individual performance goals that are designed to help accomplish our strategic plan, which include financial and non-financial objectives	• Target amounts generally established shortly after the start of each fiscal year, and, consistent with our pay-for-performance approach • In no event will any Named Executive Officer receive more than 200% of his or her annual incentive bonus target • Corporate performance goals generally consist of Board-approved revenue and non-GAAP earning per share targets • Executive officers are eligible for annual incentive bonuses only after NetScout meets or exceeds a threshold profitability target (non-GAAP EPS), except for Mr. Downing, our EVP Worldwide Sales, with respect to the portion of his short-term cash incentive compensation that consists of sales commissions

Purpose	Key Characteristics
	• If NetScout meets or exceeds the threshold non-GAAP EPS target, executive officer annual incentive bonuses are then determined based on attainment of individual goals, contribution to the Company-wide goals, including revenue, and satisfaction of other criteria as may be determined by the Compensation Committee • Paid annually shortly after the end of the fiscal year to which they relate
Long-Term Equity Incentives	
Purpose	**Key Characteristics**
• Motivates executive officers to achieve our business objectives and manage risk by tying compensation to the performance of our common stock over the long term, which aligns the interests of management and stockholders • Motivates our executive officers to remain with the Company by mitigating swings in incentives during periods when market volatility affects our stock price • Attracts highly qualified individuals who can contribute to our success	• Restricted stock unit awards generally vesting over four years; the ultimate value realized varies with our success as measured by our common stock price • Generally granted to executive officers at their appointment and then annually, depending upon performance • The Compensation Committee also reviews, with the use of tally sheets, previous equity grants to executive officers and considers the level of outstanding awards as a factor in its determinations
	• To further our long term incentive goals, we have a Stock Ownership Policy for certain executive officers and directors, as described in this proxy statement under "Stock Ownership Policy" • One-third of the shares subject to the RSUs granted to our Named Executive Officers are granted based on the achievement of corporate and individual performance goals for the prior fiscal year
Other Compensation	
Purpose	**Key Characteristics**
• Provides benefits that promote employee health and welfare, which assists in attracting and retaining our executive officers	• Provides benefits that are common and appropriate for similarly-situated executives of public companies, including health insurance and our 401(k) plan

Purpose	Key Characteristics
	• Executive officers are also eligible for life insurance policies that provide for three times cash compensation (salary and annual incentive bonus target) up to a $1.5 million cap. Mr. Singhal is entitled to other benefits discussed below.

Executive Compensation Review and Process

General

The Compensation Committee meets at least four times annually to coincide with regularly scheduled Board meetings and usually holds additional meetings during the year. The Compensation Committee met six times during the fiscal year ended March 31, 2019. Each year, the Compensation Committee reviews compensation objectives and practices in connection with the annual review and approval of executive officer compensation. The Compensation Committee exercises discretion and has ultimate authority with respect to executive compensation matters, except in the case of the compensation of the Chief Executive Officer, which is approved by the full Board after receiving a recommendation from the Compensation Committee.

Role of Senior Management

The Compensation Committee views the compensation determination process as an important opportunity to engage in strategic discussions with the Chief Executive Officer on the appropriate factors and criteria that should be focused on for the attainment of long-term stockholder value. Our Chief Executive Officer often participates in discussions and deliberations regarding the compensation of our executive officers, and he provides recommendations with respect to such executives. The other executives do not play a role in determining their compensation, other than in discussing their performance with the Chief Executive Officer and the Chief Operating Officer, who makes his own recommendations to the Chief Executive Officer for the Chief Executive Officer's consideration. The Chief Operating Officer has no role in determining his own compensation, other than providing the Chief Executive Officer with an assessment of his own performance. Our Chief Executive Officer is not present and does not participate in discussions or deliberations regarding his own compensation, performance, or objectives, whether at Compensation Committee or Board meetings.

Role of Compensation Consultants

In fiscal year 2019, our Compensation Committee did not engage a compensation consulting firm. However, in fiscal year 2020, our Compensation Committee engaged Pay Governance, an independent compensation consulting firm, to assist with peer group analysis and to collect compensation information pertaining to executive officer compensation matters. The Compensation Committee has determined that Pay Governance is free from conflicts of interest.

Use of Third Party Data/Peer Group Data

The Compensation Committee determines and periodically reevaluates our peer group based on the following criteria: revenue, market capitalization, net income, number of employees, and similar industry/related technology. Additional factors that have been considered in the past when selecting peer group companies have included revenue growth over one and three years and total stockholder return over one and three years.

The Compensation Committee considers peer group data as one of several factors when examining and making decisions about officer compensation. The Compensation Committee believes the data is helpful but considers such information as part of a range of factors in determining appropriate compensation levels. Generally, the data are used to compare the compensation of our named executive officers with that of the officers of our peer group companies. The comparison is not intended to determine compensation in any formulaic way.

Evaluation of Executive Performance

The Compensation Committee reviews annually, over a series of meetings, the performance and compensation of each of our executive officers. The Compensation Committee takes into account our financial performance and future expectations, individual performance and experience, and overall compensation levels. The Compensation Committee has not typically assigned specific weights, formulas, or rankings to these factors, but instead makes a determination based on consideration of all of these factors as well as the progress made with respect to our long-term goals and strategies, except that, with respect to individual goals, weights are assigned to each Named Executive Officer's individual goals which are considered generally as part of the Compensation Committee's evaluation of performance. Further, the Compensation Committee does place greater emphasis on the achievement of our overall corporate financial targets in making its determinations and considers those financial targets as shared objectives for all executives.

For those individual goals that are capable of direct measurement, the Compensation Committee considers the percentage of goal achievement during the year, including both internal and external factors affecting the Company. For goals that are qualitative in nature or do not lend themselves to direct financial or numerical measurement, the Compensation Committee relies primarily on its judgment, knowledge of the business, and information obtained through interactions with management throughout the year, recognizing that the degree of achievement of qualitative criteria can still be assessed.

Establishing Performance Goals

The corporate level performance goals and the individual performance goals are normally set shortly after the beginning of each fiscal year. Discussions of next year's goals typically begin during the fourth quarter of the current fiscal year, in conjunction with management's development of proposed strategic and operating plans and budget for the next fiscal year. The Compensation Committee establishes goals for executive officers consistent with NetScout's strategic plan, financial goals, and operating budget for the year. Accordingly, the Compensation Committee generally has the expectation that achievement will be challenging but achievable.

With respect to specific corporate goals, the Compensation Committee establishes a threshold goal, which is typically a profitability (non-GAAP EPS) target, which we must achieve before full company-wide bonus accruals are made for the fiscal year. The company focuses its profitability target on our publicly-communicated earnings per share guidance for the fiscal year. In the event that revenue performance falls below guidance, the total company-wide bonus pool will be reduced, to zero if necessary, in order to strive to meet the non-GAAP EPS guidance. In the event of over performance with respect to profitability, either due to higher revenue, changes in product mix, decisions to reduce investment in certain areas, or unanticipated one-time events such as tax refunds, the additional funds will be allocated between the company-wide bonus pool and stockholders in the form of increases to EPS.

In addition, the Chief Executive Officer works with each Named Executive Officer to establish individual annual performance goals and then presents proposed goals for each Named Executive Officer to the Compensation Committee for review and evaluation. The Compensation Committee or the Board provides advice and comments on the individual executive goals and approves the final goals. The Compensation Committee believes that the Chief Executive Officer should initially evaluate and report to the Compensation Committee the day to day performance of the executives who report to him. As such, the Compensation Committee considers the advice of the Chief Executive Officer in making their own evaluation and assessment of such executives.

The Compensation Committee makes a determination of each executive's compensation based on consideration of all of these factors as well as the progress made with respect to our long-term goals and strategies.

Fiscal 2019 Compensation Decisions

Peer Group

As one of the considerations in its deliberations on compensation matters, the Compensation Committee reviews competitive market data for executive compensation levels from a peer group of companies. While the Compensation Committee believes it is in the best interests of our stockholders to ensure that our executive compensation is competitive with that of other companies of similar size and complexity, the Compensation Committee does not use peer group data to set compensation levels at specific percentiles.

Peer companies are identified based on comparability to NetScout across a range of factors including: revenue, market capitalization, net income, number of employees, and similar industry/related technology. Additional factors that have been considered in the past when selecting peer group companies have included revenue growth over one and three years and total stockholder return over one and three years. In selecting the peer group, the Compensation Committee generally targets companies with revenues ranging from approximately .40 to 2.5 times that of NetScout. The companies included in our peer group for fiscal 2019 were the same as in fiscal 2018 except for the removal of four companies that had been acquired (Brocade Communications, EarthLink Holdings, Ixia and Rackspace). The fiscal 2019 peer companies are shown below.

Akamai Technologies, Inc.	Infinera Corporation	Verint Systems Inc
CA Technologies, Inc.	National Instruments	VeriSign, Inc.
Ciena Corporation	PTC Inc.	ViaSat Inc.
Citrix Systems, Inc.	ServiceNow, Inc.	Viavi Solutions Inc.
Extreme Networks Inc.	Splunk Inc.	
F5 Networks, Inc.	Synchronoss Technologies, Inc.	

For fiscal year 2020, our peer group has been revised to exclude CA Technologies due to its acquisition, and Citrix Systems, Inc., ServiceNow, Inc. and Ciena Corporation have been removed as well due to size considerations. Moreover, the peer group for fiscal year 2020 will now also include NETGEAR Inc., FireEye, Inc. and Commvault Systems, Inc. due to their comparability in terms of revenue, market capitalization and technology focus.

Base Salaries and Annual Incentive Bonus Target Percentages

Previously, for fiscal year 2018, the Compensation Committee, with respect to the Named Executive Officers other than the Chief Executive Officer, and the Board, with respect to the Chief Executive Officer, determined that base salaries for fiscal year 2018 would be increased in accordance with market practice and to further approximate the companies in our peer group. However, the Compensation Committee and the Board determined that total cash compensation would not be significantly increased, and so the annual incentive target as a percentage of each individual's total compensation was reduced. For fiscal year 2019, the Compensation Committee, with respect to the Named Executive Officers other than the Chief Executive Officer, and the Board, with respect to the Chief Executive Officer, determined that base salaries and bonus targets should remain unchanged from fiscal year 2018. The base salaries for the Named Executive Officers were increased to their current level effective on July 1, 2017. In addition, the Compensation Committee has determined that in no event would any Named Executive Officer receive more than 200% of his or her annual incentive bonus target.

Corporate Performance Goals and Achievement

For fiscal year 2019, the Compensation Committee established an annual threshold non-GAAP EPS target equal to the mid-point of our guidance range of between a decline of approximately 20 percent to low double-digit growth over fiscal year 2018 non-GAAP EPS of $1.41 per share, which the Compensation Committee thought was an appropriate target for the business. The Company's non-GAAP revenue target for executive compensation purposes in fiscal year 2019 is equal to the mid-point of our guidance range, which was between a low single-digit decline to low single-digit growth from fiscal year 2018 non-GAAP revenue of $999.3 million. For the fiscal year 2019 annual incentive cash bonus award, as in prior years, the threshold non-GAAP earnings per share target must first be achieved in order for any annual incentive bonus to be paid for fiscal year 2019. For fiscal year 2019, the Company met the threshold non-GAAP EPS target. While the Company met the non-GAAP EPS target, the Company did not meet the non-GAAP revenue target, and, therefore, bonus eligibility for our Named Executive Officers was determined to be 70%, in accordance with our pay-for-performance philosophy.

Individual Performance Goals and Achievement

The following lists the fiscal year 2019 individual performance goals for each of our Named Executive Officers. Except as provided below, the Compensation Committee determined the goals were achieved for each Named Executive Officer, and the Board determined the goals were largely achieved for our Chief Executive Officer, with the understanding that all Named Executive Officers also shared the corporate-wide financial goals.

Anil Singhal, CEO

- **Goal**: Achieve the mid-point of non-GAAP revenue guidance of a low single-digit decline to low single-digit growth from fiscal year 2018 non-GAAP revenue of $999.3 million and achieve the mid-point of non-GAAP EPS guidance of between a decline of approximately 20 percent to low double-digit growth over fiscal year 2018 non-GAAP EPS of $1.41 per share.

  Outcome: Non-GAAP EPS threshold achieved. Did not achieve pre-established non-GAAP revenue target.
- **Goal**: Develop company-wide go-to-market strategy for a new product.
- **Outcome**: Achieved the development of a company-wide go-to-market strategy for the new Arbor Threat Analytics product.
- **Goal**: Develop and implement a strategy to penetrate a specified market segment.
- **Outcome**: Achieved the development and implementation of a strategy to penetrate the Advanced Threat enterprise market segment.
- **Goal**: Create additional market opportunities in four specified areas.

  Outcome: Achieved the creation of additional market opportunities in the areas of Visibility as a Service, or VaaS, Calibration, and Pulse offerings and through additional partnerships.

Michael Szabados (COO)

- **Goal**: Achieve the mid-point of non-GAAP revenue guidance of a low single-digit decline to low single-digit growth from fiscal year 2018 non-GAAP revenue of $999.3 million and achieve the mid-point of non-GAAP EPS guidance of between a decline of approximately 20 percent to low double-digit growth over fiscal year 2018 non-GAAP EPS of $1.41 per share..

  Outcome: Non-GAAP EPS threshold achieved. Did not achieve pre-established non-GAAP revenue target.
- **Goal**: Determine specified IT integration plan and execute it on time and on budget.

  Outcome: Achieved IT integration plan and executed it on-time and on- budget for fiscal year 2019.
- **Goal**: Implement operating expense reduction of a specified amount by the fourth quarter of fiscal year 2019.

Outcome: Achieved the implementation of an operating expense reduction of at least $50 million annual run-rate by the fourth quarter of fiscal year 2019.

- **Goal**: Complete major enterprise risk initiatives focusing on compliance, business continuity, and cyber security protection.

  Outcome: Achieved the completion of major enterprise risk initiatives focusing on compliance (e.g. transactions in high risk geographies), business continuity (extending coverage to Tier 2 sites), and cyber security protection.

John Downing (EVP Worldwide Sales)

- **Goal**: Achieve the mid-point of non-GAAP revenue guidance of a low single-digit decline to low single-digit growth from fiscal year 2018 non-GAAP revenue of $999.3 million and achieve the mid-point of non-GAAP EPS guidance of between a decline of approximately 20 percent to low double-digit growth over fiscal year 2018 non-GAAP EPS of $1.41 per share.

  Outcome: Non-GAAP EPS threshold achieved. Did not achieve pre-established non-GAAP revenue target.

- **Goal**: Drive cross-selling and collaboration between enterprise service assurance and security sales teams to support the achievement of key new business bookings targets.

  Outcome: Achieved driving cross-selling and collaboration between enterprise service assurance and security sales teams to support the achievement of key new business bookings targets.

- **Goal**: Launch a specified new sales initiative in fiscal year 2019 and revive specified accounts.

  Outcome: Achieved the launch of the VaaS sales initiative in fiscal year 2019, to revive dormant Enterprise accounts.

- **Goal**: Enable our continued transition from hardware to software revenue as measured by specified metrics.

  Outcome: Achieved the enablement of our continued transition from hardware to software revenue as measured by increasing the percentage of higher margin Commercial Off-The-Shelf hardware platform and Virtualization revenue.

Jean Bua (EVP and CFO)

- **Goal**: Achieve the mid-point of non-GAAP revenue guidance of a low single-digit decline to low single-digit growth from fiscal year 2018 non-GAAP revenue of $999.3 million and achieve the mid-point of non-GAAP EPS guidance of between a decline of approximately 20 percent to low double-digit growth over fiscal year 2018 non-GAAP EPS of $1.41 per share.

  Outcome: Non-GAAP EPS threshold achieved. Did not achieve pre-established non-GAAP revenue target.

- **Goal**: Restructure the technology and processes to implement all new accounting standards including the new leasing standard for financial reporting periods beginning in fiscal year 2020.

  Outcome: Achieved the restructuring of the technology and processes to implement all new accounting standards including the new leasing standard for financial reporting periods beginning on April 1, 2019.

- **Goal**: Implement the tax standard throughout our operations and review the capital structure and identify efficiencies and changes.

Outcome: Achieved the implementation of the tax standard throughout our operations and reviewed the capital structure and identified efficiencies and changes.

- **Goal**: Successfully support the divestiture of the handheld network tools business.

  Outcome: Achieved the successful support of the divestiture of the HNT tools business.

Annual Incentive Bonus Payout Amounts

In determining the annual incentive bonus target amounts for executive officers, the Compensation Committee considered our financial performance and each officer's non-financial individual leadership, ongoing development and execution of our strategy, non-financial individual goal achievement, experience, and responsibility. The Compensation Committee considered that the Company had not met its non-GAAP revenue targets, which was an individual goal for each Named Executive Officer despite making its EPS target.

The Compensation Committee determined that each Named Executive Officer, and recommended to the Board, in the case of Mr. Singhal, which approved the recommendation, should receive 70% of his or her annual incentive bonus target. The total bonus amounts for all Named Executive Officers are provided in the Summary Compensation Table. In the case of Mr. Downing, the information presented in the "Non-Equity Incentive Plan Compensation" column also includes his sales commissions.

Equity Awards

Following the transformative Danaher Communications Business acquisition, which increased not only the size and complexity of the Company—it has grown from just over $450 million in revenue in fiscal year 2015 to approximately $910 million in revenue in fiscal year 2019, despite revenue decreases in the last two years —but also the responsibilities of our Named Executive Officers, the Compensation Committee reviewed and made changes to the long-term equity component for our Named Executive Officers. In particular, the Compensation Committee, and the Board, sought to enhance the long-term equity program's alignment with stockholders' interest by adding a performance-based component to a significant portion of the long-term equity incentives for Named Executive Officers.

Under the revised guidelines beginning with grants made for fiscal year 2019, the Compensation Committee (and the Board with respect to the CEO) approved an increase in the individual Named Executive Officer grant amount guidelines by 50%. This change recognized the Company's dramatic growth in revenue, employees, and complexity since the acquisition of Danaher Corporation's Communications Business. The Compensation Committee also determined that for the equity grants for our Named Executive Officers, one-third (as measured by number of RSUs to be granted) of the equity awards granted to our Named Executive Officers will be awarded as a result of prior year performance against corporate and individual performance goals as also set out in last year's proxy statement. These performance awards will be time-based and vest 25% on the first anniversary of the date of grant, with the balance vesting in equal increments annually over the following three years. Such awards will be granted based on corporate and individual performance, including whether the Company achieves a pre-established non-GAAP EPS profitability target each year with respect to that year's grant. If the Company fails to achieve the target, this performance-related portion of that year's RSU award will be appropriately reduced for each Named Executive Officer. The Compensation Committee and the Board will also consider the achievement of individual goals to determine whether this portion of the equity grant will be made to individual Named Executive Officers.

The Compensation Committee believes that the annual grants are appropriate in furtherance of our philosophy that total executive compensation should be more heavily weighted toward long-term incentive compensation to ensure that the interests of our executives are aligned with those of our stockholders. In addition, the Compensation Committee felt it was important to ensure that Ms. Bua and Messrs. Singhal, Szabados and Downing have a significant ongoing equity stake in the Company so that each has appropriate incentives and has long-term interests that are aligned with those of our stockholders. Finally, the Compensation Committee and Board believe that incorporating an equity component based on performance is responsive to feedback received from our stakeholders during our engagement process.

The fiscal year 2019 equity awards for each Named Executive Officer, including Mr. Singhal, resulted in RSUs equal to the following number of shares of our common stock pursuant to our 2007 Plan. The grant date fair value of these grants during fiscal year 2019 were 12% lower than the grant date fair value of the grants in fiscal year 2018 as a result of the Compensation Committee's assessment of fiscal year 2018 performance when determining the size of the fiscal year 2019 grants.

Name	RSU Grant (shares)
Anil Singhal	60,000
Michael Szabados	35,000
Jean Bua	30,000
John W. Downing	30,000

Other Benefits

NetScout also maintains various broad-based employee benefit plans. Executive officers participate in these plans on the same terms as eligible, non-executive employees, subject to legal limits on the amounts that may be contributed or paid to executive officers under these plans. One exception to this broad-based eligibility is that executive officers at the vice president level and above are eligible for life insurance policies that provide for three times cash compensation (salary and annual incentive bonus target) up to a $1.5 million cap with evidence of insurability, which differs from the two times salary and annual incentive bonus target and $750,000 cap available to non-sales employees and two times salary and commission and $750,000 cap available to sales employees.

We also offer a 401(k) plan that allows all U.S. employees to invest in a wide array of funds on a pre-tax basis. The 401(k) plan allows U.S. employees to contribute the lesser of 80% of their eligible compensation or $19,000 (or $25,000 for individuals at least 50 years of age) for calendar year 2019. NetScout matches 50% of each employee's contribution up to 6% of such employee's annual salary. The matching amount vests 25% per year over four years. After four years of service, the employee match is 100% vested. Employees in the U.S. are eligible to participate on the 401(k) plan on date of hire.

Under his current employment agreement, Mr. Singhal is entitled to the following benefits: disability insurance of no less than 100% of base salary, paid vacation, group life insurance not to exceed $1.5 million, and NetScout's generally available medical, dental, and vision plans as well as any other benefits generally available to senior executives of NetScout. In addition, NetScout will reimburse Mr. Singhal for tax and estate planning and for leasing and maintaining a car. For 2019, for the Chief Executive Officer, the information presented in the "All Other Compensation" column of the Summary Compensation Table is largely composed of tax and estate planning expenses during the fiscal year and a car lease.

The Compensation Committee believes that these types of benefits are highly effective in retaining qualified executive officers because they provide the executive officers with longer-term security and protection for the future. The Company believes that providing these benefits is a relatively inexpensive way to enhance the competitiveness of the executives' compensation packages and furthers the Company's goal of retaining and rewarding highly qualified executives. The Company generally believes that all the perquisites have greater value to the executives than cost to the Company to provide them, thus providing a return on the cost of providing such benefits.

Fiscal Year 2020 Compensation Decisions

Base Salary

In July 2019, the Committee reviewed Company and individual Named Executive Officer performance as well as peer group market data. In consideration of these factors and recognizing the acquisition in July 2015 that significantly increased our size, the Committee approved, effective July 1, 2019, a $25,000 increase to the base salary of each Named Executive Officer, while the dollar value of each Named Executive' Officers target cash incentive bonus remained the same. The effects of these base salary increases on annual total cash target compensation are illustrated in the table below. The Committee intends to consider making adjustments in reasonable increments over time in order to better align with competitive practices of our peer group. In approving the adjustments, the Committee considered that each of our named executive officers was positioned below the 25th percentile of the peer group market data both prior to and after taking the increases into account.

Executive	Annual Total Cash Target prior to July 1, 2019	Annual Total Cash Target after July 1, 2019	Annual Total Cash Target Increase %
Singhal, Anil K	$976,000	$1,001,000	2.6%
Szabados, Michael	$600,012	$ 625,012	4.2%
Bua, Jean	$550,011	$ 575,011	4.5%
Downing, John W	$550,000	$ 575,000	4.5%

Fiscal 2020 Annual Incentive Bonus Target Amount

For fiscal year 2020, the Compensation Committee, with respect to the Named Executive Officers other than the Chief Executive Officer, and the Board, with respect to the Chief Executive Officer, determined that the fiscal year 2020 annual incentive bonus targets would remain the same as in fiscal year 2019.

The company-wide bonus pool for fiscal year 2020 will be fully accrued after the non-GAAP EPS target is achieved. Named Executive Officers will not receive their annual incentive bonus target unless the corporate profitability (non-GAAP EPS) target has been achieved. The company focuses its non-GAAP EPS target on our publicly-communicated non-GAAP EPS guidance for the fiscal year. In the event of revenue performance below guidance, the bonus pool will be reduced to meet the EPS guidance. In the event of over performance with respect to profitability, either due to higher revenue, changes in product mix, decisions to reduce investment in certain areas, or unanticipated one-time events such as tax refunds, the additional funds will be allocated between the company-wide bonus pool and shareholders in the form of increases to non-GAAP EPS. In no event will any Named Executive Officer receive more than 200% of his or her annual incentive bonus target.

For fiscal year 2020, the Company's non-GAAP EPS target for executive compensation purposes is the mid-point of our guidance range of between $1.40 to $1.45 per share. The Company's non-GAAP revenue target for executive compensation purposes is the mid-point of our guidance range of between $895 million to $915 million. The Compensation Committee and the Board will take under consideration any increase to our guidance as a result of any purchases under our share repurchase program.

Following consideration of the company-wide performance targets, the Named Executive Officers' annual incentive bonus target will be based upon the attainment of the individual goals discussed below:

Anil Singhal, CEO

- Achieve the mid-point of non-GAAP revenue guidance of $895 million to $915 million and achieve the mid-point of non-GAAP EPS guidance of $1.40 to $1.45.
- Develop/elevate strategic go-to-market partnerships with the top market leaders in IT infrastructure

- Develop and present to the Board our cyber security strategy in the first quarter
- Launch a company-wide leadership development program

Michael Szabados (COO)

- Achieve the mid-point of non-GAAP revenue guidance of $895 million to $915 million and achieve the mid-point of non-GAAP EPS guidance of $1.40 to $1.45.
- Grow the company's brand recognition and reputation as a leader is both service assurance and cyber security
- Continue to develop and elevate our selling and marketing partnerships with leading cloud companies
- Follow up the successful integration of our IT infrastructure and substantially consolidate ERP systems.

John Downing (EVP Worldwide Sales)

- Achieve the mid-point of non-GAAP revenue guidance of $895 million to $915 million and achieve the mid-point of non-GAAP EPS guidance of $1.40 to $1.45.
- Drive a pre-determined amount of new business bookings
- Complete integration of legacy sales teams
- Continue the transition from hardware to software revenue

Jean Bua (EVP and CFO)

- Achieve the mid-point of non-GAAP revenue guidance of $895 million to $915 million and achieve the mid-point of non-GAAP EPS guidance of $1.40 to $1.45.
- Implement a tax restructuring plan
- Develop operational roles in support of the integration of business units
- Support the newly established business units

Certain specific revenue, strategic initiatives and bookings and renewals targets are not disclosed because it would be competitively harmful to do so. We will disclose certain of the specific metrics at the end of the performance period when doing so would not be competitively harmful.

Equity Awards

The Compensation Committee believes that the annual grants are appropriate in furtherance of our philosophy that total executive compensation should be more heavily weighted toward long-term incentive compensation to ensure that the interests of our executives are aligned with those of our stockholders. In addition, the Compensation Committee felt it was important to ensure that Ms. Bua and Messrs. Singhal, Szabados and Downing have a significant ongoing equity stake in the Company so that each has appropriate incentives and has long-term interests that are aligned with those of our stockholders. Finally, the Compensation Committee and Board believe that incorporating an equity component based on performance is responsive to feedback received from our stakeholders during our engagement process.

Post-Termination Compensation

Mr. Singhal's employment agreement provides that if any of the following three events occur (1) NetScout terminates Mr. Singhal's employment for any reason other than due cause (as defined in the agreement), (2) Mr. Singhal terminates his employment for any reason at any time following the consummation of a sale of NetScout, or (3) upon the death or disability of Mr. Singhal, then Mr. Singhal, or his estate, is entitled to receive in a lump sum, a payment equal to the net present value of $16,208 per month for a period of seven years. If Mr. Singhal terminates his employment with NetScout for any reason prior to the consummation of a sale of NetScout, he is entitled to such lump sum payment for seven years. Mr. Singhal will also receive continued health and dental benefits during such period. Mr. Singhal's severance benefits, including health and dental benefits, are fully vested, and we have projected its future payments for this unfunded obligation at approximately $1.5 million in the aggregate.

In May 2012, NetScout entered into amended and restated severance agreements with its Named Executive Officers, other than its Chief Executive Officer. These agreements are intended to help NetScout retain key executives and to reinforce the continued attention and dedication of management in event of a change of control and to provide protection so that such executives can act in the best interests of NetScout without distraction. For each of the Named Executive Officers, other than the Chief Executive Officer, the amended and restated severance agreements provide certain payments in the event that such officer is terminated without cause (as defined in the applicable agreement) or resigns for good reason (as defined in the applicable agreement) at any time prior to a change in control of NetScout (as defined in the applicable agreement) or within one year thereafter. In such event, such officer will receive 12 months of his or her then current salary, and, if such termination occurs after a change of control, such officer will also receive a prorated amount of his annual incentive bonus target, based on the months elapsed in such year that in any event will not be less than 50% of his or her annual incentive bonus target and accelerated vesting of any outstanding unvested equity awards under the 2007 Plan, or any successor thereto, that would have vested or become exercisable within one year of such termination.

With respect to the severance agreement with Mr. Downing, if such termination occurs after a change of control, such payments will also include accrued but unpaid sales commissions plus a prorated amount of his maximum target sales commissions (without double counting for previously paid commissions) that in any event will not be less than 50% of his maximum target sales commissions.

Each of the amended and restated severance agreements listed above contain a one year initial term with one year automatic renewal terms unless NetScout or the respective executive officer elects not to renew the agreement.

The agreements also contain forfeiture provisions requiring repayment of severance amounts if it is ultimately determined that the executive officer committed certain prohibited conduct while employed by NetScout or materially breached any of the officer's agreements with NetScout.

Regulatory Requirements

Tax Deductibility of Executive Compensation

Under Section 162(m) of the Internal Revenue Code ("Section 162(m)"), compensation paid to any publicly held corporation's "covered employees" that exceeds $1 million per taxable year for any covered employee is generally non-deductible.

Prior to the enactment of the Tax Cuts and Jobs Act, Section 162(m) provided a performance-based compensation exception, pursuant to which the deduction limit under Section 162(m) did not apply to any compensation that qualified as "performance-based compensation" under Section 162(m). Pursuant to the Tax Cuts and Jobs Act, the performance-based compensation exception under Section 162(m) was repealed with respect to taxable years beginning after December 31, 2017, except that certain transition relief is provided for compensation paid pursuant to a written binding contract which was in effect on November 2, 2017 and which is not modified in any material respect on or after such date.

Compensation paid to each of the Company's "covered employees" in excess of $1 million per taxable year generally will not be deductible unless it qualifies for the performance-based compensation exception under Section 162(m) pursuant to the transition relief described above. Because of certain ambiguities and uncertainties as to the application and interpretation of Section 162(m), as well as other factors beyond the control of the Compensation Committee, no assurance can be given that any compensation paid by the Company will be eligible for such transition relief and be deductible by the Company in the future. Although the Compensation Committee will continue to consider tax implications as one factor in determining executive compensation, the Compensation Committee also looks at other factors in making its decisions and retains the flexibility to provide compensation for the Company's named executive officers in a manner consistent with the goals of the Company's executive compensation program and the best interests of the Company and its stockholders, which may include providing for compensation that is not deductible by the Company due to the deduction limit under Section 162(m). The Compensation Committee also retains the flexibility to modify compensation that was initially intended to be exempt from the deduction limit under Section 162(m) if it determines that such modifications are consistent with the Company's business needs.

Other Key Regulations Affecting Compensation Plans

Post-termination compensation is designed to minimize the effect of additional taxes imposed by Section 409A of the Code.

Management of Risk

Following review and discussion, the Compensation Committee believes that any risks arising from our compensation policies and practices for our employees will not have a material adverse effect on NetScout. In addition, the Compensation Committee believes that the mix and design of the elements of executive compensation do not encourage management to assume excessive risks. The considerations which led the Compensation Committee to this conclusion include the following:

- We provide executives with a reasonable base salary. We believe these base salary levels mitigate risk-taking behavior by providing reasonable predictability in the level of income earned by each executive and alleviating pressure on executives to focus exclusively on stock price performance to the detriment of other important business metrics.
- We use a mixture of compensation elements that is intended to discourage short-term risk taking. Further, the executive team overall has a long tenure and significant experience, enabling it to deal with business cycles.
- Short-term incentives in the form of annual incentive cash bonus payouts are generally established at 100% of the target amount, unless the Compensation Committee or the Board determines that extraordinary performance warrants a higher payout, a process that the Compensation Committee believes mitigates the likelihood that our executives will take excessive risks.
- Equity incentive awards are generally granted annually and generally vest over four years, so executives have a significant amount of unvested awards that could decrease significantly in value if our business is not managed for the long-term. As noted, there are Stock Holding Guidelines designed to reinforce that long-term view.
- We have a robust system of internal controls and a comprehensive compliance program, which includes extensive training of all employees, which we believe promotes a culture of ethical behavior and compliance, as well as an appropriate attitude toward risk-taking. The Compensation Committee retains discretion to adjust compensation based on adherence to our values and compliance with programs, among other things.

Report of Compensation Committee of the Board of Directors[2]

The Compensation Committee has reviewed the Compensation Discussion and Analysis portion of this proxy statement and discussed such section with management. Based on its review and discussions and its ongoing involvement with executive compensation matters, the Compensation Committee recommended to the Board that the CD&A portion of this proxy statement be included in NetScout's proxy statement and incorporated into NetScout's Annual Report on Form 10-K for the fiscal year ended March 31, 2019. This report is provided by the following independent directors, who comprise the Compensation Committee:

John R. Egan, Chair
Robert E. Donahue
Alfred Grasso
Christopher Perretta

Compensation Committee Interlocks and Insider Participation

None of Messrs. Hadzima, Donahue, Egan, Grasso, or Perretta was, during the past fiscal year, an officer or employee of NetScout or any of our subsidiaries, was formerly an officer of NetScout or any of our subsidiaries, or had any relationship with us requiring disclosure herein. During the past fiscal year, none of our executive officers served as:

- a member of the compensation committee (or other board committee performing equivalent functions or, in the absence of any such committee, the entire board of directors) of another entity, of whose executive officers served on our Compensation Committee;
- a director of another entity, one of whose executive officers served on our Compensation Committee; or
- a member of the compensation committee (or other board committee performing equivalent functions or, in the absence of any such committee, the entire board of directors) of another entity, one of whose executive officers served as one of our directors.

Transactions with Related Persons

We have a written policy with respect to "Related Persons Transactions." Except as specifically provided below, all "Related Person Transactions" require approval or ratification by either our Audit Committee (provided that the transaction involves terms comparable to terms that could be obtained in an arms-length dealing with unrelated third parties), the majority of disinterested members of our Board, or, in the case of transactions that involve compensation, our Compensation Committee or our Board. Like other Company policies, our Policy with respect to Related Person Transactions is managed on a day to day basis by our management team, including our General Counsel, and to the extent necessary, related matters are discussed with our Board (or a committee thereof) or our outside counsel.

For NetScout, a "Related Person Transaction" is broadly defined as any transaction between NetScout and any Related Person (as defined below), including any transactions requiring disclosure under Item 404 of Regulation S-K under the Exchange Act. A Related Party Transaction will require disclosure to our Audit Committee but will not require Audit Committee approval if (i) such transaction is available to all of our employees generally, (ii) if such transaction, when aggregated with any other similar transactions with such person during such fiscal year, involves less than $5,000 or (iii) such transaction is an ordinary course, commercial transaction with an entity in which a Related Person serves as an officer or director and such transaction is the result of arms-length negotiation not involving such Related Person.

2. The material in this report is not "soliciting material," is furnished to, but not deemed "filed" with, the SEC and is not deemed to be incorporated by reference in any filing of the Company under the Exchange Act, other than the Company's Annual Report on Form 10-K, where it shall be deemed to be "furnished," whether made before or after the date hereof and irrespective of any general incorporation language in any such filing.

A “Related Person” means:

i. a director or executive officer of NetScout, as well as any nominee for director proposed to be elected at the next annual meeting of stockholders;

ii. a stockholder owning in excess of five percent of NetScout (or its controlled affiliates);

iii. an immediate family member of the persons listed in i and ii above (“immediate family” as defined under Item 404 of Regulation S-K under the Securities Exchange Act of 1934); or

iv. an entity which someone listed in i, ii, or iii above has more than a 10% ownership interest or control of such entity.

Our Board has determined that our Audit Committee is generally best suited to review and approve Related Person Transactions. If Audit Committee approval is not practicable (because, for example, it involves terms that are not comparable to terms that could be obtained from an arms-length dealing with an unrelated third parties or because of logistical difficulties), or if a transaction involves compensation, such approval may be obtained as provided above. Such Related Person Transactions may be presented for approval or preliminarily entered into by our management subject to ratification by the applicable committee or our Board, provided that if ratification does not occur, our management is obliged to take all reasonable efforts to cancel or annul such transaction.

In determining whether or not to approve a Related Person Transaction, the applicable committee or our Board will also consider whether such transaction would affect the status of a member of our Board as an “independent director” as promulgated by the SEC, the Financial Industry Regulatory Authority, any exchange upon which our securities are traded, or any governmental or regulatory body exercising authority over us. If the result of any such Related Person Transaction is that a majority of our Board would no longer be deemed to be “independent directors” then such transaction will not be approved. Other than as described under “Employment and Other Agreements” and “Post Termination Compensation” above, the Company is not party to any Related Person Transactions with respect to the fiscal year ended March 31, 2019, and no such transactions are currently contemplated.

DELINQUENT SECTION 16(A) REPORTS

Section 16(a) of the Exchange Act requires our directors, executive officers, and holders of more than 10% of our common stock, or collectively, Reporting Persons, to file with the SEC initial reports of ownership and reports of changes in ownership of our common stock. Such persons are required by SEC regulations to furnish us with copies of all such filings. Based on our review of the copies of such filings received by us with respect to the fiscal year ended March 31, 2019 and written representations from certain Reporting Persons, we believe that all Section 16(a) filing requirements were complied with on a timely basis during the fiscal year ended March 31, 2019.

AUDITORS FEES AND SERVICES

The following sets forth the aggregate fees billed to us by our independent registered public accounting firm during the fiscal years ended March 31, 2019 and March 31, 2018:

Audit Fees

Fees for audit services were approximately $2,305,800 and $2,320,808 for the fiscal years ended March 31, 2019 and March 31, 2018, respectively, including fees associated with the integrated audit of the consolidated financial statements included in our Annual Report on Form 10-K, the reviews of our Quarterly Reports on Form 10-Q, and statutory audits required of our foreign subsidiaries.

Audit-Related Fees

Fees for audit-related services were approximately $171,550 and $388,000 for the fiscal years ended March 31, 2019 and March 31, 2018, respectively, including fees associated with services related to review of accounting for significant transactions.

Tax Fees

Total fees for tax services were approximately $108,261 and $68,770 for the fiscal years ended March 31, 2019 and March 31, 2018, respectively, consisting of tax compliance and preparation fees and other domestic and international tax advisory services.

All Other Fees

Total all other fees were approximately $2,756 and $2,756 for the fiscal years ended March 31, 2019 and March 31, 2018, respectively, consisting of fees related to accounting due diligence, training and research services.

Policy on Audit Committee Pre-Approval of Audit and Non-Audit Services

Our Audit Committee has implemented procedures under our Audit Committee Pre-Approval Policy for Audit and Non-Audit Services, or the Pre-Approval Policy, to ensure that all audit and permitted non-audit services provided to us are pre-approved by the Audit Committee. Specifically, the Audit Committee pre-approves the use of our independent registered public accounting firm for specific audit and non-audit services within approved monetary limits. All of the services provided by PricewaterhouseCoopers LLP in fiscal 2019 were pre-approved in accordance with this policy. If a proposed service has not been pre-approved pursuant to the Pre-Approval Policy, then it must be specifically pre-approved by our Audit Committee before it may be provided by our independent registered public accounting firm. Any pre-approved services exceeding the pre-approved monetary limits require specific approval by our Audit Committee. All of the audit-related, tax, and all other services provided by our independent registered public accounting firm in fiscal years 2019 and 2018 were approved by the Audit Committee by means of specific pre-approvals or pursuant to the procedures contained in the Pre-Approval Policy. All non-audit services provided in fiscal years 2019 and 2018 were reviewed with our Audit Committee, which concluded that the provision of such services by our independent registered public accounting firm was compatible with the maintenance of that firm’s independence in the conduct of its auditing functions.

HOUSEHOLDING OF PROXY MATERIALS

The SEC has adopted rules that permit companies and intermediaries (e.g., brokers) to satisfy the delivery requirements for Notices of Internet Availability of Proxy Materials or other Annual Meeting materials with respect to two or more stockholders sharing the same address by delivering a single Notice of Internet Availability of Proxy Materials or other Annual Meeting materials addressed to those stockholders.

This year, a number of brokers with account holders who are stockholders will be "householding" the Company's proxy materials. A single Notice of Internet Availability of Proxy Materials will be delivered to multiple stockholders sharing an address unless contrary instructions have been received from the affected stockholders. Once you have received notice from us (if you are a stockholder of record) or from your broker (if you are a beneficial owner) that we or they will be "householding" communications to your address, "householding" will continue until you are notified otherwise or until you revoke your consent. If, at any time, you no longer wish to participate in "householding" and would prefer to receive a separate Notice of Internet Availability of Proxy Materials, or if you currently receive multiple copies and would like to request "householding" of your communications, please notify your broker or the Company. Direct your written or oral request to the Company to our principal executive offices, 310 Littleton Road, Westford, Massachusetts 01886, Attn: Investor Relations, telephone: (979) 614-4000. In addition, we will promptly deliver, upon written or oral request to the address or telephone number above, a separate copy of the Notice of Internet Availability of Proxy Materials or other Annual Meeting materials, as applicable, to a stockholder at a shared address to which a single copy of the documents was delivered.

OTHER MATTERS

The Board knows of no other matters that will be presented for consideration at the Annual Meeting. If any other matters are properly brought before the meeting, it is the intention of the persons named in the proxy to vote on such matters in accordance with their best judgment.

Our proxy statement, the proxy card, and our Annual Report to Stockholders for the fiscal year ended March 31, 2019 are all available free of charge upon written request to: Investor Relations, 310 Littleton Road, Westford Massachusetts 01886.

APPENDIX A

NETSCOUT SYSTEMS, INC.
2019 EQUITY INCENTIVE PLAN

ADOPTED BY THE BOARD OF DIRECTORS: JULY 9, 2019
APPROVED BY THE STOCKHOLDERS: SEPTEMBER , 2019

1. GENERAL.

(a) Successor to and Continuation of Prior Plan. The Plan is intended as the successor to and continuation of the NetScout Systems, Inc. 2007 Equity Incentive Plan (the "***Prior Plan***"). Following the Effective Date, no additional awards may be granted under the Prior Plan. Any unallocated shares remaining available for grant under the Prior Plan as of 12:01 a.m. Eastern Time on the Effective Date (the "***Prior Plan's Available Reserve***") will cease to be available under the Prior Plan at such time and will be added to the Share Reserve (as defined in Section 3(a)(i)) and be then immediately available for grant and issuance pursuant to Awards granted under this Plan. From and after 12:01 a.m. Eastern Time on the Effective Date, all outstanding awards granted under the Prior Plan (each, a "***Prior Plan Award***") will remain subject to the terms of the Prior Plan; *provided, however*, that the following shares of Common Stock subject to any outstanding Prior Plan Award (collectively, the "***Prior Plan's Returning Shares***") will immediately be added to the Share Reserve (as defined in Section 3(a)(i)) as and when such shares become the Prior Plan's Returning Shares and will become available for grant and issuance pursuant to Awards granted under this Plan: (i) any shares subject to such award that are not issued because such award or any portion thereof expires or otherwise terminates without all of the shares covered by such award having been issued; (ii) any shares subject to such award that are not issued because such award or any portion thereof is settled in cash; (iii) any shares issued pursuant to such award that are forfeited back to or repurchased by the Company because of the failure to meet a contingency or condition required for the vesting of such shares; and (iv) any shares that are reacquired or withheld (or not issued) by the Company to satisfy a tax withholding obligation in connection with any such award that is a Full Value Award granted under the Prior Plan. All Awards granted on or after 12:01 a.m. Eastern Time on the Effective Date will be subject to the terms of this Plan.

(b) Eligible Award Recipients. Subject to Section 4, Employees, Directors and Consultants are eligible to receive Awards.

(c) Available Awards. The Plan provides for the grant of the following types of Awards: (i) Incentive Stock Options; (ii) Nonstatutory Stock Options; (iii) Stock Appreciation Rights; (iv) Restricted Stock Awards; (v) Restricted Stock Unit Awards; and (vi) Other Stock Awards.

(d) Purpose. The Plan, through the granting of Awards, is intended to help the Company and any Affiliate secure and retain the services of eligible award recipients, provide incentives for such persons to exert maximum efforts for the success of the Company and any Affiliate, and provide a means by which such persons may benefit from increases in value of the Common Stock.

2. ADMINISTRATION.

(a) Administration by Board. The Board will administer the Plan. The Board may delegate administration of the Plan to a Committee or Committees, as provided in Section 2(c).

(b) Powers of Board. The Board will have the power, subject to, and within the limitations of, the express provisions of the Plan:

(i) To determine (A) who will be granted Awards, (B) when and how each Award will be granted, (C) what type of Award will be granted, (D) the provisions of each Award (which need not be identical), including when a Participant will be permitted to exercise or otherwise receive cash or Common Stock under the Award, (E) the number of shares of Common Stock subject to, or the cash value of, an Award, and (F) the Fair Market Value applicable to an Award.

(ii) To construe and interpret the Plan and Awards granted under it, and to establish, amend and revoke rules and regulations for administration of the Plan and Awards. The Board, in the exercise of these powers, may correct any defect, omission or inconsistency in the Plan or in any Award Agreement, in a manner and to the extent it will deem necessary or expedient to make the Plan or Award fully effective.

(iii) To settle all controversies regarding the Plan and Awards granted under it.

(iv) To accelerate, in whole or in part, the time at which an Award may be exercised or vest (or at which cash or shares of Common Stock may be issued in settlement thereof).

(v) To suspend or terminate the Plan at any time. Except as otherwise provided in the Plan (including Section 2(b)(viii)) or an Award Agreement, suspension or termination of the Plan will not materially impair a Participant's rights under an outstanding Award without his or her written consent.

(vi) To amend the Plan in any respect the Board deems necessary or advisable, including, without limitation, by adopting amendments relating to Incentive Stock Options and certain nonqualified deferred compensation under Section 409A of the Code and/or to make the Plan or Awards granted under the Plan compliant with the requirements for Incentive Stock Options or exempt from or compliant with the requirements for nonqualified deferred compensation under Section 409A of the Code, subject to the limitations, if any, of applicable law. However, if required by applicable law or listing requirements, and except as provided in Section 9(a) relating to Capitalization Adjustments, the Company will seek stockholder approval of any amendment of the Plan that (A) materially increases the number of shares of Common Stock available for issuance under the Plan, (B) materially expands the class of individuals eligible to receive Awards under the Plan, (C) materially increases the benefits accruing to Participants under the Plan, (D) materially reduces the price at which shares of Common Stock may be issued or purchased under the Plan, or (E) materially expands the types of Awards available for issuance under the Plan. Except as otherwise provided in the Plan (including Section 2(b)(viii)) or an Award Agreement, no amendment of the Plan will materially impair a Participant's rights under an outstanding Award without his or her written consent.

(vii) To submit any amendment to the Plan for stockholder approval, including, but not limited to, amendments to the Plan intended to satisfy the requirements of (A) Section 422 of the Code regarding incentive stock options or (B) Rule 16b-3.

(viii) To approve forms of Award Agreements for use under the Plan and to amend the terms of any one or more outstanding Awards, including, but not limited to, amendments to provide terms more favorable to the Participant than previously provided in the Award Agreement, subject to any specified limits in the Plan that are not subject to Board discretion; *provided, however,* that except as otherwise provided in the Plan (including this Section 2(b)(viii)) or an Award Agreement, no amendment of an outstanding Award will materially impair a Participant's rights under such Award without his or her written consent.

Notwithstanding the foregoing or anything in the Plan to the contrary, unless prohibited by applicable law, the Board may amend the terms of any outstanding Award or the Plan, or may suspend or terminate the Plan, without the affected Participant's consent, (A) to maintain the qualified status of the Award as an Incentive Stock Option under Section 422 of the Code, (B) to change the terms of an Incentive Stock Option, if such change results in impairment of the Award solely because it impairs the qualified status of the Award as an Incentive Stock Option under Section 422 of the Code, (C) to clarify the manner of exemption from, or to bring the Award or the Plan into compliance with, Section 409A of the Code or (D) to comply with other applicable laws or listing requirements.

(ix) Generally, to exercise such powers and to perform such acts as the Board deems necessary or expedient to promote the best interests of the Company and that are not in conflict with the provisions of the Plan or Awards.

(x) To adopt such procedures and sub-plans as are necessary or appropriate to permit participation in the Plan by Employees, Directors or Consultants who are foreign nationals or employed outside the United States (provided that Board approval will not be necessary for immaterial modifications to the Plan or any Award Agreement that are required for compliance with the laws of the relevant foreign jurisdiction).

(c) Delegation to Committee.

(i) General. The Board may delegate some or all of the administration of the Plan to a Committee or Committees. If administration of the Plan is delegated to a Committee, the Committee will have, in connection with the administration of the Plan, the powers theretofore possessed by the Board that have been delegated to the Committee, including the power to delegate to a subcommittee of the Committee any of the administrative powers the Committee is authorized to exercise (and references in this Plan to the Board will thereafter be to the Committee or subcommittee, as applicable). Any delegation of administrative powers will be reflected in resolutions, not inconsistent with the provisions of the Plan, adopted from time to time by the Board or Committee (as applicable). The Committee may, at any time, abolish the subcommittee and/or revest in the Committee any powers delegated to the subcommittee. The Board may retain the authority to concurrently administer the Plan with the Committee and may, at any time, revest in the Board some or all of the powers previously delegated.

(ii) Rule 16b-3 Compliance. The Committee may consist solely of two or more Non-Employee Directors in accordance with Rule 16b-3.

(d) Delegation to an Officer. The Board may delegate to one or more Officers the authority to do one or both of the following: (i) designate Employees who are not Officers to be recipients of Options and SARs (and, to the extent permitted by applicable law, other Awards) and, to the extent permitted by applicable law, the terms of such Awards; and (ii) determine the number of shares of Common Stock to be subject to such Awards granted to such Employees; *provided, however*, that the Board resolutions regarding such delegation will specify the total number of shares of Common Stock that may be subject to the Awards granted by such Officer and that such Officer may not grant an Award to himself or herself. Any such Awards will be granted on the form of Award Agreement most recently approved for use by the Committee or the Board, unless otherwise provided in the resolutions approving the delegation of authority. The Board may not delegate authority to an Officer who is acting solely in the capacity of an Officer (and not also as a Director) to determine the Fair Market Value of the Common Stock pursuant to Section 13(v)(iii).

(e) Effect of Board's Decision. All determinations, interpretations and constructions made by the Board in good faith will not be subject to review by any person and will be final, binding and conclusive on all persons.

(f) Cancellation and Re-Grant of Awards. Neither the Board nor any Committee will have the authority to (i) reduce the exercise or strike price of any outstanding Option or SAR or (ii) cancel any outstanding Option or SAR that has an exercise or strike price (per share) greater than the then-current Fair Market Value of the Common Stock in exchange for cash or other Awards under the Plan, unless the stockholders of the Company have approved such an action within 12 months prior to such an event.

(g) Acceleration upon Death or Disability. Unless specifically provided otherwise in the applicable Award Agreement, if a Participant's Continuous Service terminates as a result of the Participant's death or Disability, each of the Participant's Awards will become fully vested (and exercisable, if applicable) as of the date of such termination, to the extent that such Awards are outstanding and unvested as of the date of such termination.

(h) Dividends and Dividend Equivalents. Dividends or dividend equivalents may be paid or credited, as applicable, with respect to any shares of Common Stock subject to an Award, as determined by the Board and contained in the applicable Award Agreement; *provided, however*, that (i) no dividends or dividend equivalents may be paid with respect to any such shares before the date such shares have vested under the terms of such Award Agreement, (ii) any dividends or dividend equivalents that are credited with respect to any such shares will be subject to all of the terms and conditions applicable to such shares under the terms of such Award Agreement (including, but not limited to, any vesting conditions), and (iii) any dividends or dividend equivalents that are credited with respect to any such shares will be forfeited to the Company on the date, if any, such shares are forfeited to or repurchased by the Company due to a failure to meet any vesting conditions under the terms of such Award Agreement.

3. Shares Subject to the Plan.

(a) Share Reserve.

(i) Subject to Section 3(a)(iii) and Section 9(a) relating to Capitalization Adjustments, the aggregate number of shares of Common Stock that may be issued pursuant to Awards from and after the Effective Date will not exceed (A) [ ][1] shares (which number is the sum of (i) the number of shares ([ ])[2] subject to the Prior Plan's Available Reserve and (ii) an additional 5,500,000 new shares), *plus* (B) the Prior Plan's Returning Shares, if any, which become available for issuance under this Plan from time to time (such aggregate number of shares described in (A) and (B), the "***Share Reserve***").

(ii) Subject to Section 3(b), the number of shares of Common Stock available for issuance under the Plan will be reduced by: (A) one share for each share of Common Stock issued pursuant to an Appreciation Award granted under the Plan; and (B) 2.76 shares for each share of Common Stock issued pursuant to a Full Value Award granted under the Plan.

(iii) Subject to Section 3(b), the number of shares of Common Stock available for issuance under the Plan will be increased by: (A) one share for each Prior Plan's Returning Share or 2019 Plan Returning Share (as defined in Section 3(b)(i)) subject to an Appreciation Award; and (B) 2.76 shares for each Prior Plan's Returning Share or 2019 Plan Returning Share subject to a Full Value Award.

(iv) For clarity, the Share Reserve in this Section 3(a) is a limitation on the number of shares of Common Stock that may be issued pursuant to the Plan. Accordingly, this Section 3(a) does not limit the granting of Awards except as provided in Section 7(a). Shares may be issued in connection with a merger or acquisition as permitted by Nasdaq Listing Rule 5635(c) or, if applicable, NYSE Listed Company Manual Section 303A.08, AMEX Company Guide Section 711 or other applicable rule, and such issuance will not reduce the number of shares available for issuance under the Plan.

(b) Reversion of Shares to the Share Reserve.

(i) Shares Available for Subsequent Issuance. The following shares of Common Stock (collectively, the "***2019 Plan Returning Shares***") will become available again for issuance under the Plan: (A) any shares subject to an Award that are not issued because such Award or any portion thereof expires or otherwise terminates without all of the shares covered by such Award having been issued; (B) any shares subject to an Award that are not issued because such Award or any portion thereof is settled in cash; (C) any shares issued pursuant to an Award that are forfeited back to or repurchased by the Company because of the failure to meet a contingency or condition required for the vesting of such shares; and (D) any shares that are reacquired or withheld (or not issued) by the Company to satisfy a tax withholding obligation in connection with any Full Value Award granted under the Plan.

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[1] To be determined on date of 2019 Annual Meeting of Stockholders.
[2] To be determined on date of 2019 Annual Meeting of Stockholders.

(ii) Shares Not Available for Subsequent Issuance. The following shares of Common Stock will not become available again for issuance under the Plan: (A) any shares that are reacquired or withheld (or not issued) by the Company to satisfy the exercise or strike price of any Appreciation Award granted under the Plan or Prior Plan (including any shares subject to such award that are not delivered because such award is exercised through a reduction of shares subject to such award (*i.e.*, "net exercised")); (B) any shares that are reacquired or withheld (or not issued) by the Company to satisfy a tax withholding obligation in connection with any Appreciation Award granted under the Plan or Prior Plan; (C) any shares repurchased by the Company on the open market with the proceeds of the exercise or strike price of any Appreciation Award granted under the Plan or Prior Plan; and (D) in the event that a Stock Appreciation Right granted under the Plan or a stock appreciation right granted under the Prior Plan is settled in shares of Common Stock, the gross number of shares of Common Stock subject to such award.

(c) Incentive Stock Option Limit. Subject to the Share Reserve and Section 9(a) relating to Capitalization Adjustments, the aggregate maximum number of shares of Common Stock that may be issued pursuant to the exercise of Incentive Stock Options will be 11,000,000 shares.

(d) Non-Employee Director Compensation Limit. The aggregate value of all cash and equity-based compensation (including Awards and any other equity-based awards) paid or granted, as applicable, by the Company to any individual for service as a Non-Employee Director with respect to any fiscal year of the Company will not exceed $750,000, calculating the value of any equity-based awards based on the grant date fair value of such awards for financial reporting purposes.

(e) Source of Shares. The stock issuable under the Plan will be shares of authorized but unissued or reacquired Common Stock, including shares repurchased by the Company on the open market or otherwise.

4. Eligibility.

(a) Eligibility for Specific Awards. Incentive Stock Options may be granted only to employees of the Company or a "parent corporation" or "subsidiary corporation" thereof (as such terms are defined in Sections 424(e) and 424(f) of the Code). Awards other than Incentive Stock Options may be granted to Employees, Directors and Consultants; *provided, however*, that Awards may not be granted to Employees, Directors and Consultants who are providing Continuous Service only to any "parent" of the Company, as such term is defined in Rule 405, unless (i) the stock underlying such Awards is treated as "service recipient stock" under Section 409A of the Code (for example, because the Awards are granted pursuant to a corporate transaction such as a spin off transaction) or (ii) the Company, in consultation with its legal counsel, has determined that such Awards are otherwise exempt from or alternatively comply with Section 409A of the Code.

(b) Ten Percent Stockholders. A Ten Percent Stockholder will not be granted an Incentive Stock Option unless the exercise price (per share) of such Option is at least 110% of the Fair Market Value of the Common Stock on the date of grant of such Option and the Option is not exercisable after the expiration of five years from the date of grant.

5. Provisions Relating to Options and Stock Appreciation Rights.

Each Option or SAR Agreement will be in such form and will contain such terms and conditions as the Board deems appropriate. All Options will be separately designated Incentive Stock Options or Nonstatutory Stock Options at the time of grant, and, if certificates are issued, a separate certificate or certificates will be issued for shares of Common Stock purchased on exercise of each type of Option. If an Option is not specifically designated as an Incentive Stock Option, or if an Option is designated as an Incentive Stock Option but some portion or all of the Option fails to qualify as an Incentive Stock Option under the applicable rules, then the Option (or portion thereof) will be a Nonstatutory Stock Option. The terms and conditions of separate Option or SAR Agreements need not be identical; *provided, however*, that each Award Agreement will conform to (through incorporation of the provisions hereof by reference in the applicable Award Agreement or otherwise) the substance of each of the following provisions:

(a) Term. Subject to the provisions of Section 4(b) regarding Ten Percent Stockholders, no Option or SAR will be exercisable after the expiration of seven years from the date of its grant or such shorter period specified in the Award Agreement.

(b) Exercise or Strike Price. Subject to the provisions of Section 4(b) regarding Ten Percent Stockholders, the exercise or strike price (per share) of each Option or SAR will be not less than 100% of the Fair Market Value of the Common Stock on the date the Award is granted. Notwithstanding the foregoing, an Option or SAR may be granted with an exercise or strike price (per share) less than 100% of the Fair Market Value of the Common Stock on the date the Award is granted if such Award is granted pursuant to an assumption of, or substitution for, another option or stock appreciation right pursuant to a Change in Control and in a manner consistent with the provisions of Section 409A of the Code and, if applicable, Section 424(a) of the Code. Each SAR will be denominated in shares of Common Stock equivalents.

(c) Payment of Exercise Price for Options. The exercise price of an Option may be paid, to the extent permitted by applicable law and as determined by the Board in its sole discretion, by one or more of the methods of payment set forth below that are specified in the Option Agreement. The Board has the authority to grant Options that do not permit all of the following methods of payment (or that otherwise restrict the ability to utilize certain methods) and to grant Options that require the consent of the Company to utilize a particular method of payment.

(i) By cash (including electronic funds transfers), check, bank draft or money order payable to the Company;

(ii) Pursuant to a program developed under Regulation T as promulgated by the Federal Reserve Board that, prior to the issuance of the Common Stock subject to the Option, results in either the receipt of cash (or check) by the Company or the receipt of irrevocable instructions to pay the aggregate exercise price to the Company from the sales proceeds;

(iii) By delivery to the Company (either by actual delivery or attestation) of shares of Common Stock;

(iv) If an Option is a Nonstatutory Stock Option, by a "net exercise" arrangement pursuant to which the Company will reduce the number of shares of Common Stock issuable upon exercise by the largest whole number of shares with a Fair Market Value that does not exceed the aggregate exercise price; *provided, however*, that the Company will accept a cash or other payment from the Participant to the extent of any remaining balance of the aggregate exercise price not satisfied by such reduction in the number of whole shares to be issued. Shares of Common Stock will no longer be subject to an Option and will not be exercisable thereafter to the extent that (A) shares issuable upon exercise are used to pay the exercise price pursuant to the "net exercise," (B) shares are delivered to the Participant as a result of such exercise, and (C) shares are withheld to satisfy tax withholding obligations; or

(v) In any other form of legal consideration that may be acceptable to the Board and specified in the applicable Award Agreement.

(d) Exercise and Payment of a SAR. To exercise any outstanding SAR, the Participant must provide written notice of exercise to the Company in compliance with the provisions of the Award Agreement evidencing such SAR. The appreciation distribution payable on the exercise of a SAR will be not greater than an amount equal to the excess of (A) the aggregate Fair Market Value (on the date of the exercise of the SAR) of a number of shares of Common Stock equal to the number of Common Stock equivalents in which the Participant is vested under such SAR, and with respect to which the Participant is exercising the SAR on such date, over (B) the aggregate strike price of the number of Common Stock equivalents with respect to which the Participant is exercising the SAR on such date. The appreciation distribution may be paid in Common Stock, in cash, in any combination of the two or in any other form of consideration, as determined by the Board and contained in the Award Agreement evidencing such SAR.

(e) Transferability of Options and SARs. The Board may, in its sole discretion, impose such limitations on the transferability of Options and SARs as the Board will determine. In the absence of such a determination by the Board to the contrary, the restrictions set forth in this Section 5(e) on the transferability of Options and SARs will apply. Notwithstanding the foregoing or anything in the Plan or an Award Agreement to the contrary, no Option or SAR may be transferred to any financial institution without prior stockholder approval.

(i) Restrictions on Transfer. An Option or SAR will not be transferable, except by will or by the laws of descent and distribution (and pursuant to Sections 5(e)(ii) and 5(e)(iii) below), and will be exercisable during the lifetime of the Participant only by the Participant. Subject to the foregoing paragraph, the Board may, in its sole discretion, permit transfer of the Option or SAR in a manner that is not prohibited by applicable tax and securities laws. Except as explicitly provided in the Plan, neither an Option nor a SAR may be transferred for consideration.

(ii) Domestic Relations Orders. Subject to the approval of the Board or a duly authorized Officer, an Option or SAR may be transferred pursuant to the terms of a domestic relations order, official marital settlement agreement or other divorce or separation instrument as permitted by Treasury Regulations Section 1.421-1(b)(2). If an Option is an Incentive Stock Option, such Option may be deemed to be a Nonstatutory Stock Option as a result of such transfer.

(iii) Beneficiary Designation. Subject to the approval of the Board or a duly authorized Officer, a Participant may, by delivering written notice to the Company, in a form approved by the Company (or the designated broker), designate a third party who, upon the death of the Participant, will thereafter be entitled to exercise the Option or SAR and receive the Common Stock or other consideration resulting from such exercise. In the absence of such a designation, upon the death of the Participant, the executor or administrator of the Participant's estate will be entitled to exercise the Option or SAR and receive the Common Stock or other consideration resulting from such exercise. However, the Company may prohibit designation of a beneficiary at any time, including due to any conclusion by the Company that such designation would be inconsistent with the provisions of applicable laws.

(f) Vesting. The total number of shares of Common Stock subject to an Option or SAR may vest and become exercisable in periodic installments that may or may not be equal. The Option or SAR may be subject to such other terms and conditions on the time or times when it may or may not be exercised as the Board may deem appropriate. The vesting provisions of individual Options or SARs may vary. The provisions of this Section 5(f) are subject to Section 2(g) and any Option or SAR provisions governing the minimum number of shares of Common Stock as to which an Option or SAR may be exercised.

(g) Termination of Continuous Service. Except as otherwise provided in the applicable Award Agreement or other written agreement between a Participant and the Company or an Affiliate, if a Participant's Continuous Service terminates (other than for Cause and other than upon the Participant's death or Disability), the Participant may exercise his or her Option or SAR (to the extent that the Participant was entitled to exercise such Option or SAR as of the date of termination of Continuous Service), but only within such period of time ending on the earlier of (i) the date that is three months following such termination of Continuous Service (or such longer or shorter period specified in the Award Agreement), and (ii) the expiration of the term of the Option or SAR as set forth in the Award Agreement. If, after such termination of Continuous Service, the Participant does not exercise his or her Option or SAR (as applicable) within the applicable time period, the Option or SAR (as applicable) will terminate.

(h) Extension of Termination Date. Except as otherwise provided in the applicable Award Agreement or other written agreement between a Participant and the Company or an Affiliate, if the exercise of an Option or SAR following the termination of a Participant's Continuous Service (other than for Cause and other than upon the Participant's death or Disability) would be prohibited at any time solely because the issuance of shares of Common Stock would violate the registration requirements under the Securities Act, then the Option or SAR will terminate on the earlier of (i) the expiration of a total period of time (that need not be consecutive) equal to the applicable post-termination exercise period after the termination of the Participant's Continuous Service during which the exercise of the Option or SAR would not be in violation of such registration requirements or (ii) the expiration of the term of the Option or SAR as set forth in the applicable Award Agreement. In addition, except as otherwise provided in the applicable Award Agreement or other written agreement between a Participant and the Company or an Affiliate, if the sale of any Common Stock received upon exercise of an Option or SAR following the termination of a Participant's Continuous Service (other than for Cause) would violate the Company's insider trading policy, then the Option or SAR will terminate on the earlier of (i) the expiration of a total period of time (that need not be consecutive) equal to the applicable post-termination exercise period after the termination of the Participant's Continuous Service during which the sale of the Common Stock received upon exercise of the Option or SAR would not be in violation of the Company's insider trading policy or (ii) the expiration of the term of the Option or SAR as set forth in the applicable Award Agreement.

(i) Disability of Participant. Except as otherwise provided in the applicable Award Agreement or other written agreement between a Participant and the Company or an Affiliate, if a Participant's Continuous Service terminates as a result of the Participant's Disability, the Participant may exercise his or her Option or SAR (to the extent that the Participant was entitled to exercise such Option or SAR as of the date of termination of Continuous Service), but only within such period of time ending on the earlier of (i) the date that is 12 months following such termination of Continuous Service (or such longer or shorter period specified in the Award Agreement), and (ii) the expiration of the term of the Option or SAR as set forth in the Award Agreement. If, after such termination of Continuous Service, the Participant does not exercise his or her Option or SAR (as applicable) within the applicable time period, the Option or SAR (as applicable) will terminate.

(j) Death of Participant. Except as otherwise provided in the applicable Award Agreement or other written agreement between a Participant and the Company or an Affiliate, if (i) a Participant's Continuous Service terminates as a result of the Participant's death, or (ii) a Participant dies within the period (if any) specified in the Award Agreement for exercisability after the termination of the Participant's Continuous Service (for a reason other than death), then the Participant's Option or SAR may be exercised (to the extent that the Participant was entitled to exercise such Option or SAR as of the date of death) by the Participant's estate, by a person who acquired the right to exercise the Option or SAR by bequest or inheritance, or by a person designated to exercise the Option or SAR upon the Participant's death, but only within such period of time ending on the earlier of (i) the date that is 18 months following the date of death (or such longer or shorter period specified in the Award Agreement), and (ii) the expiration of the term of the Option or SAR as set forth in the Award Agreement. If, after the Participant's death, the Option or SAR (as applicable) is not exercised within the applicable time period, the Option or SAR (as applicable) will terminate.

(k) Termination for Cause. Except as explicitly provided otherwise in the applicable Award Agreement or other individual written agreement between a Participant and the Company or an Affiliate, if a Participant's Continuous Service is terminated for Cause, the Participant's Option or SAR will terminate immediately upon such termination of Continuous Service, and the Participant will be prohibited from exercising his or her Option or SAR from and after the time of such termination of Continuous Service.

(l) Non-Exempt Employees. If an Option or SAR is granted to an Employee who is a non-exempt employee for purposes of the Fair Labor Standards Act of 1938, as amended, the Option or SAR will not be first exercisable for any shares of Common Stock until at least six months following the date of grant of the Option or SAR (although the Award may vest prior to such date). Consistent with the provisions of the Worker Economic Opportunity Act, (i) if such non-exempt employee dies or suffers a Disability, (ii) upon a Change in Control, or

(iii) upon the Participant's retirement (as such term may be defined in the Participant's Award Agreement, in another written agreement between the Participant and the Company or an Affiliate, or, if no such definition, in accordance with the Company's or Affiliate's then current employment policies and guidelines), the vested portion of any Options and SARs may be exercised earlier than six months following the date of grant. The foregoing provision is intended to operate so that any income derived by a non-exempt employee in connection with the exercise or vesting of an Option or SAR will be exempt from his or her regular rate of pay. To the extent permitted and/or required for compliance with the Worker Economic Opportunity Act to ensure that any income derived by a non-exempt employee in connection with the exercise, vesting or issuance of any shares under any other Award will be exempt from the employee's regular rate of pay, the provisions of this Section 5(l) will apply to all Awards and are hereby incorporated by reference into such Award Agreements.

6. Provisions of Awards Other than Options and SARs.

(a) Restricted Stock Awards. Each Restricted Stock Award Agreement will be in such form and will contain such terms and conditions as the Board deems appropriate. To the extent consistent with the Company's bylaws, at the Board's election, shares of Common Stock underlying a Restricted Stock Award may be (i) held in book entry form subject to the Company's instructions until any restrictions relating to the Restricted Stock Award lapse, or (ii) evidenced by a certificate, which certificate will be held in such form and manner as determined by the Board. The terms and conditions of separate Restricted Stock Award Agreements need not be identical; *provided, however*, that each Restricted Stock Award Agreement will conform to (through incorporation of the provisions hereof by reference in the applicable Award Agreement or otherwise) the substance of each of the following provisions:

(i) Consideration. A Restricted Stock Award may be awarded in consideration for (A) cash (including electronic funds transfers), check, bank draft or money order payable to the Company, (B) past services to the Company or an Affiliate or (C) any other form of legal consideration (including future services) that may be acceptable to the Board, in its sole discretion, and permissible under applicable law.

(ii) Vesting. Subject to Section 2(g), shares of Common Stock awarded under a Restricted Stock Award Agreement may be subject to forfeiture to or repurchase by the Company in accordance with a vesting schedule to be determined by the Board.

(iii) Termination of Continuous Service. If a Participant's Continuous Service terminates, the Company may receive through a forfeiture condition or a repurchase right any or all of the shares of Common Stock held by the Participant that have not vested as of the date of such termination under the terms of the Participant's Restricted Stock Award Agreement.

(iv) Transferability. Rights to acquire shares of Common Stock under a Restricted Stock Award Agreement will be transferable by the Participant only upon such terms and conditions as are set forth in the Restricted Stock Award Agreement, as the Board will determine in its sole discretion, so long as Common Stock awarded under the Restricted Stock Award Agreement remains subject to the terms of the Restricted Stock Award Agreement. Notwithstanding the foregoing or anything in the Plan or a Restricted Stock Award Agreement to the contrary, no Restricted Stock Award may be transferred to any financial institution without prior stockholder approval.

(b) Restricted Stock Unit Awards. Each Restricted Stock Unit Award Agreement will be in such form and will contain such terms and conditions as the Board deems appropriate. The terms and conditions of separate Restricted Stock Unit Award Agreements need not be identical; *provided, however*, that each Restricted Stock Unit Award Agreement will conform to (through incorporation of the provisions hereof by reference in the applicable Award Agreement or otherwise) the substance of each of the following provisions:

(i) Consideration. At the time of grant of a Restricted Stock Unit Award, the Board will determine the consideration, if any, to be paid by the Participant upon delivery of each share of Common Stock subject to the Restricted Stock Unit Award. The consideration to be paid (if any) by the Participant for each share of Common Stock subject to a Restricted Stock Unit Award may be paid in any form of legal consideration that may be acceptable to the Board, in its sole discretion, and permissible under applicable law.

(ii) Vesting. Subject to Section 2(g), at the time of the grant of a Restricted Stock Unit Award, the Board may impose such restrictions on or conditions to the vesting of the Restricted Stock Unit Award as it, in its sole discretion, deems appropriate.

(iii) Payment. A Restricted Stock Unit Award may be settled by the delivery of shares of Common Stock, their cash equivalent, any combination thereof or in any other form of consideration, as determined by the Board and contained in the Restricted Stock Unit Award Agreement.

(iv) Additional Restrictions. At the time of the grant of a Restricted Stock Unit Award, the Board, as it deems appropriate, may impose such restrictions or conditions that delay the delivery of the shares of Common Stock (or their cash equivalent) subject to the Restricted Stock Unit Award to a time after the vesting of the Restricted Stock Unit Award.

(v) Termination of Continuous Service. Except as otherwise provided in the applicable Restricted Stock Unit Award Agreement or other written agreement between a Participant and the Company or an Affiliate, if a Participant's Continuous Service terminates, any portion of the Participant's Restricted Stock Unit Award that has not vested as of the date of such termination will be forfeited upon such termination.

(c) Other Stock Awards. Other forms of Awards valued in whole or in part by reference to, or otherwise based on, Common Stock, including the appreciation in value thereof (*e.g.*, options or stock appreciation rights with an exercise or strike price (per share) less than 100% of the Fair Market Value of the Common Stock on the date of grant) may be granted either alone or in addition to Awards granted under Section 5 and this Section 6. Subject to the provisions of the Plan (including, but not limited to, Sections 2(g) and 2(h)), the Board will have sole and complete authority to determine the persons to whom and the time or times at which such Other Stock Awards will be granted, the number of shares of Common Stock (or the cash equivalent thereof) to be granted pursuant to such Other Stock Awards and all other terms and conditions of such Other Stock Awards.

7. COVENANTS OF THE COMPANY.

(a) Availability of Shares. The Company will keep available at all times the number of shares of Common Stock reasonably required to satisfy then-outstanding Awards.

(b) Securities Law Compliance. The Company will seek to obtain from each regulatory commission or agency having jurisdiction over the Plan the authority required to grant Awards and to issue and sell shares of Common Stock upon exercise of the Awards; *provided, however*, that this undertaking will not require the Company to register under the Securities Act the Plan, any Award or any Common Stock issued or issuable pursuant to any such Award. If, after reasonable efforts and at a reasonable cost, the Company is unable to obtain from any such regulatory commission or agency the authority that counsel for the Company deems necessary for the lawful issuance and sale of Common Stock under the Plan, the Company will be relieved from any liability for failure to issue and sell Common Stock upon exercise of such Awards unless and until such authority is obtained. A Participant will not be eligible for the grant of an Award or the subsequent issuance of cash or Common Stock pursuant to the Award if such grant or issuance would be in violation of any applicable securities law.

(c) No Obligation to Notify or Minimize Taxes. The Company will have no duty or obligation to any Participant to advise such holder as to the time or manner of exercising an Award. Furthermore, the Company will have no duty or obligation to warn or otherwise advise such holder of a pending termination or expiration of an Award or a possible period in which the Award may not be exercised. The Company has no duty or obligation to minimize the tax consequences of an Award to the holder of such Award.

8. Miscellaneous.

(a) Use of Proceeds from Sales of Common Stock. Proceeds from the sale of shares of Common Stock issued pursuant to Awards will constitute general funds of the Company.

(b) Corporate Action Constituting Grant of Awards. Corporate action constituting a grant by the Company of an Award to any Participant will be deemed completed as of the date of such corporate action, unless otherwise determined by the Board, regardless of when the instrument, certificate or letter evidencing the Award is communicated to, or actually received or accepted by, the Participant. In the event that the corporate records (*e.g.*, Board consents, resolutions or minutes) documenting the corporate action constituting the grant contain terms (*e.g.*, exercise price, vesting schedule or number of shares) that are inconsistent with those in the Award Agreement or related grant documents as a result of a clerical error in the papering of the Award Agreement or related grant documents, the corporate records will control and the Participant will have no legally binding right to the incorrect term in the Award Agreement or related grant documents.

(c) Stockholder Rights. No Participant will be deemed to be the holder of, or to have any of the rights of a holder with respect to, any shares of Common Stock subject to an Award unless and until (i) such Participant has satisfied all requirements for exercise of, or the issuance of shares of Common Stock under, the Award pursuant to its terms, and (ii) the issuance of the Common Stock subject to such Award has been entered into the books and records of the Company.

(d) No Employment or Other Service Rights. Nothing in the Plan, any Award Agreement or any other instrument executed thereunder or in connection with any Award granted pursuant thereto will confer upon any Participant any right to continue to serve the Company or an Affiliate in the capacity in effect at the time the Award was granted or will affect the right of the Company or an Affiliate to terminate (i) the employment of an Employee with or without notice and with or without cause, (ii) the service of a Consultant pursuant to the terms of such Consultant's agreement with the Company or an Affiliate, or (iii) the service of a Director pursuant to the bylaws of the Company or an Affiliate, and any applicable provisions of the corporate law of the state in which the Company or the Affiliate is incorporated, as the case may be.

(e) Change in Time Commitment. In the event a Participant's regular level of time commitment in the performance of his or her services for the Company or any Affiliate is reduced (for example, and without limitation, if the Participant is an Employee of the Company and the Employee has a change in status from a full-time Employee to a part-time Employee or takes an extended leave of absence) after the date of grant of any Award to the Participant, the Board has the right in its sole discretion to (i) make a corresponding reduction in the number of shares or cash amount subject to any portion of such Award that is scheduled to vest or become payable after the date of such change in time commitment, and (ii) in lieu of or in combination with such a reduction, extend the vesting or payment schedule applicable to such Award. In the event of any such reduction, the Participant will have no right with respect to any portion of the Award that is so reduced or extended.

(f) Incentive Stock Option Limitation. To the extent that the aggregate Fair Market Value (determined at the time of grant) of Common Stock with respect to which Incentive Stock Options are exercisable for the first time by any Participant during any calendar year (under all plans of the Company and any Affiliates) exceeds $100,000 (or such other limit established in the Code) or otherwise does not comply with the rules governing Incentive Stock Options, the Options or portions thereof that exceed such limit (according to the order in which they were granted) or otherwise do not comply with such rules will be treated as Nonstatutory Stock Options, notwithstanding any contrary provision of the applicable Option Agreement(s).

(g) Investment Assurances. The Company may require a Participant, as a condition of exercising or acquiring Common Stock under any Award, (i) to give written assurances satisfactory to the Company as to the Participant's knowledge and experience in financial and business matters and/or to employ a purchaser representative reasonably satisfactory to the Company who is knowledgeable and experienced in financial and business matters and that he or she is capable of evaluating, alone or together with the purchaser representative, the merits and risks of exercising the Award and (ii) to give written assurances satisfactory to the Company stating that the Participant is acquiring Common Stock subject to the Award for the Participant's own account and not with any present intention of selling or otherwise distributing the Common Stock. The foregoing requirements, and any assurances given pursuant to such requirements, will be inoperative if (A) the issuance of the shares upon the exercise or acquisition of Common Stock under the Award has been registered under a then currently effective registration statement under the Securities Act or (B) as to any particular requirement, a determination is made by counsel for the Company that such requirement need not be met in the circumstances under the then applicable securities laws. The Company may, upon advice of counsel to the Company, place legends on stock certificates issued under the Plan as such counsel deems necessary or appropriate in order to comply with applicable securities laws, including, but not limited to, legends restricting the transfer of the Common Stock.

(h) Withholding Obligations. Unless prohibited by the terms of an Award Agreement, the Company may, in its sole discretion, satisfy any federal, state, local or foreign tax withholding obligation relating to an Award by any of the following means or by a combination of such means: (i) causing the Participant to tender a cash payment; (ii) withholding shares of Common Stock from the shares of Common Stock issued or otherwise issuable to the Participant in connection with the Award; (iii) withholding cash from an Award settled in cash; (iv) withholding payment from any amounts otherwise payable to the Participant; or (v) by such other method as may be set forth in the Award Agreement.

(i) Electronic Delivery. Any reference herein to a "written" agreement or document will include any agreement or document delivered electronically, filed publicly at www.sec.gov (or any successor website thereto) or posted on the Company's intranet (or other shared electronic medium controlled by the Company to which the Participant has access).

(j) Deferrals. To the extent permitted by applicable law, the Board, in its sole discretion, may determine that the delivery of Common Stock or the payment of cash, upon the exercise, vesting or settlement of all or a portion of any Award may be deferred and may establish programs and procedures for deferral elections to be made by Participants. Deferrals by Participants will be made in accordance with Section 409A of the Code. Consistent with Section 409A of the Code, the Board may provide for distributions while a Participant is still an employee or otherwise providing services to the Company or an Affiliate. The Board is authorized to make deferrals of Awards and determine when, and in what annual percentages, Participants may receive payments, including lump sum payments, following the Participant's termination of Continuous Service, and implement such other terms and conditions consistent with the provisions of the Plan and in accordance with applicable law.

(k) Section 409A. Unless otherwise expressly provided for in an Award Agreement, the Plan and Award Agreements will be interpreted to the greatest extent possible in a manner that makes the Plan and the Awards granted hereunder exempt from Section 409A of the Code, and, to the extent not so exempt, in compliance with Section 409A of the Code. If the Board determines that any Award granted hereunder is not exempt from and is therefore subject to Section 409A of the Code, the Award Agreement evidencing such Award will incorporate the terms and conditions necessary to avoid the consequences specified in Section 409A(a)(1) of the Code, and to the extent an Award Agreement is silent on terms necessary for compliance with Section 409A of the Code, such terms are hereby incorporated by reference into the Award Agreement. Notwithstanding anything to the contrary in this Plan (and unless the Award Agreement specifically provides otherwise), if the shares of Common Stock are publicly traded, and if a Participant holding an Award that constitutes "deferred compensation" under Section 409A of the Code is a "specified employee" for purposes of Section 409A of the Code, no distribution or payment of any amount under such Award that is due because of a "separation from service" (as defined in Section 409A of the Code without regard to alternative definitions thereunder) will be issued or paid before the date that is six months and one day following the date of such Participant's "separation from service" or, if earlier, the date of the Participant's death, unless such distribution or payment may be made in a manner that complies with Section 409A of the Code, and any amounts so deferred will be paid in a lump sum on the day after such six-month period elapses, with the balance paid thereafter on the original schedule.

(l) Clawback/Recovery. All Awards granted under the Plan will be subject to recoupment in accordance with any clawback policy that the Company is required to adopt pursuant to the listing standards of any national securities exchange or association on which the Company's securities are listed or as is otherwise required by the Dodd-Frank Wall Street Reform and Consumer Protection Act or other applicable law. In addition, the Board may impose such other clawback, recovery or recoupment provisions in an Award Agreement or other written agreement between a Participant and the Company or an Affiliate as the Board determines necessary or appropriate, including, but not limited to, a reacquisition right in respect of previously acquired shares of Common Stock or other cash or property upon the occurrence of Cause. No recovery of compensation under such a clawback policy will be an event giving rise to a right to resign for "good reason" or "constructive termination" (or similar term) under any agreement with the Company or an Affiliate.

9. Adjustments upon Changes in Common Stock; Other Corporate Events.

(a) Capitalization Adjustments. In the event of a Capitalization Adjustment, the Board will appropriately and proportionately adjust: (i) the class(es) and maximum number of securities subject to the Plan pursuant to Section 3(a); (ii) the class(es) and maximum number of securities that may be issued pursuant to the exercise of Incentive Stock Options pursuant to Section 3(c); and (iii) the class(es) and number of securities and price per share of stock subject to outstanding Awards. The Board will make such adjustments and its determination will be final, binding and conclusive.

(b) Dissolution or Liquidation. Except as otherwise provided in the applicable Award Agreement or other written agreement between a Participant and the Company or an Affiliate, in the event of a dissolution or liquidation of the Company, all outstanding Awards (other than Awards consisting of vested and outstanding shares of Common Stock not subject to a forfeiture condition or the Company's right of repurchase) will terminate immediately prior to the completion of such dissolution or liquidation, and the shares of Common Stock subject to a forfeiture condition or the Company's right of repurchase may be reacquired or repurchased by the Company notwithstanding the fact that the holder of such Award is providing Continuous Service.

(c) Change in Control. In the event of a Change in Control, the provisions of this Section 9(c) will apply to each outstanding Award unless otherwise provided in the instrument evidencing the Award, in any other written agreement between the Company or any Affiliate and the Participant, or in any director compensation policy of the Company.

(i) Awards May Be Assumed. In the event of a Change in Control, any surviving corporation or acquiring corporation (or the surviving or acquiring corporation's parent company) may assume or continue any or all outstanding Awards or may substitute similar stock awards for any or all outstanding Awards (including, but not limited to, awards to acquire the same consideration paid to the stockholders of the Company pursuant to the Change in Control), and any reacquisition or repurchase rights held by the Company in respect of Common Stock issued pursuant to any outstanding Awards may be assigned by the Company to the surviving corporation or acquiring corporation (or the surviving or acquiring corporation's parent company). For clarity, in the event of a Change in Control, any surviving corporation or acquiring corporation (or the surviving or acquiring corporation's parent company) may choose to assume or continue only a portion of an outstanding Award, to substitute a similar stock award for only a portion of an outstanding Award, or to assume or continue, or substitute similar stock awards for, the outstanding Awards held by some, but not all, Participants. The terms of any such assumption, continuation or substitution will be set by the Board.

(ii) Awards Held by Current Participants. In the event of a Change in Control in which the surviving corporation or acquiring corporation (or the surviving or acquiring corporation's parent company) does not assume or continue outstanding Awards, or substitute similar stock awards for outstanding Awards, then with respect to any such Awards that have not been assumed, continued or substituted and that are held by Participants whose Continuous Service has not terminated prior to the effective time of the Change in Control (referred to as the "***Current Participants***"), the vesting (and exercisability, if applicable) of such Awards will be accelerated in full (and with respect to any such Awards that are subject to performance-based vesting conditions or requirements, vesting will be deemed to be satisfied at the greater of (x) the target level of performance or (y) the actual level of performance measured in accordance with the applicable performance goals as of the date of the Change in Control) to a date prior to the effective time of the Change in Control (contingent upon the closing or completion of the Change in Control) as the Board will determine (or, if the Board does not determine such a date, to the date that is five days prior to the effective time of the Change in Control), and such Awards will terminate if not exercised (if applicable) prior to the effective time of the Change in Control in accordance with the exercise procedures determined by the Board, and any reacquisition or repurchase rights held by the Company with respect to such Awards will lapse (contingent upon the closing or completion of the Change in Control).

(iii) Awards Held by Participants other than Current Participants. In the event of a Change in Control in which the surviving corporation or acquiring corporation (or the surviving or acquiring corporation's parent company) does not assume or continue outstanding Awards, or substitute similar stock awards for outstanding Awards, then with respect to any such Awards that have not been assumed, continued or substituted and that are held by Participants other than Current Participants, such Awards will terminate if not exercised (if applicable) prior to the effective time of the Change in Control in accordance with the exercise procedures determined by the Board; *provided*, *however*, that any reacquisition or repurchase rights held by the Company with respect to such Awards will not terminate and may continue to be exercised notwithstanding the Change in Control.

(iv) Payment for Awards in Lieu of Exercise. Notwithstanding the foregoing, in the event any outstanding Award held by a Participant will terminate if not exercised prior to the effective time of a Change in Control, the Board may provide that the Participant may not exercise such Award but instead will receive a payment, in such form as may be determined by the Board, equal in value to the excess, if any, of (A) the value of the property the Participant would have received upon the exercise of such Award immediately prior to the effective time of the Change in Control, over (B) any exercise price payable by the Participant in connection with such exercise. For clarity, such payment may be zero if the value of such property is equal to or less than the exercise price. Payments under this provision may be delayed to the same extent that payment of consideration to the holders of the Common Stock in connection with the Change in Control is delayed as a result of escrows, earn outs, holdbacks or any other contingencies.

(d) No Additional Acceleration upon or after Change in Control. Unless provided otherwise in the Award Agreement for an Award, in any other written agreement or plan between the Company or any Affiliate and the Participant, or in any director compensation policy of the Company, an Award will not be subject to additional acceleration of vesting and exercisability upon or after a Change in Control.

(e) Parachute Payments. Except as otherwise provided in the applicable Award Agreement or other written agreement between a Participant and the Company or an Affiliate, if any payment or benefit the Participant would receive pursuant to a Change in Control from the Company or otherwise ("***Payment***") would (i) constitute a "parachute payment" within the meaning of Section 280G of the Code, and (ii) but for this sentence, be subject to the excise tax imposed by Section 4999 of the Code (the "***Excise Tax***"), then such Payment will be equal to the Reduced Amount. The "***Reduced Amount***" will be either (x) the largest portion of the Payment that would result in no portion of the Payment being subject to the Excise Tax or (y) the largest portion, up to and including the total, of the Payment, whichever amount, after taking into account all applicable federal, state and local employment taxes, income taxes, and the Excise Tax (all computed at the highest applicable marginal rate), results in the Participant's receipt, on an after-tax basis, of the greater amount of the Payment notwithstanding that all or some portion of the Payment may be subject to the Excise Tax. If a reduction in payments or benefits constituting "parachute payments" is necessary so that the Payment equals the Reduced Amount, reduction will occur in the following order: (A) reduction of cash payments; (B) cancellation of accelerated vesting of equity awards other than stock options; (C) cancellation of accelerated vesting of stock options; and (D) reduction of other benefits paid to the Participant. Within any such category of payments and benefits (that is, (A), (B), (C) or (D)), a reduction will occur first with respect to amounts that are not "deferred compensation" within the meaning of Section 409A of the Code and then with respect to amounts that are. In the event that acceleration of compensation from a Participant's equity awards is to be reduced, such acceleration of vesting will be canceled, subject to the immediately preceding sentence, in the reverse order of the date of grant. The accounting firm engaged by the Company for general audit purposes as of the day prior to the effective date of the Change in Control will perform the foregoing calculations. If the accounting firm so engaged by the Company is serving as accountant or auditor for the individual, entity or group effecting the Change in Control, the Company will appoint a nationally recognized accounting firm to make the determinations required hereunder. The Company will bear all expenses with respect to the determinations by such accounting firm required to be made hereunder. The accounting firm engaged to make the determinations hereunder will provide its calculations, together with detailed supporting documentation, to the Participant and the Company within 15 calendar days after the date on which the Participant's right to a Payment is triggered (if requested at that time by the Participant or the Company) or such other time as reasonably requested by the Participant or the Company. Any good faith determinations of the accounting firm made hereunder will be final, binding and conclusive upon the Participant and the Company.

10. Termination or Suspension of the Plan.

(a) Termination or Suspension. The Board may suspend or terminate the Plan at any time. No Incentive Stock Option may be granted after the tenth anniversary of the earlier of (i) the Adoption Date or (ii) the date the Plan is approved by the stockholders of the Company. No Awards may be granted under the Plan while the Plan is suspended or after it is terminated.

(b) No Impairment of Rights. Suspension or termination of the Plan will not materially impair rights and obligations under any Award granted while the Plan is in effect except with the written consent of the affected Participant or as otherwise permitted in the Plan (including Section 2(b)(viii)) or an Award Agreement.

11. Effective Date of Plan.

This Plan will become effective on the Effective Date.

12. Choice of Law.

The laws of the State of Delaware will govern all questions concerning the construction, validity and interpretation of this Plan, without regard to that state's conflict of laws rules.

13. Definitions. As used in the Plan, the following definitions will apply to the capitalized terms indicated below:

(a) "***Adoption Date***" means July 9, 2019, which is the date the Plan was adopted by the Board.

(b) "***Affiliate***" means, at the time of determination, any "parent" or "subsidiary" of the Company as such terms are defined in Rule 405. The Board will have the authority to determine the time or times at which "parent" or "subsidiary" status is determined within the foregoing definition.

(c) "***Appreciation Award***" means (i) a stock option or stock appreciation right granted under the Prior Plan or (ii) an Option or Stock Appreciation Right, in each case with respect to which the exercise or strike price (per share) is at least 100% of the Fair Market Value of the Common Stock subject to the stock option or stock appreciation right, or Option or Stock Appreciation Right, as applicable, on the date of grant.

(d) "***Award***" means an Incentive Stock Option, a Nonstatutory Stock Option, a Stock Appreciation Right, a Restricted Stock Award, a Restricted Stock Unit Award or any Other Stock Award.

(e) "***Award Agreement***" means a written agreement between the Company and a Participant evidencing the terms and conditions of an Award.

(f) "***Board***" means the Board of Directors of the Company.

(g) "***Capitalization Adjustment***" means any change that is made in, or other events that occur with respect to, the Common Stock subject to the Plan or subject to any Award after the Adoption Date without the receipt of consideration by the Company through merger, consolidation, reorganization, recapitalization, reincorporation, stock dividend, dividend in property other than cash, large nonrecurring cash dividend, stock split, reverse stock split, liquidating dividend, combination of shares, exchange of shares, change in corporate structure or any similar equity restructuring transaction, as that term is used in Statement of Financial Accounting Standards No. 123 (revised). Notwithstanding the foregoing, the conversion of any convertible securities of the Company will not be treated as a Capitalization Adjustment.

(h) "***Cause***" will have the meaning ascribed to such term in any written agreement between a Participant and the Company or an Affiliate defining such term and, in the absence of such agreement, such term means, with respect to a Participant, the occurrence of one or more of the following: (i) the Participant's theft, dishonesty, willful misconduct, breach of fiduciary duty for personal profit, or falsification of any Company or Affiliate documents or records; (ii) the Participant's material failure to abide by the code of conduct or other policies (including, without limitation, policies relating to confidentiality and reasonable workplace conduct) of the Company or an Affiliate; (iii) the Participant's unauthorized use, misappropriation, destruction or diversion of any tangible or intangible asset or corporate opportunity of the Company or an Affiliate (including, without limitation, the Participant's improper use or disclosure of confidential or proprietary information of the Company or an Affiliate); (iv) any intentional act by the Participant which has a material detrimental effect on the reputation or business of the Company or an Affiliate; (v) the Participant's repeated failure or inability to perform any reasonable assigned duties after written notice from the Company or an Affiliate, and a reasonable opportunity to cure, such failure or inability; (vi) any material breach by the Participant of any employment or service agreement between the Participant and the Company or an Affiliate, which breach is not cured pursuant to the terms of such agreement; or (vii) the Participant's conviction (including any plea of guilty or nolo contendere) of any criminal act involving fraud, dishonesty, misappropriation or moral turpitude, or which impairs the Participant's ability to perform his or her duties. The determination that a termination of a Participant's Continuous Service is either for Cause or without Cause will be made by the Company, in its sole discretion. Any determination by the Company that the Continuous Service of a Participant was terminated with or without Cause for the purposes of outstanding Awards held by the Participant will have no effect upon any determination of the rights or obligations of the Company or the Participant for any other purpose.

(i) "***Change in Control***" means the consummation of any of the following events:

(i) any merger or consolidation after which the voting securities of the Company outstanding immediately prior thereto represent (either by remaining outstanding or by being converted into voting securities of the surviving or acquiring entity) less than 50% of the combined voting power of the voting securities of the Company or such surviving or acquiring entity outstanding immediately after such event;

(ii) any sale of all or substantially all of the assets or capital stock of the Company (other than in a spin-off or similar transaction); or

(iii) any other acquisition of the business of the Company, as determined by the Board, in its sole discretion; *provided, however*, that no Change in Control (or any analogous term) will be deemed to occur upon an announcement or commencement of a tender offer or upon a "potential" takeover or upon stockholder approval of a merger or other transaction, in each case without a requirement that the Change in Control actually occur.

Notwithstanding the foregoing or any other provision of this Plan, (A) the term Change in Control will not include a sale of assets, merger or other transaction effected exclusively for the purpose of changing the domicile of the Company, and (B) the definition of Change in Control (or any analogous term) in an individual written agreement between a Participant and the Company or an Affiliate will supersede the foregoing definition with respect to Awards subject to such agreement; *provided, however*, that (1) if no definition of Change in Control (or any analogous term) is set forth in such an individual written agreement, the foregoing definition will apply; and (2) no Change in Control (or any analogous term) will be deemed to occur with respect to Awards subject to such an individual written agreement without a requirement that the Change in Control (or any analogous term) actually occur.

If required for compliance with Section 409A of the Code, in no event will an event be deemed a Change in Control if such event is not also a "change in the ownership of" the Company, a "change in the effective control of" the Company or a "change in the ownership of a substantial portion of the assets of" the Company, each as determined under Treasury Regulations Section 1.409A-3(i)(5) (without regard to any alternative definition thereunder). The Board may, in its sole discretion and without a Participant's consent, amend the definition of "Change in Control" to conform to the definition of a "change in control event" under Section 409A of the Code and the regulations thereunder.

(j) "***Code***" means the Internal Revenue Code of 1986, as amended, including any applicable regulations and guidance thereunder.

(k) "***Committee***" means a committee of one or more Directors to whom authority has been delegated by the Board in accordance with Section 2(c).

(l) "***Common Stock***" means the common stock of the Company.

(m) "***Company***" means NetScout Systems, Inc., a Delaware corporation.

(n) "***Consultant***" means any person, including an advisor, who is (i) engaged by the Company or an Affiliate to render consulting or advisory services and is compensated for such services or (ii) serving as a member of the board of directors of an Affiliate and is compensated for such services. However, service solely as a Director, or payment of a fee for such service, will not cause a Director to be considered a "Consultant" for purposes of the Plan. Notwithstanding the foregoing, a person is treated as a Consultant under this Plan only if a Form S-8 Registration Statement under the Securities Act is available to register either the offer or the sale of the Company's securities to such person.

(o) "***Continuous Service***" means that the Participant's service with the Company or an Affiliate, whether as an Employee, Director or Consultant, is not interrupted or terminated. A change in the capacity in which the Participant renders service to the Company or an Affiliate as an Employee, Director or Consultant or a change in the Entity for which the Participant renders such service, provided that there is no interruption or termination of the Participant's service with the Company or an Affiliate, will not terminate a Participant's Continuous Service; *provided, however,* that if the Entity for which a Participant is rendering services ceases to qualify as an Affiliate, as determined by the Board, in its sole discretion, such Participant's Continuous Service will be considered to have terminated on the date such Entity ceases to qualify as an Affiliate. For example, a change in status from an Employee of the Company to a Consultant of an Affiliate or to a Director will not constitute an interruption of Continuous Service. To the extent permitted by law, the Board or the chief executive officer of the Company, in that party's sole discretion, may determine whether Continuous Service will be considered interrupted in the case of (i) any leave of absence approved by the Board or chief executive officer, including sick leave, military leave or any other personal leave, or (ii) transfers between the Company, an Affiliate or their successors. Notwithstanding the foregoing, a leave of absence will be treated as Continuous Service for purposes of vesting in an Award only to such extent as may be provided in the Company's or Affiliate's leave of absence policy, in the written terms of any leave of absence agreement or policy applicable to the Participant, or as otherwise required by law.

(p) "***Director***" means a member of the Board.

(q) "***Disability***" means, with respect to a Participant, the inability of such Participant to engage in any substantial gainful activity by reason of any medically determinable physical or mental impairment that can be expected to result in death or that has lasted or can be expected to last for a continuous period of not less than 12 months, as provided in Sections 22(e)(3) and 409A(a)(2)(c)(i) of the Code, and will be determined by the Board on the basis of such medical evidence as the Board deems warranted under the circumstances.

(r) "***Effective Date***" means the effective date of this Plan, which is the date of the Annual Meeting of Stockholders of the Company held in 2019, provided that this Plan is approved by the Company's stockholders at such meeting.

(s) "***Employee***" means any person employed by the Company or an Affiliate. However, service solely as a Director, or payment of a fee for such services, will not cause a Director to be considered an "Employee" for purposes of the Plan.

(t) "***Entity***" means a corporation, partnership, limited liability company or other entity.

(u) "***Exchange Act***" means the Securities Exchange Act of 1934, as amended, and the rules and regulations promulgated thereunder.

(v) "***Fair Market Value***" means, as of any date, the value of the Common Stock determined as follows:

(i) Unless otherwise provided by the Board, if the Common Stock is listed on any established stock exchange or traded on any established market, then the Fair Market Value of a share of Common Stock will be the closing sales price for such stock as quoted on such exchange or market (or the exchange or market with the greatest volume of trading in the Common Stock) on the date of determination, as reported in a source the Board deems reliable.

(ii) Unless otherwise provided by the Board, if there is no closing sales price for the Common Stock on the date of determination, then the Fair Market Value of a share of Common Stock will be the closing sales price for such stock on the last preceding date for which such quotation exists.

(iii) In the absence of such markets for the Common Stock, the Fair Market Value of a share of Common Stock will be determined by the Board in good faith and in a manner that complies with Sections 409A and 422 of the Code.

(w) "***Full Value Award***" means (i) an award granted under the Prior Plan or (ii) an Award, in each case that is not an Appreciation Award.

(x) "***Incentive Stock Option***" means an option granted pursuant to Section 5 that is intended to be, and that qualifies as, an "incentive stock option" within the meaning of Section 422 of the Code.

(y) "***Non-Employee Director***" means a Director who either (i) is not a current employee or officer of the Company or an Affiliate, does not receive compensation, either directly or indirectly, from the Company or an Affiliate for services rendered as a consultant or in any capacity other than as a Director (except for an amount as to which disclosure would not be required under Item 404(a) of Regulation S-K promulgated pursuant to the Securities Act ("***Regulation S-K***")), does not possess an interest in any other transaction for which disclosure would be required under Item 404(a) of Regulation S-K, and is not engaged in a business relationship for which disclosure would be required pursuant to Item 404(b) of Regulation S-K, or (ii) is otherwise considered a "non-employee director" for purposes of Rule 16b-3.

(z) "***Nonstatutory Stock Option***" means an option granted pursuant to Section 5 that does not qualify as an Incentive Stock Option.

(aa) "***Officer***" means a person who is an officer of the Company within the meaning of Section 16 of the Exchange Act.

(bb) "***Option***" means an Incentive Stock Option or a Nonstatutory Stock Option to purchase shares of Common Stock granted pursuant to the Plan.

(cc) "***Option Agreement***" means a written agreement between the Company and a holder of an Option evidencing the terms and conditions of an Option grant. Each Option Agreement will be subject to the terms and conditions of the Plan.

(dd) "***Other Stock Award***" means an award based in whole or in part by reference to the Common Stock which is granted pursuant to the terms and conditions of Section 6(c).

(ee) "***Other Stock Award Agreement***" means a written agreement between the Company and a holder of an Other Stock Award evidencing the terms and conditions of an Other Stock Award grant. Each Other Stock Award Agreement will be subject to the terms and conditions of the Plan.

(ff) "***Own,***" or "***Owned***" A person or Entity will be deemed to "Own," or to have "Owned" securities if such person or Entity, directly or indirectly, through any contract, arrangement, understanding, relationship or otherwise, has or shares voting power, which includes the power to vote or to direct the voting, with respect to such securities.

(gg) "***Participant***" means a person to whom an Award is granted pursuant to the Plan or, if applicable, such other person who holds an outstanding Award.

(hh) "***Plan***" means this NetScout Systems, Inc. 2019 Equity Incentive Plan.

(ii) "***Restricted Stock Award***" means an award of shares of Common Stock which is granted pursuant to the terms and conditions of Section 6(a).

(jj) "***Restricted Stock Award Agreement***" means a written agreement between the Company and a holder of a Restricted Stock Award evidencing the terms and conditions of a Restricted Stock Award grant. Each Restricted Stock Award Agreement will be subject to the terms and conditions of the Plan.

(kk) "***Restricted Stock Unit Award***" means a right to receive shares of Common Stock which is granted pursuant to the terms and conditions of Section 6(b).

(ll) "***Restricted Stock Unit Award Agreement***" means a written agreement between the Company and a holder of a Restricted Stock Unit Award evidencing the terms and conditions of a Restricted Stock Unit Award grant. Each Restricted Stock Unit Award Agreement will be subject to the terms and conditions of the Plan.

(mm) "***Rule 16b-3***" means Rule 16b-3 promulgated under the Exchange Act or any successor to Rule 16b-3, as in effect from time to time.

(nn) "***Rule 405***" means Rule 405 promulgated under the Securities Act.

(oo) "***Securities Act***" means the Securities Act of 1933, as amended, and the rules and regulations promulgated thereunder.

(pp) "***Stock Appreciation Right***" or "***SAR***" means a right to receive the appreciation on Common Stock that is granted pursuant to the terms and conditions of Section 5.

(qq) "***Stock Appreciation Right Agreement***" or "***SAR Agreement***" means a written agreement between the Company and a holder of a Stock Appreciation Right evidencing the terms and conditions of a Stock Appreciation Right grant. Each Stock Appreciation Right Agreement will be subject to the terms and conditions of the Plan.

(rr) "***Subsidiary***" means, with respect to the Company, (i) any corporation of which more than 50% of the outstanding capital stock having ordinary voting power to elect a majority of the board of directors of such corporation (irrespective of whether, at the time, stock of any other class or classes of such corporation will have or might have voting power by reason of the happening of any contingency) is at the time, directly or indirectly, Owned by the Company, and (ii) any partnership, limited liability company or other entity in which the Company has a direct or indirect interest (whether in the form of voting or participation in profits or capital contribution) of more than 50%.

(ss) "***Ten Percent Stockholder***" means a person who Owns (or is deemed to Own pursuant to Section 424(d) of the Code) stock possessing more than 10% of the total combined voting power of all classes of stock of the Company or any Affiliate.

APPENDIX B

GAAP vs. Non-GAAP Measures

We supplement the United States generally accepted accounting principles (GAAP) financial measures we report in quarterly and annual earnings announcements, investor presentations and other investor communications by reporting the following non-GAAP measures: non-GAAP total revenue, non-GAAP product revenue, non-GAAP service revenue, non-GAAP gross profit, non-GAAP income from operations, non-GAAP operating margin, non-GAAP earnings before interest and other expense, income taxes, depreciation and amortization (EBITDA) from operations, non-GAAP net income, and non-GAAP net income per share (diluted). Non-GAAP revenue (total, product and service) eliminates the GAAP effects of acquisitions by adding back revenue related to deferred revenue revaluation, as well as revenue impacted by the amortization of acquired intangible assets. Non-GAAP gross profit includes the aforementioned revenue adjustments and also removes expenses related to the amortization of acquired intangible assets, share-based compensation, certain expenses relating to acquisitions including depreciation costs, compensation for post-combination services and business development and integration costs and adds back transitional service agreement income. Non-GAAP income from operations includes the aforementioned adjustments and also removes restructuring charges, intangible asset impairment charges, loss on divestiture and costs related to new accounting standard implementation. Non-GAAP EBITDA from operations includes the aforementioned items related to non-GAAP income from operations and also removes non-acquisition-related depreciation expense. Non-GAAP net income includes the foregoing adjustments related to non-GAAP income from operations, net of related income tax effects in addition to the provisional one-time impacts of the U.S. Tax Cuts and Jobs Act (TCJA) while removing transitional service agreement income and changes in contingent consideration. Non-GAAP diluted net income per share also excludes these expenses as well as the related impact of all these adjustments on the provision for income taxes.

These non-GAAP measures are not in accordance with GAAP, should not be considered an alternative for measures prepared in accordance with GAAP (revenue, gross profit, operating profit, net income (loss) and diluted net income (loss) per share), and may have limitations in that they do not reflect all our results of operations as determined in accordance with GAAP. These non-GAAP measures should only be used to evaluate our results of operations in conjunction with the corresponding GAAP measures. The presentation of non-GAAP information is not meant to be considered superior to, in isolation from, or as a substitute for results prepared in accordance with GAAP.

Management believes these non-GAAP financial measures enhance the reader's overall understanding of our current financial performance and our prospects for the future by providing a higher degree of transparency for certain financial measures and providing a level of disclosure that helps investors understand how we plan and measure our business. We believe that providing these non-GAAP measures affords investors a view of our operating results that may be more easily compared with our peer companies and also enables investors to consider our operating results on both a GAAP and non-GAAP basis during and following the integration period of our acquisitions. Presenting the GAAP measures on their own may not be indicative of our core operating results. Furthermore, management believes that the presentation of non-GAAP measures when shown in conjunction with the corresponding GAAP measures provide useful information to management and investors regarding present and future business trends relating to our financial condition and results of operations.

NETSCOUT™

2019 Annual Report
on Form 10-K

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, D.C. 20549

FORM 10-K

(Mark One)

☒ **ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the fiscal year ended March 31, 2019

OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**
For the transition period from___________to__________

Commission file number 000-26251

NETSCOUT SYSTEMS, INC.
(Exact name of registrant as specified in its charter)

Delaware	**04-2837575**
(State or other jurisdiction of incorporation or organization)	**(IRS Employer Identification No.)**

310 Littleton Road, Westford, MA 01886
(978) 614-4000

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol(s)	Name of each exchange on which registered:
Common Stock, $0.001 Par value per share	NTCT	Nasdaq Global Select Market

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. YES ☒ NO ☐

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. YES ☐ NO ☒

Indicate by check mark whether the registrant: (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. YES ☒ NO ☐

Indicate by check mark whether the registrant has submitted electronically and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files). YES ☒ NO ☐

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act. (Check one):

Large accelerated filer	☒	Accelerated filer	☐
Non-accelerated filer	☐	Smaller reporting company	☐
		Emerging growth company	☐

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act. ☐

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act). YES ☐ NO ☒

The aggregate market value of common stock held by non-affiliates of the registrant as of September 30, 2018 (based on the last reported sale price on the Nasdaq Global Select Market as of such date) was approximately $1,886,903,665. As of May 13, 2019, there were 77,462,629 shares of the registrant's common stock outstanding.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the Registrant’s Proxy Statement for the fiscal year 2019 Annual Meeting of Stockholders, which will be made available on the Company's website at ir.netscout.com and at the SEC's website at www.sec.gov, are incorporated by reference into Part III of this Annual Report on Form 10-K. Except as expressly incorporated by reference, the proxy statement is not deemed to be part of this report.

NETSCOUT SYSTEMS, INC.

FORM 10-K

FOR THE FISCAL YEAR ENDED MARCH 31, 2019
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Unless the context suggests otherwise, references in this Annual Report on Form 10-K (Annual Report) to "NetScout," the "Company," "we," "us," and "our" refer to NetScout Systems, Inc. and, where appropriate, our consolidated subsidiaries.

NetScout, the NetScout logo, Adaptive Service Intelligence and other trademarks or service marks of NetScout appearing in this Annual Report are the property of NetScout Systems, Inc. and/or its subsidiaries and/or affiliates in the United States and/or other countries. Any third-party trade names, trademarks and service marks appearing in this Annual Report are the property of their respective holders.

Cautionary Statement Concerning Forward-Looking Statements

This Annual Report contains forward-looking statements under Section 21E of the Exchange Act (as defined below) and other federal securities laws. These statements relate to future events or our future financial performance and are identified by terminology such as "may," "will," "could," "should," "expects," "plans," "intends," "seeks," "anticipates," "believes," "estimates," "potential" or "continue," or the negative of such terms or other comparable terminology. These statements are only predictions. You should not place undue reliance on these forward-looking statements. Actual events or results may differ materially. Factors that may cause such differences include, but are not limited to, the factors discussed under the heading "Risk Factors" and in our other filings with the Securities and Exchange Commission (SEC). These factors may cause our actual results to differ materially from any forward-looking statement. Moreover, we operate in a very competitive and rapidly changing environment. New risks emerge from time to time. It is not possible for our management to predict all risks, nor can we assess the impact of all factors on our business or the extent to which any factor, or combination of factors, may cause actual results to differ materially from those contained in any forward-looking statements we may make.

Except as required by law, we do not undertake any obligation to release publicly any revisions to these forward-looking statements after completion of the filing of this Annual Report to reflect later events or circumstances or the occurrence of unanticipated events.

PART I

Item 1. Business

Overview

We are an industry leader in providing service assurance and security solutions that are used by customers worldwide to assure their digital business services against disruption. Service providers and enterprises, including local, state and federal government agencies, rely on our solutions to achieve the visibility necessary to optimize network performance, ensure the delivery of high-quality, mission-critical applications and services, gain timely insight into the end user experience and protect the network from attack. With our offerings, customers can quickly, efficiently and effectively identify and resolve issues that result in downtime, interruptions to services, poor service quality or compromised security, thereby driving compelling returns on their investments in their network and broader technology initiatives.

Our operating results are influenced by a number of factors, including, but not limited to, the mix and quantity of products and services sold, pricing, costs of materials used in our products, growth in employee-related costs, including commissions, and the expansion of our operations. Factors that affect our ability to maximize our operating results include, but are not limited to, our ability to introduce and enhance existing products, the marketplace acceptance of those new or enhanced products, continued expansion into international markets, development of strategic partnerships, competition, successful acquisition integration efforts, and our ability to achieve expense reductions and make improvements in a highly competitive industry.

Markets

Our service assurance solutions are used by enterprises (including government agencies) and service providers to optimize network performance, quickly identify and resolve issues impacting application and service quality and gain insight into the end user experience. We also provide security solutions that enterprises and service providers use to identify and mitigate advanced, volumetric and application specific distributed denial of service (DDoS) attacks, as well as assist enterprise security teams in rapidly finding and isolating advanced network threats.

Enterprise Market

Within the enterprise market, NetScout's nGeniusONE and ISNG offerings, along with certain product lines acquired as part of the acquisition of Danaher's Corporation's (Danaher) Communication Business in July 2015 (Comms Transaction), enable IT organizations to support a growing range of performance management and security use cases including:

- *Network Performance Management* - Our nGeniusONE analytics and our ISNG real-time information platform provide the necessary insight to optimize network performance, restore service and understand the quality of the users' experience. By integrating certain acquired product lines and product features from the former Fluke Networks Enterprise business with our core offerings, our customers can benefit from a consistent view across their traditional wired network infrastructures, remote offices and WiFi wireless networks.

- *Application Performance Management: Data Center Transformation and Cloud Computing* - We enable information technology (IT) organizations, from their development operations to their infrastructure teams, to manage the delivery of services across virtual and physical environments, providing a comprehensive, unified real-time view into network, application, server, and user communities' performance. We proactively detect emerging issues with the ability to help analyze both physical and virtual service delivery environments within the data center which enables organizations to optimize datacenter infrastructure investments, protect against service degradations, and simplify the operation of complex, multi-tier application environments in consolidated, state-of-the-art data centers. Our solutions are often used by enterprises to support private cloud computing environments that are aimed at enabling greater, more cost-effective accessibility to applications without compromising the reliability and security of those applications and the network. Our solutions portfolio also includes a range of new virtual appliances that can help enterprise customers extend their monitoring of applications deeper into their traditional data centers, confidently migrate applications into public cloud environments and gain a comprehensive, cohesive view into the resulting hybrid cloud environment.
- *Unified Communications (UC)* - We deliver deep application-level unified visibility into voice, data and video services side-by-side in order to understand the interrelationships of all UC services that traverse the network infrastructure and assess quality and performance of the delivery of these services. As a result, our real-time, actionable intelligence helps customers to deliver a high-quality UC experience as users make calls, video conference and engage in instant messaging. We also help desktop, network, telecom, and application teams manage UC through a common platform across complex, geographically dispersed, and multi-vendor environments.
- *Software-as-a-Service and Infrastructure Performance Management* - We also provide enterprise customers with active agent-based offerings that can help them determine availability and performance levels for software-as-a-service (SaaS) applications, and gauge the health of servers, routers and switches as well as wireless and virtual infrastructures. As a result, customers can continuously monitor the performance of key business services and the infrastructure used to deliver them, regardless of how applications are deployed or where the user is located. Deployed independently or as part of our broader service assurance solution, these products also play an important role in helping enterprises deliver a superior user experience, achieve outstanding service quality and drive better returns on their application and infrastructure investments.
- *Application and Desktop Virtualization* - We provide clear and actionable insights that help customers fully realize the operational benefits associated with Application and Desktop Virtualization, and reduce the time it takes to identify and resolve service problems. We offer visibility across all virtual desktop infrastructure (VDI) tiers including remote access, client, virtualization, web, front-end application, and related database systems, and help customers gain actionable metrics from monitoring and analyzing the consumption and performance of VDI services.
- *Cybersecurity: DDoS Protection and Cyber Threat Analytics* - Computer networks continue to be targeted for cyberattacks that are aimed at disrupting, damaging or otherwise destroying an enterprise’s ability to conduct its business or gaining unauthorized access to corporate applications and stealing valuable information. We provide a range of network security solutions under the NetScout Arbor brand that enable enterprises to protect their networks from high-volume and application-specific DDoS attacks, which are aimed at either overwhelming the network with traffic or over-exercising specific functions or features of a website with the intention to disable those functions or features. We are also developing new security solutions for enterprises that provide greater deep-dive forensic capabilities as well as analytics that can provide visibility into anomalous behavior on the network that may be indicative of an advanced threat. These new security analytics will enable existing enterprise customers to leverage their historical investments in NetScout’s service assurance solutions by using the Adaptive Service Intelligence (ASI) data already being generated to support service assurance use cases.

Government Markets

Considered as part of our enterprise vertical, we have built a strong position with federal, state and local government agencies, both in the United States and abroad. Similar to our enterprise customers, government agencies are focused on streamlining and transforming IT into more efficient and more easily managed environments. To accomplish this, agencies are turning to IT solutions that will help simplify managing and assuring their IT environments as well as reduce costs. However, governmental markets differ from enterprise markets primarily due to their purchasing cycles being influenced by potential changes in government administrators, budgetary priorities and allocated funding for key projects.

Telecommunication Service Provider Markets

Today’s service providers are focused on delivering a compelling set of services and ensuring a high-quality user experience, while also striving to minimize operational complexity, control costs and improve automation. This, coupled with the challenge of internet protocol (IP) transformation activities and complex technologies such as Long-Term Evolution (LTE), Network Functions Virtualisation (NFV), Internet Protocol Television (IP-TV), wireless network (WiFi) and cloud services drives the need for a more automated and unified approach to managing service delivery and the subscriber experience. Our service provider solutions support an expanding range of use cases including:

- *Service Assurance for Mobile, Fixed Line and Cable Operators* - The fundamental transformation of the mobile network to all-IP enables mobile operators to build highly-scalable service delivery environments to offer new services to meet the growing subscriber demand for data, voice and video-centric services and to consolidate and simplify network operations. Mobile operators use our offerings to gain real-time, detailed IP packet-level insight and core-to-access visibility, which enables them to ensure services offered over the network meet certain pre-defined quality levels for an optimal subscriber experience. NetScout's service assurance solutions help service providers effectively manage capacity, assess overall network quality, take proactive steps to modify the network before issues impact subscribers, and quickly identify and troubleshoot network problems. In addition to improving the overall return on their network infrastructure investments, mobile operators using our solutions also benefit from improved network quality and unique customer insights - both of which contribute to subscriber acquisition, retention and monetization. The growing demand for high-bandwidth triple-play services, broadband connectivity, content anywhere, IP-TV, on-demand video traffic, new extended WiFi initiatives and carrier Ethernet services presents fixed line and cable multi-system operators with significant revenue opportunities. IP has become the *de facto* convergence mechanism for access, distribution and core networks, enabling new service offerings and simplifying network operations while reducing total cost of operations. For example, cable operators use our solutions to monitor and manage their local area WiFi connectivity services, ensure the high-quality delivery of video to consumers outside of their homes as well as provide broadband and telephony services targeting small- and medium-sized businesses.
- *Business Intelligence for Service Providers* - Service providers strive to understand how the performance of their networks impact customer experience, subscriber behavior and related usage trends. By combining network traffic data with other information, including support requests, subscriber calling plans, demographic data and other details, service providers can make more timely decisions about their offerings and sales and marketing initiatives to acquire, retain and further monetize their subscribers. NetScout's analytics deliver timely insights into a service provider's subscribers, services, networks, and applications, as well as easy export capabilities so that this information can be integrated into their data lakes and third-party analytic platforms.
- *DDoS Protection* - Over the past decade, Internet Service Providers (ISPs), including leading telecommunications providers, cable multi service operators and cloud providers, have seen significant increases in the sophistication, scale and frequency of high-volume and application-specific DDoS attacks on their networks. DDoS attacks are aimed at disrupting the online services of an ISP's business customer by overwhelming the network with traffic or by over-exercising specific functions or features of a website with the intention to disable those functions or features. NetScout Arbor DDoS solutions are used by a wide range of ISPs around the world to help protect their networks against DDoS attacks, and to resell certain DDoS offerings to their enterprise customers.

Products Overview

Since our founding in 1984, we have been an industry innovator in using internet protocol-based (IP-based) network traffic to help organizations manage and optimize the delivery of services and applications over their networks, improve the end-user experience and protect networks from unwanted security threats. Using our patented ASI technology, our solutions instantaneously convert network traffic data, often referred to as wire data, into high-value metadata, or "smart data," our offerings can help customers quickly identify and troubleshoot network and application performance issues, defend their networks from DDoS attacks, and rapidly find and isolate advanced network threats. Our solutions are typically deployed by customers as integrated hardware and software, as software only that is then integrated into commercial off-the-shelf hardware or in a virtualized form factor. NetScout's solutions help its customers meet the increasing demands and ever-changing technology landscape of IP networks, service and applications. In recent years, to further elevate our value proposition and address the near and long term needs of customers and prospects, we have delivered major product upgrades across our product lines by integrating key functionality from acquired product lines, increasing the deployment flexibility of our solutions, and adding new features and capabilities that enable us to address a broader range of use cases. Our primary products can be categorized as follows:

Service Assurance Solutions for Network and Application Performance, and Business Intelligence Analytics

- *nGeniusONE Management Software and Analytic Modules* - NetScout's nGeniusONE management software is used to support our enterprise, service provider and government customers enabling them to predict, preempt, and resolve network and service delivery problems while facilitating the optimization and capacity planning of their network infrastructures. Other products acquired as part of the Comms Transaction are supported by their own respective management software and related analytics. Additionally, NetScout markets a range of specialized platforms and analytic modules that can enable its customers to analyze and troubleshoot traffic in radio access network and WiFi networks, as well as gain timely insight into high-value services, applications and systems, and better understand the subscriber's experience on the network. nGeniusPULSE is an active testing tool that enables enterprises to identify infrastructure performance issues and determine application availability, reliability and performance. NetScout also markets its nGenius Business Analytics solution, which enables service providers to quickly and efficiently analyze their network traffic to gain greater and more timely insights into their subscribers, services, networks, and applications, as well as easily export our smart data into their data lakes and into third-party analytic platforms.

- *Visibility Products (Probes, Packet Flow Systems and Taps)* - NetScout's ISNG platform provides real-time collection and analysis of information-rich, high-volume packet-flow data from across the network that is displayed through the nGeniusONE Service Assurance Solution. The ISNG is an advanced passive network probe that can be deployed as a traditional appliance with integrated hardware and software, as software-only for use in commercial-off-the-shelf hardware or in virtualized form factors. The virtualized form factor version of our intelligent data source, which is marketed as vSTREAM, can be deployed to support NFV environments as well as to cost-effectively monitor application performance in traditional data center, private cloud and public cloud environments. NetScout also provides comprehensive packet flow systems (also called network packet brokers or network visibility fabric switches), that deliver targeted network traffic access to a range of monitoring and security tools and systems, including the nGeniusONE Service Assurance platform. Additionally, NetScout markets a suite of test access points (TAPs) that enable full, non-disruptive access to network traffic with multiple link type and speed options.

Cybersecurity Solutions

- *DDoS Protection* – NetScout provides security solutions that enable service providers and enterprises around the world to protect their networks against DDoS attacks under the Arbor brand. Dozens of service provider customers around the world also resell Arbor's solutions as a managed DDoS service to their enterprise customers. Our portfolio of DDoS solutions offers complete deployment flexibility spanning on-premise offerings and cloud-based capabilities to meet a broad array of customer needs, as well as specialized analytics and comprehensive threat intelligence information. Our DDoS offerings for service providers include Arbor Sightline for DDoS visibility and threat detection product, Arbor Threat Mitigation System for removing DDoS attack traffic from the network without disruption to key network services and Arbor Insight for advanced analytical and forensic information. Our DDoS offerings for enterprises include Arbor Edge Defense, a perimeter-based appliance for identifying and blocking incoming DDoS attacks and outbound malicious communications, and Arbor Cloud, a global, cloud-based traffic scrubbing service that quickly removes DDoS attack traffic. We plan to further enhance and expand these capabilities in ways that will enable greater adoption of our solutions by service provider and enterprise customers.
- *Advanced Threat Detection* – We are in the process of expanding our enterprise security offerings to better leverage the investment that NetScout's enterprise customers have made in our traditional service assurance solutions. By collecting network traffic via our probes, we can expand our value proposition by providing specialized analytics for both service assurance and security. Over the coming quarters, we plan to introduce new packet forensic capabilities designed specifically for security operations teams as well as new anomalous behavior analytics that security teams can use to identify and investigate potential advanced network threats.

Integration with Third-Party Solutions

To have greater operational impact on assuring performance of applications and service delivery, NetScout has integrated its technology with third-party management consoles and business service management systems. This integration allows organizations to receive alarms on impending performance problems and to link into the nGenius Service Assurance solution in order to perform detailed problem analysis and troubleshooting. The third-party solution providers that NetScout has integrated its solutions with are Cisco Systems, Cisco Sourcefire, Citrix Systems, Dell Technologies, Hewlett-Packard Company, IBM Tivoli and VMWare. In addition, we have embedded NetScout Arbor DDoS mitigation capabilities on a blade within Cisco's market-leading ASR9000 router and will continue to evaluate partnership opportunities to integrate its DDoS capabilities within other network equipment platforms.

Growth Strategy

The following are key elements in our growth strategy for fiscal year 2020:

- *Drive Innovation* - In order to support our customers' near-term and longer-term requirements, we plan to continue innovating by enhancing and expanding our product portfolio. In particular, we continue to invest in research and development, and leverage the strong technical and domain expertise across its organization. Our engineering teams are focused on advancing technical innovation across its broad product portfolio. By capitalizing on our extensive experience with global enterprise, service provider and government organizations with IP-based networks, we remain well positioned to cross-leverage its technology development across all major platforms and relevant technologies to address the evolving demands of current and prospective customers.
- *Deliver Pervasive Visibility* - By making our visibility products available in multiple form factors, including software that can be deployed with commercial off-the-shelf servers and as virtual appliances, we believe that it is easier and more affordable for customers to deploy our technology more broadly across their hybrid network and IT infrastructures. By offering more cost-effective instrumentation options, we are well positioned to help customers gain greater visibility into more places across their end-to-end network environments and address an even broader range of service assurance and security use cases.
- *Extension into Adjacent Markets* - By enhancing and expanding our product portfolio and driving product integration via internal development and acquisitions, we have expanded our reach into complementary adjacent markets such as application performance management, infrastructure performance management and cybersecurity. We believe that this element of our strategy is integral to gaining access to larger budgets, increasing spending from existing customers, attracting new customers, and increasing our total addressable market. In particular, we plan to broaden our security solutions beyond the DDoS market with plans for new enterprise security offerings that can help our customers extract more value from the network traffic that we are already collecting to support service assurance use cases.
- *Fortify and Expand Existing Customer Relationships* - We have an expansive, global customer base of service providers and enterprises that have purchased our products in support of major technology and network initiatives that they have implemented over the past decade. As a result, we believe we are well positioned to expand the scope of many of these relationships as we identify new opportunities to support new network and broader technology projects.
- *Expand our Customer Base* - The investments we have made over the past several years to expand our product portfolio and support greater deployment flexibility also positions us to win new customers in established geographic markets where we can leverage our global direct sales organization and an extensive network of value-added resellers and systems integrators.
- *Increase Market Relevance and Awareness* - We plan to continue to implement marketing campaigns aimed at generating high-quality sales opportunities with both current and prospective enterprise and service provider customers, promoting thought leadership and building the NetScout brand.
- *Extend our Technology Partner Alliance Ecosystem* - We plan to continue to develop and fortify alliances with complementary solutions providers that can help us support a larger, more global and more diverse customer base. We also plan to continue to enhance our technology value, product capabilities and customer relevance through the continued integration of our products into technology partner products.
- *Pursue Strategic Acquisitions* - We have completed many acquisitions since our inception that have helped broaden our capabilities, enhance our products and technologies, enable us to expand into adjacent markets and better position us to meet the needs of a larger base of customers and prospects.
- *Improve Cost Structure and Drive Efficiencies* - We plan to balance our investments in key technology, product development, sales and marketing, and other initiatives that will enable us to drive long-term profitable growth with an ongoing focus on controlling costs and driving efficiencies. During fiscal year 2019, we divested the handheld network test tools (HNT) product lines, reduced personnel costs via a voluntary separation program and other related actions, consolidated certain facilities and carefully managed discretionary spending.

Support Services

Customer satisfaction is a key driver of our success. Our support programs offer customers various levels of high-quality support services to assist in the deployment and use of our solutions. We have support personnel strategically deployed across the globe to deliver 24/7 support to our premium customers. Certain support services, such as on-site support activities, are provided by qualified third-party support partners. In addition, many of our certified resellers provide Partner Enabled Support to our end users. This is especially prevalent in international locations where time zones and language, among other factors, make it more efficient for end users to have the reseller provide initial support functions. Our support also includes updates to our software and firmware at no additional charge, if and when such updates are developed and made generally available to our commercial customer base. If ordered, support commences upon expiration of the standard warranty for software. For software, which also includes firmware, the standard warranty commences upon shipment and expires 60 to 90 days thereafter. With regard to hardware, the standard warranty commences upon shipment and expires 60 days to 12 months thereafter. We believe our warranties are consistent with commonly accepted industry standards. We expect to continue to provide support services for the acquired platforms under existing agreements and plan to explore opportunities to further simplify and standardize our support obligations over the coming years.

Manufacturing

Our manufacturing operations consist primarily of final product assembly, configuration and testing. We purchase components and subassemblies from suppliers and construct our hardware products in accordance with NetScout standard specifications. We inspect, test and use process controls to ensure the quality and reliability of our products. We maintain an ISO 9001 quality systems registration, a certification showing that our corporate procedures and manufacturing facilities comply with standards for quality assurance and process control. We also maintain an ISO 9001:2000 quality systems registration, a certification showing that our corporate procedures comply with standards for continuous improvement and customer satisfaction.

We generally use standard parts and components for our products, which can be sourced from various suppliers. We have generally been able to obtain adequate supplies of components in a timely manner from current suppliers. While certain components, such as computer network interface cards, are currently purchased from a single supplier, we have identified alternate suppliers that we believe can be qualified relatively quickly to fulfill our needs should an issue arise with the existing supplier. Our reliance on single source suppliers is further described in Item 1A "Risk Factors."

We manufacture our products based upon near-term demand estimates resulting from sales forecasts and historical fulfillment information. However, since these forecasts have a high degree of variability because of factors that include time of year, overall economic conditions and sales employee incentives, we believe it is prudent to maintain inventory levels in advance of receipt of firm orders to ensure that we have sufficient stock to satisfy incoming orders.

Sales and Marketing

Sales

We sell our products, support and services through a direct sales force and an indirect reseller and distribution channel.

Our direct sales force uses a "high-touch" sales model that consists of face-to-face meetings with customers to understand and identify their unique business challenges and requirements. Our sales teams then translate those requirements into tailored business solutions that allow the customer to maximize the performance of its infrastructure and service delivery environment. Due to the complexity of the systems and the capital expenditures involved, our sales cycles typically take between three and twelve months. We build strategic relationships with our customers by continually enhancing our solution to help them address their evolving service delivery management challenges. In addition to providing a comprehensive solution to meet these needs, we continually provide software enhancements to our customers as part of their maintenance contracts with us. These enhancements are designed to provide additional and ongoing value to our existing customers to promote loyalty and the expansion of their deployment of our products. Existing customer growth is also driven by the expansion and changes in their networks as they add new infrastructure elements, new users, new locations, new applications and experience increasing service traffic volumes. In recent months, we have taken steps to drive more effective cross-selling of our service assurance and security solutions into our installed customer base by consolidating the previously separate security and service assurance salesforces and by realigning existing sales resources accordingly.

We also maintain an indirect reseller and distribution channel. Sales to customers outside the United States are primarily export sales through channel partners. Our channel partners assist us by improving our reach to customers, extending our presence in new markets, and marketing and selling our products to a broad array of organizations globally. We sell through a range of channel partners including value-added resellers, value-added distributors, resellers, and system integrators, to our enterprise, service provider and government customers. Historically and currently, we have used indirect distribution channels principally as intermediaries on contractual terms for customers with whom we do not have a contract. Our sales force meets with end user customers to present our products and solutions, conduct demonstrations, provide evaluation equipment, recommend detailed product solutions, develop product deployment designs and timelines, and assist in establishing financial and other justifications for the proposed solution. During this selling process, a channel partner, who has contracts with both the end customer and us, may be brought in to facilitate the transaction and to provide fulfillment services. In the case of international channel partners, those services usually also include currency translation and support. In the U.S., fulfillment services are usually limited to invoicing and cash collection. Under this approach, we have limited dependence upon channel partners for the major elements of the selling process. In many cases, there are multiple channel partners with the required contractual relationships, so dependence on any single channel partner is not significant.

During the fiscal years ended March 31, 2019 and 2018 no direct customers or indirect channel partners accounted for more than 10% of our total revenue. During the fiscal year ended March 31, 2017, one direct customer, Verizon Communications, Inc. (Verizon), accounted for more than 10% of total revenue, while no indirect channel partner accounted for more than 10% of total revenue.

Marketing

Our marketing organization drives our market research, strategy, product positioning and messaging, and produces and manages a variety of programs such as customer forums, trade shows, industry events, advertising, public and analyst relations, social media, direct mail, seminars and webinars, sales promotions and other online marketing programs. These programs are focused on promoting the sale and acceptance of our solutions to further build the NetScout brand as well as the ASI, nGenius, Arbor and other applicable product brand names in the marketplace.

Key elements of our marketing strategy focus on thought leadership, market positioning, market education, go to market strategies, reputation management, demand generation, and the acceleration of our strategic selling relationships with local and global resellers, systems integrators, and our technology alliance partners. During fiscal year 2019, NetScout continued to invest in the promotion of the NetScout brand as well as the nGenius and Arbor brands as core solution-level brands in their respective markets. We expect to continue these initiatives during fiscal year 2020.

Research and Development

Our continued success depends significantly on our ability to anticipate and create solutions that will meet emerging customer requirements. NetScout works closely with its largest enterprise and service provider customers to better understand and address their near-term and longer-term requirements. By better understanding the key, time-sensitive needs of NetScout's global customer base, we believe NetScout's development programs will continue to result in enhanced products that are able to meet the increasing challenges of an increasingly complex and dynamic global network environment.

We have invested significant financial resources and personnel into the development of our products and technology. Our continued investment in research and development is crucial to our business and our continued success in the market. We have assembled a team of highly skilled engineers with expertise in various technologies associated with our business and the technologies being deployed by our customers. We plan to continue to enhance and expand our product offerings and capabilities in the near future while integrating key capabilities from acquired product lines as appropriate. As a result, we plan to continue to invest and dedicate significant resources to our research and development activities for both our enterprise and service provider customers. Additionally, we continue to support the legacy product lines that we acquired as a result of the Comms Transaction and work closely with customers on migrating to our next-generation offerings.

We predominantly develop our products internally, with some limited third-party contracting. We have also acquired developed technology through business acquisitions. To promote industry standards and manifest technology leadership, we participate in and support the activities and recommendations of industry standards bodies, and we also engage in close and regular dialogue with our key customers and alliance partners. These activities provide early insight into the direction of network and application performance requirements for current and emerging technologies.

Seasonality

We have experienced, and expect to continue to experience, quarterly variations in our order bookings as a result of a number of factors, including the length of the sales cycle, complexity of customer environments, new product introductions and their market acceptance and seasonal factors affected by customer projects and typical IT buying cycles. Due to these factors, we historically have experienced stronger bookings during our fiscal third and fourth quarters than in our fiscal first and second quarters.

Customers

We sell our products to enterprises, service providers and local, state and federal governmental agencies with large- and medium-sized high-speed IP computer networks. Our enterprise customers cover a wide variety of industries, such as financial services, technology, manufacturing, healthcare, utilities, education, transportation and retail. Our telecommunications service provider customer group includes mobile operators, wireline operators, cable operators, internet service providers, and cloud providers.

Backlog

We produce our products on the basis of our forecast of near-term demand and maintain inventory in advance of receipt of firm orders from customers. We configure our products to customer specifications and generally deliver products shortly after receipt of the purchase order. Service engagements are also included in certain orders. Customers generally may reschedule or cancel orders with little or no penalty. We believe that our backlog at any particular time is not meaningful because it is not necessarily indicative of future sales levels. Our combined product backlog at March 31, 2019 was $19.8 million compared to $28.0 million at March 31, 2018. A majority of the backlog relates to customization and integration projects from our acquired business units. In some cases, we have begun these projects but have not yet hit billable milestones. A majority of revenue for these projects is expected to be recognized into revenue throughout fiscal year 2020.

Competition

We compete with many companies in the markets we serve. The service assurance market, including the network and application performance management markets, is highly competitive, rapidly evolving, and fragmented with overlapping technologies and a wide range of competitors, both large and small, who may deliver certain elements of our solution. Consequently, there are a number of companies who have greater name recognition and substantially greater financial, management, marketing, service, support, technical, distribution and other resources than we do. Additionally, certain competitors, either due to their size and resources or due to their technological strengths, may be able to respond more effectively than we can to new or changing opportunities, technologies, standards and customer requirements.

Principal competitive factors in our service assurance market include scalability; ability to address a large number of applications, locations and users; product performance; the ability to easily deploy into existing network environments; the ability to offer virtualized solutions; and the ability to administer and manage the solution.

While we face multiple competitors within the service assurance industry, we believe that we compete favorably on the basis of the following factors:

- we provide a comprehensive service delivery management solution that is capable of addressing the needs of both enterprise and service provider customers and can be scaled to meet the challenges of today's dynamic service delivery environments;
- we believe that our solutions provide superior data and compete favorably on a broad range of metrics including the ability to recognize and track a large number of applications;
- we believe our solutions possess the scalability to support high and increasing levels of data and network traffic;
- our solutions look at both data and control plane traffic across an entire network; and
- our ASI technology is optimized to provide real-time information about service performance and real-time alerts to emerging service problems whereas traditional solutions are inherently latent, supporting only forensic-trouble shooting after an issue has occurred.

In the enterprise market, our competitors include companies who provide network performance management, application performance management, infrastructure performance management and other related solutions such as Avaya, CA Technologies, Cisco Systems, Dynatrace, ExtraHop, InfoVista, Keysight, SevOne, Viavi, Gigamon, Lancope, Corvil, ThousandEyes, New Relic, Riverbed Technology and SolarWinds. In addition, we both compete with and partner with large enterprise management vendors, such as HP and IBM, who offer performance management solutions. We also compete with smaller, privately held competitors who often focus on specific vertical markets.

In the service provider market, we compete with traditional probe vendors, network equipment manufacturers, big data and analytics vendors, and virtualization vendors. These vendors include Alcatel-Lucent, Anritsu, Cisco, Empirix, Ericsson, Dell Technologies, EXFO (which acquired Astellia in March 2018), Guavas, Huawei, IBM, Niksun, Polystar, Radcom, SevOne, Splunk and Viavi. We face additional competitive threats from startups and new entrants that seek to offer innovative solutions in an industry characterized by rapid technological change.

In the cybersecurity market, we face a range of competitors, including those that may have greater name recognition and substantially greater financial, management, marketing, service, support, technical, distribution and other resources than we do. We believe that the scalability of our solutions, flexible deployment, and price-performance of our cybersecurity solutions positions us well to compete against both larger network equipment and security companies and smaller niche security solutions vendors.

In the DDoS solutions market, we compete under the NetScout Arbor brand with a broad range of vendors including Radware, Akamai, F5 Networks, A10 Networks, Fortinet and Corero Network Security. In the market for specialized threat analysis, packet forensics and protection solutions used to identify advanced network threats, we compete with a range of vendors including Darktrace, Vectra Networks, FireEye, Cisco, Palo Alto Networks, RSA (a Dell Technologies business) and other specialist providers.

Our ability to sustain a competitive advantage depends on our ability to deliver continued technology innovation and adapt to meet the evolving needs of our customers. Competitive factors in our industry are further described in Item 1A "Risk Factors."

Intellectual Property Rights

We rely on patent, copyright, trademark, and trade secret laws and contract rights to establish and maintain our rights in our technology and products. While our intellectual property rights are an important element in our success, our business as a whole does not depend on any one particular patent, trademark, copyright, trade secret, license, or other intellectual property right.

We use contracts, statutory laws, domestic and foreign intellectual property registration processes, and international intellectual property treaties to police and protect its intellectual property portfolio and rights from infringement. From a contractual perspective, we use license agreements and non-disclosure agreements to control the use of our intellectual property and protect our trade secrets from unauthorized use and disclosure. In addition to license agreements, we rely on U.S. and international copyright law to protect against unauthorized copying of software programs in the U.S. and abroad. We have obtained U.S. and foreign trademark registrations to preserve and protect certain trademarks and trade names. We have also filed and obtained U.S. patents and international counterparts to protect certain unique NetScout inventions from being unlawfully exploited by other parties. However, there is no assurance that pending or future patent applications will be granted, that we will be able to obtain patents covering all of our products, or that we will be able to license, if needed, patents from other companies on favorable terms or at all. Our proprietary rights are subject to other risks and uncertainties described under Item 1A "Risk Factors."

Employees

At March 31, 2019, we had a total of 2,585 employees.

Corporate Information

Our corporate headquarters are located at 310 Littleton Road, Westford, Massachusetts, and our telephone number is (978) 614-4000. We were incorporated in Delaware in 1984.

Our internet address is http://www.NetScout.com. Our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to reports filed pursuant to Sections 13(a) and 15(d) of the Exchange Act, are made available free of charge on or through our website at ir.netscout.com as soon as reasonably practicable after such reports are filed with, or furnished to, the SEC. None of the information posted on our website is incorporated by reference into this Report.

We webcast our earnings calls and certain events we participate in or host with members of the investment community. They are made available on our investor relations website at ir.netscout.com//investors/events-and-presentations/events-calendar/default.aspx. Additionally, we provide notifications of news or announcements regarding our financial performance, including SEC filings, investor events, press and earnings releases, as part of our investor relations website. The contents of these sections of our investor relations website are not intended to be incorporated by reference into this report or in any other report or document we file with the SEC.

Item 1A. Risk Factors.

In addition to the other information in this report, the following factors should be considered carefully in evaluating NetScout and our business.

Our operating results and financial condition have varied in the past and may vary significantly in the future depending on a number of factors. Except for the historical information in this report, the matters contained in this report include forward-looking statements that involve risk and uncertainties. The following factors are among many that could cause actual results to differ materially from those contained in or implied by forward-looking statements made in this report. These statements involve the risks and uncertainties identified below as well as additional risks and uncertainties that are not yet identified or that we currently think are immaterial but may also impact our business operations. Such factors are among many that may have a material adverse impact upon our business, results of operations and financial condition.

You should consider carefully the risks and uncertainties described below, together with the information included elsewhere in this Annual Report on Form 10-K and other documents we file with the SEC. The risks and uncertainties described below are those that we have identified as material but are not the only risks and uncertainties facing us. Our business is also subject to general risks and uncertainties that affect many other companies. Additional risks and uncertainties not currently known to us or that we currently believe are immaterial also may impair our business, including our results of operations, liquidity and financial condition.

Because of the following factors, as well as other variables affecting our results of operations, past financial performance may not be a reliable indicator of future performance, and historical trends should not be used to anticipate results or trends in future periods.

Our quarterly revenue and operating results may fluctuate.

Our quarterly revenue and operating results are difficult to predict and may fluctuate significantly from quarter to quarter, as a result of a variety of factors associated with our industry, many of which may be outside of our control, including the following:

- the rate of growth of, and changes in technology trends in, our market and other industries in which we currently operate or may operate in the future;
- technology spending by current and potential customers, and the timing and size of orders from customers, especially in light of our lengthy sales cycle;
- reduced demand for our products and uneven demand for service delivery and network and application performance management solutions and network security solutions;
- the timing and market acceptance of new products or product enhancements by us or our competitors;
- the timing of hiring sales personnel and the speed at which such personnel become fully productive;
- our ability to develop and manufacture new products and technologies in a timely manner, the competitive position of our products, and the continued acceptance of our products by our customers and in the industries that we serve;
- changes in the number and size of our competitors, including the effects of new entrants and the effects of well-resourced competitors increasing their investment in our markets, and changes in the prices and capabilities of competitors' products;
- customer ability to implement our products;
- cancellation, deferral, or limitation of orders by customers;
- changes in foreign currency exchange rates;
- attrition of key employees and competition with other companies for employees with specific talents and experience;
- the number, severity, and timing of cyber-related threat outbreaks (e.g., malware, attacks, worms and viruses);
- the quality and level of our execution of our business strategy and operating plan, and the effectiveness of our sales and marketing programs;
- changes in accounting rules;
- costs related to acquisitions; and
- our ability to manage expenses.

Most of our expenses, such as employee compensation, benefits and rent, are relatively fixed in the short term. Moreover, our expense levels are based, in part, on our expectations regarding future revenue levels. As a result, if revenue for a particular quarter is significantly below our expectations, we may not be able to reduce operating expenses proportionately for that quarter, and, therefore, this revenue shortfall would have a disproportionately negative impact on our operating results for that quarter.

It may be necessary in the future to undertake cost reduction initiatives to improve profitability, which could lead to a deterioration of our competitive position. Any difficulties that we encounter as we reduce our costs could negatively impact our results of operations and cash flows.

Our actual operating results may differ significantly from our guidance.

We release guidance in our quarterly earnings conference calls, quarterly earnings releases, or otherwise, regarding our future performance that represents our management's estimates as of the date of release. This guidance, which includes forward-looking statements, is based on projections prepared by our management.

Projections are based upon a number of assumptions and estimates that, while presented with numerical specificity, are inherently subject to significant business, economic and competitive uncertainties and contingencies, many of which are beyond our control and are based upon specific assumptions with respect to future business decisions, some of which will change. The principal reason that we release guidance is to provide a basis for our management to discuss our business outlook with analysts and investors. We do not accept any responsibility for any projections or reports published by any such third parties.

Guidance is necessarily speculative in nature, and it can be expected that some or all of the assumptions underlying the guidance furnished by us will not materialize or will vary significantly from actual results. Accordingly, our guidance is only an estimate of what management believes is realizable as of the date of release. Actual results may vary from our guidance and the variations may be material. In light of the foregoing, investors are urged not to rely upon our guidance in making an investment decision regarding our common stock.

Any failure to successfully implement our operating strategy or the occurrence of any of the events or circumstances set forth in this "Risk Factors" section in this report could result in the actual operating results being different from our guidance, and the differences may be adverse and material.

Our indebtedness may limit our operations and our use of our cash flow, and any failure to comply with the covenants that apply to our indebtedness could adversely affect our liquidity and financial condition.

On January 16, 2018, we amended and expanded our existing credit facility (Amended Credit Agreement) with a syndicate of lenders. The Amended Credit Agreement provides for a five-year $1.0 billion senior secured revolving credit facility, including a letter of credit sub-facility of up to $75.0 million. We have used the new credit facility for working capital purposes and to finance the repurchase of common stock under our previously announced accelerated stock repurchase plan. The commitments under the Amended Credit Agreement will expire on January 16, 2023, and any outstanding loans will be due on that date. As of the date of this report, we had approximately $500 million in outstanding indebtedness under the Amended Credit Agreement. Our debt level can have negative consequences, including exposing us to interest rate risk. We may incur significantly more debt in the future, and there can be no assurance that our cost of funding will not substantially increase. Our current revolving credit facility also imposes certain restrictions on us; for a more detailed description please refer to "Management's Discussion and Analysis of Financial Condition and Results of Operations." Upon an event of default, for example, the administrative agent with the consent of, or at the request of, the holders of more than 50% in principal amount of the loans and commitments may terminate the commitments and accelerate the maturity of the loans and enforce certain other remedies under the Amended Credit Agreement and the other loan documents, which would adversely affect our liquidity and financial condition. If we take on additional indebtedness, the risks described above could increase.

Interest on the outstanding balances under our Amended Credit Agreement is calculated based on the London Interbank Offered Rate (LIBOR). On July 27, 2017, the U.K. Financial Conduct Authority (FCA), which regulates LIBOR, announced that it will no longer require banks to submit rates for the calculation of LIBOR after 2021. That announcement indicates that the continuation of LIBOR on the current basis cannot and will not be guaranteed after 2021. In the meantime, actions by the FCA, other regulators, or law enforcement agencies may result in changes to the method by which LIBOR is calculated. These reforms and other pressures may cause LIBOR to disappear entirely or to perform differently than in the past. The consequences of these developments cannot be entirely predicted but could include an increase in the cost of our variable rate indebtedness.

Any failure to meet our debt obligations could damage our business.

Our ability to meet our obligations under the Amended Credit Agreement will depend on market conditions and our future performance, which is subject to economic, financial, competitive and other factors beyond our control. If we are unable to remain profitable or if we use more cash than we generate in the future, our level of indebtedness at such time could adversely affect our operations by increasing our vulnerability to adverse changes in general economic and industry conditions and by limiting or prohibiting our ability to obtain additional financing for additional capital expenditures, acquisitions and general corporate and other purposes. In addition, if we are unable to make payments as required under the Amended Credit Agreement, we would be in default under the terms of the loans, which could seriously harm our business. If we incur significantly more debt, this could intensify the risks described above.

Foreign currency exchange rates may adversely affect our financial statements.

An increasing portion of our revenue is derived from international operations. Our consolidated financial results are reported in U.S. dollars. Most of the revenue and expenses of our foreign subsidiaries are denominated in local currencies. Given that cash is typically received over an extended period of time for many of our license agreements and given that a material and increasing portion of our revenue is generated outside of the United States, fluctuations in foreign exchange rates (including the Euro) against the U.S. dollar could result in substantial changes in reported revenues and operating results due to the foreign exchange impact upon translation of these transactions into U.S. dollars.

In the normal course of business, we employ various hedging strategies to partially mitigate these risks, including the use of derivative instruments. These strategies may not be effective in fully protecting us against the effects of fluctuations from movements in foreign exchange rates. Fluctuations of the foreign exchange rates could materially adversely affect our business, financial condition, operating results and cash flow.

Additionally, sales and purchases in currencies other than the U.S. dollar expose us to fluctuations in foreign currencies relative to the U.S. dollar and may adversely affect our financial statements. Increased strength of the U.S. dollar increases the effective price of our products sold in U.S. dollars into other countries, which may require us to lower our prices or adversely affect sales to the extent we do not increase local currency prices. Decreased strength of the U.S. dollar could adversely affect the cost of materials, products and services we purchase overseas. Sales and expenses of our non-U.S. businesses are also translated into U.S. dollars for reporting purposes and the strengthening or weakening of the U.S. dollar could result in unfavorable translation effects. In addition, we may invoice customers in a currency other than the functional currency of our business, and movements in the invoiced currency relative to the functional currency could also result in unfavorable translation effects. We also face exchange rate risk from our investments in subsidiaries owned and operated in foreign countries.

Our effective tax rate may fluctuate, which could increase our income tax expense and reduce our net income.

Our effective tax rate or the taxes we owe could be adversely affected by several factors, many of which are outside of our control, including:

- changes in the relative proportions of revenues and income before taxes in the various jurisdictions in which we operate that have differing statutory tax rates;
- changing tax laws, regulations, and interpretations in multiple jurisdictions in which we operate as well as the requirements of certain tax rulings;
- certain provisions of the Tax Cut and Jobs Act and the regulations issued thereunder could have a significant impact on our future results of operations as could interpretations made by us in the absence of regulatory guidance and judicial interpretations;
- changes in the research and development tax credit laws, earnings being lower than anticipated in jurisdictions where we have lower statutory rates and being higher than anticipated in jurisdictions where we have higher statutory rates;
- changes in accounting and tax treatment of share-based compensation;
- the valuation of generated and acquired deferred tax assets and the related valuation allowance on these assets;
- transfer pricing adjustments;
- the tax effects of purchase accounting for acquisitions and restructuring charges that may cause fluctuations between reporting periods; and
- tax assessments or any related tax interest or penalties that could significantly affect our income tax expense for the period in which the settlements take place.

We are subject to income taxes in the United States and in numerous foreign jurisdictions. From time to time, we may receive notices that a tax authority in a particular jurisdiction believes that we owe a greater amount of tax than we have reported to such authority.

While we regularly assess the likelihood of adverse outcomes from such examinations and the adequacy of our provision for income taxes, there can be no assurance that such provision is sufficient and that a determination by a tax authority will not have an adverse effect on our results of operations. An adverse change in our effective tax rate could have a material and adverse effect on our financial condition and results of operations and the price of our common stock could decline if our financial results are materially affected by an adverse change in our effective tax rate.

We may fail to secure necessary additional financing.

Our future success may depend in part on our ability to obtain additional financing to support our continued growth and operations and any downgrades in our credit rating could affect our ability to obtain additional financing in the future and may affect the terms of any such financing. If our existing sources of liquidity are insufficient to satisfy our operating requirements, we may need to seek to raise capital by one or more of the following:

- issuing additional common stock or other equity instruments;
- acquiring additional bank debt;
- issuing debt securities; or
- obtaining lease financings.

However, we may not be able to obtain additional capital when we want or need it, or capital may not be available on satisfactory terms. Furthermore, any additional capital may have terms and conditions that adversely affect our business, such as new financial or operating covenants, or that may result in additional dilution to our stockholders.

We expect that existing cash, cash equivalents, marketable securities, cash provided from operations and our bank credit facilities will be sufficient to meet ongoing cash requirements. However, our failure to generate sufficient cash as our debt becomes due or to renew credit lines prior to their expiration could materially adversely affect our business, financial condition, operating results and cash flows.

Our estimates and judgments related to critical accounting policies could be inaccurate.

We consider accounting policies related to revenue recognition, marketable securities, valuation of goodwill intangible assets and other acquisition accounting items, and share-based compensation to be critical in fully understanding and evaluating our financial results. Management makes accounting judgments and estimates related to these policies. These estimates and judgments affect, among other things, the reported amounts of our assets, liabilities, revenue and expenses, the amounts of charges accrued by us, and related disclosure of contingent assets and liabilities. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances and at the time they are made. If our estimates or the assumptions underlying them are not correct, actual results may differ materially from our estimates and we may need to, among other things, accrue additional charges that could adversely impact our business. As a result, our operating results and financial condition could be materially and adversely impacted in future periods and could negatively affect our stock price.

Our disclosure controls and procedures and internal control over financial reporting may not be effective.

Our disclosure controls and procedures and internal control over financial reporting may not prevent all material errors and intentional misrepresentations. Any system of internal control can only provide reasonable assurance that all control objectives are met. Some of the potential risks involved could include, but are not limited to, management judgments, simple errors or mistakes and willful misconduct regarding controls or misinterpretation. Under Section 404 of the Sarbanes-Oxley Act, we are required to evaluate and determine the effectiveness of our internal control over financial reporting. Compliance with this provision requires management's attention and expense. Management's assessment of our internal control over financial reporting may or may not identify weaknesses that need to be addressed in our internal control system. If we are unable to conclude that our internal control over financial reporting is effective, investors could lose confidence in our reported financial information which could have an adverse effect on the market price of our stock or impact our borrowing ability. In addition, changes in operating conditions and changes in compliance with policies and procedures currently in place may result in inadequate disclosure controls and procedures and internal control over financial reporting in the future.

If our products contain errors or quality issues, such issues may be costly to correct, revenue may be delayed, we could be sued and our reputation could be harmed.

Our products are inherently complex and, despite testing by our customers and us, errors or quality issues may be found in our products after commencement of commercial shipments, especially when products are first introduced or when new versions are released. These errors may result from components supplied by third parties incorporated into our products, which makes us dependent upon the cooperation and expertise of such third parties for the diagnosis and correction of such errors. If errors are discovered, we may not be able to correct them in a timely manner or at all. In addition, we may need to make significant expenditures to eliminate errors and failures. Errors and failures in our products could result in loss of or delay in market acceptance of our products and could damage our reputation. Regardless of the source of these defects or errors, we may need to divert the attention of our engineering personnel from our product development efforts to address the detection and correction of these errors and defects. If one or more of our products fail, a customer may assert warranty and other contractual claims for substantial damages against us. Our contracts with customers contain provisions relating to warranty disclaimers and liability limitations, which may not be upheld. Defending a lawsuit, regardless of its merit, is costly and may divert management's attention and harm the market's perception of us and our products. In addition, if our business liability insurance coverage proves inadequate or future coverage is unavailable on acceptable terms or at all, our business, operating results and financial condition could be adversely impacted.

The occurrence or discovery of these types of errors or failures could have a material and adverse impact on our business, operating results and financial condition. Any such errors, defects, or security vulnerabilities could also adversely affect the market's perception of our products and business.

If we fail to introduce new products and solutions or enhance our existing products and solutions to keep up with rapid technological change, demand for our products and solutions may decline.

The market for application and network performance management, service assurance and cybersecurity solutions is highly competitive and characterized by rapid changes in technology, evolving industry standards, changes in customer requirements and frequent product introductions and enhancements. Our success is dependent upon our ability to meet our customers' needs, which are driven by changes in computer networking technologies, new application technologies, new security risks and the emergence of new industry standards. In addition, new technologies may shorten the life cycle for our products and solutions or could render our existing or planned products and services obsolete. We must address demand from our customers for advancements in our products and services applications in order to support our customers' growing needs and requirements. In order to meet this challenge and remain competitive in the market, we must introduce new enhancements, and additional form factors, to our existing product lines and service offerings. If we are unable to develop, introduce and communicate new network and application performance management,and service assurance products, network security products and solutions or enhancements to existing products, , in a timely and successful manner, this inability could have a material and adverse impact on our business, operating results and financial condition.

As our success depends in part on our ability to develop product enhancements and new products and solutions that keep pace with continuing changes in technology, cyber risk and customer preferences, we must devote significant resources to research and development, development and introduction of new products and enhancements on a timely basis, and obtaining market acceptance for our existing products and new products. We have introduced and intend to continue to introduce new products and solutions, including moving to higher software content in our products. If the introduction of these products and solutions is significantly delayed or if we are unsuccessful in bringing these products and solutions to market, our business, operating results and financial condition could be materially and adversely impacted. We are currently developing a number of new products as well as enhancements to our existing products and offerings, including software only solutions and products available in multiple form factors.

In addition, we must invest in research and development in order to remain competitive in our industry. However, there can be no assurances that continued investment and higher costs of research and development will ultimately result in us maintaining or increasing our market share, which could result in a decline to our operating results. The process of developing new solutions is complex and uncertain; we must commit significant resources to developing new services or features without knowing whether our investments will result in services or features the market will accept. If our research and development expenses increase without a corresponding increase in our revenues, it could have a material adverse effect on our operating results. Also, we may not be able to successfully complete the development and market introduction of new products or product enhancements in a timely manner. If we fail to develop and deploy new products and product enhancements on a timely basis, or if we fail to gain market acceptance of our new products, our revenues will decline, and we may lose market share to our competitors.

The move to software focused products requires higher unit sales

To capture higher sales margins and reduce the environmental impacts of our products, we are moving to increase our software offerings. While software products have a higher overall sales margin than that of bundled hardware and software products, the per unit revenue for software only sales is lower than for sales that include software/hardware bundles. Therefore, in order to increase overall revenue, we will need to sell more units of software only products to meet and/or exceed the revenues generated by software/hardware bundled products.

We face significant competition from other technology companies.

The service assurance, application performance management and network security markets are highly competitive, rapidly evolving, and fragmented markets that have overlapping technologies and competitors, both large and small, and we expect the competition on offerings and pricing to increase. We believe customers make service management system and network security purchasing decisions based primarily upon the following factors:

- product and service performance, functionality and price;
- timeliness of new product and service introductions;
- network capacity;
- ease of installation, integration, and use;
- customer service and technical support;
- name and reputation of vendor;
- quality and value of the product and services; and
- alliances with industry partners.

We compete with a growing number of providers of service assurance, application performance management solutions, network security offerings and portable network traffic analyzers and probes. In addition, leading network equipment, network security and service assurance and application technology vendors offer their own management solutions, including products which they license from other competitors. Some of our current and potential competitors have greater name recognition and substantially greater financial, management, marketing, service, support, technical, distribution and other resources than we do. In addition, some of our customers develop their own in-house solutions to meet their technological needs. Further, in recent years some of our competitors have been acquired by larger companies that are seeking to enter or expand in the markets in which we operate. We expect this trend to continue as companies attempt to strengthen or maintain their market positions in an evolving industry. Therefore, given their larger size and greater resources, our competitors may be able to respond more effectively than we can to new or changing opportunities, technologies, standards and customer requirements.

As a result of the competitive factors highlighted in this section and in other risk factors, we may not be able to compete effectively with our current or future competitors. If we are unable to anticipate or react to these competitive challenges or if existing or new competitors gain market share in any of our markets, our competitive position could weaken and we could experience a decline in our sales that could adversely affect our business and operating results. This competition could result in increased pricing pressure, reduced profit margins, increased sales and marketing expenses, and failure to increase, or the loss of market share, any of which would likely have a material and adverse impact on our business, operating results and financial condition.

Increased customer demands on our technical support services may adversely affect our relationships with our customers and our financial results.

We offer technical support services with many of our products. We may be unable to respond quickly enough to accommodate short-term increases in customer demand for support services. We also may be unable to modify the format of our support services to compete with changes in support services provided by competitors. Our customers depend on our support organization to resolve any issues relating to our products deployed on their networks. A high level of support is critical for continued relationships with our customers. If we or our channel partners do not effectively assist our customers in deploying our products, succeed in helping our customers quickly resolve post-deployment issues, and provide effective ongoing support, it would adversely affect our ability to sell our products to existing customers and would harm our reputation with potential customers. In addition, as we continue to expand our operations internationally, our support organization will face additional challenges, including those associated with delivering support, training and documentation in languages other than English. Any failure to maintain high quality support and services would harm our operating results and reputation. Further customer demand for these services, without corresponding revenues, could have a material and adverse impact on our financial condition and results of operations.

Failure to manage growth properly and to implement enhanced automated systems could adversely impact our business.

The growth in size and complexity of our business and our customer base has been and will continue to be a challenge to our management and operations. Additional growth will place significant demands on our management, infrastructure, and other resources. To manage further growth effectively, we must hire, integrate, and retain highly skilled personnel qualified to manage our expanded operations. We will also need to continue to improve our financial and management controls, reporting systems, and procedures. If we are unable to manage our growth effectively, our costs, the quality of our products, the effectiveness of our sales organization, attraction and retention of key personnel, our business, our operating results and financial condition could be materially and adversely impacted. To manage our growth effectively, we may need to implement new or enhanced automated infrastructure technology and systems.

Any disruptions or ineffectiveness relating to our systems implementations and enhancements could adversely affect our ability to process customer orders, ship products, provide services and support to our customers, bill and track our customers, fulfill contractual obligations, and otherwise run our business.

As a result of the diversification of our business, personnel growth, acquisitions and international expansion in recent years, most of our employees are now based outside of our headquarters. If we are unable to appropriately increase management depth and enhance succession planning, we may not be able to achieve our financial or operational goals. It is also important to our continued success that we hire qualified employees, properly train them and manage out poorly performing personnel, all while maintaining our corporate culture and spirit of innovation. If we are not successful at these efforts, our growth and operations could be adversely affected.

As our business evolves, we must also expand and adapt our information technology (IT) and operational infrastructure. Our business relies on our data systems, billing systems and other operational and financial reporting and control systems. All of these systems have become increasingly complex due to the diversification and complexity of our business, acquisitions of new businesses with different systems and increased regulation over controls and procedures. To manage our technical support infrastructure effectively and improve our sales efficiency, we will need to continue to upgrade and improve our data systems, billing systems, ordering processes, customer relationship management systems, and other operational and financial systems, procedures and controls. These upgrades and improvements may be difficult and costly. If we are unable to adapt our systems and organization in a timely, efficient and cost-effective manner to accommodate changing circumstances, our business may be adversely affected. If the third parties we rely on for hosted data solutions for our internal network and information systems are subject to a security breach or otherwise suffer disruptions that impact the services we utilize, the integrity and availability of our internal information could be compromised causing the loss of confidential or proprietary information, damage to our reputation and economic loss.

We may not successfully complete acquisitions or integrate acquisitions we do make, which could impair our ability to compete and could harm our operating results.

We may need to acquire complementary businesses, products or technologies to remain competitive or expand our business. We actively investigate and evaluate potential acquisitions of complementary businesses, products and technologies in the ordinary course of business. We may compete for acquisition opportunities with entities having significantly greater resources than we have. As a result, we may not succeed in acquiring some or all businesses, products or technologies that we seek to acquire. Our inability to effectively consummate acquisitions on favorable terms could significantly impact our ability to compete effectively in our targeted markets and could negatively affect our results of operations.

Acquisitions that we do complete could adversely impact our business. The potential adverse consequences from acquisitions include:

- the potentially dilutive issuance of common stock or other equity instruments;
- the incurrence of debt and amortization expenses related to acquired intangible assets;
- the potentially costly and disruptive impact of assuming unfavorable pre-existing contractual relationships of acquired companies that we would not have otherwise entered into and potentially exiting or modifying such relationships;
- the potential litigation or other claims in connection with, or inheritance of claims or litigation risk as a result of, an acquisition including claims from terminated employees, customers, third parties or enforcement actions by various regulators;
- the incurrence of significant costs and expenses; and
- the potentially negative impact of poor performance of an acquisition on our earnings per share.

Acquisition transactions also involve numerous business risks. These risks from acquisitions include:

- difficulties in assimilating the acquired operations, technologies, personnel and products;
- difficulties in managing geographically dispersed operations;
- difficulties in assimilating diverse financial reporting and management information systems;
- difficulties in maintaining uniform standards, controls, procedures and policies;
- the diversion of management's attention from other business concerns;
- use of cash to pay for acquisitions that may limit other potential uses of our cash, including stock repurchases and retirement of outstanding indebtedness;
- substantial accounting charges for restructuring and related expenses, write-off of in-process research and development, impairment of goodwill, amortization or impairment of intangible assets and share-based compensation expense;

- the potential disruption of our business;
- the potential loss of key employees, customers, distributors or suppliers;
- the inability to generate sufficient revenue to offset acquisition or investment costs; and
- the potential for delays in customer purchases due to uncertainty and the inability to maintain relationships with customers of the acquired businesses.

If we are not able to successfully manage these issues, the anticipated benefits and efficiencies of the acquisitions may not be realized fully or at all, or may take longer to realize than expected, and our ability to compete, our revenue and gross margins and our results of operations may be adversely affected.

Our ability to quickly and successfully recover from a disaster or other business continuity event could affect our ability to deliver our products and cause reputational harm to our business.

The occurrence of a natural disaster or an act of terrorism, or a decision or need to close any of our facilities without adequate notice or time for making alternative arrangements could result in interruptions in the delivery of our products and services. Our central business functions, including administration, human resources, finance services, development, manufacturing and customer support depend on the proper functioning of our computer, telecommunication and other technology systems and operations. some of which are operated or hosted by third parties.

A disruption or failure of these systems or operations because of a disaster or other business continuity event could cause data to be lost or otherwise delay our ability to complete sales and provide the highest level of service to our customers. In addition, we could have difficulty producing accurate financial statements on a timely basis, which could adversely affect the trading value of our stock. Although we endeavor to ensure there is redundancy in these systems and that they are regularly backed-up, there are no assurances that data recovery in the event of a disaster would be effective or occur in an efficient manner. Our operations are dependent upon our ability to protect our technology infrastructure against damage from business continuity events that could have a significant disruptive effect on our operations. We could experience material adverse interruptions to our operations or delivery of services to our clients in a disaster recovery scenario.

Vulnerabilities and critical security defects, prioritization decisions regarding remedying vulnerabilities or security defects, failure of third party providers to remedy vulnerabilities or security defects, or customers not deploying security releases or deciding not to upgrade products, services or solutions could result in claims of liability against us, damage our reputation or otherwise harm our business.

The products and services we sell to customers, and our cloud-based solutions, may contain vulnerabilities or critical security defects which have not been remedied and cannot be disclosed without compromising security. We may also make prioritization decisions in determining which vulnerabilities or security defects to fix, and the timing of these fixes, which could result in an exploit which compromises security.

Customers also need to test security releases before they can be deployed which can delay implementation. In addition, we rely on third-party providers of software and cloud-based service and we cannot control the rate at which they remedy vulnerabilities. Customers may also not deploy a security release, or decide not to upgrade to the latest versions of our products, services or cloud-based solutions containing the release, leaving them vulnerable.

Vulnerabilities and critical security defects, prioritization errors in remedying vulnerabilities or security defects, failure of third-party providers to remedy vulnerabilities or security defects, or customers not deploying security releases or deciding not to upgrade products, services or solutions could result in claims of liability against us, damage our reputation or otherwise harm our business.

Cyberattacks, data breaches, malware or terrorism may disrupt our operations, harm our operating results and financial condition, and damage our reputation, and cyberattacks or data breaches on our customers' networks, or in cloud-based services provided by or enabled by us, could result in claims of liability against us, damage our reputation, or otherwise harm our business.

Despite our implementation of network and product security measures, the products and services we sell to customers, and our servers, data centers and the cloud-based solutions on which our data, and data of our customers, suppliers and business partners are stored, are vulnerable to cyber-attacks, data breaches, malware, and similar disruptions from unauthorized tampering or human error. Any such event could compromise our networks or those of our customers, suppliers, or partners, and the information stored on our networks or those of our customers, suppliers, or partners could be accessed, publicly disclosed, lost or stolen, which could subject us to liability to our customers, suppliers, business partners and others, and could have a material adverse effect on our business, operating results, and financial condition and may cause damage to our reputation.

Efforts to limit the ability of malicious third parties to disrupt the operations of the Internet or undermine our own security efforts may be costly to implement, and may not be entirely successful. Cybersecurity breaches in our customers' networks (or those of our suppliers or partners), or in cloud-based services provided by or enabled by us, regardless of whether the breach is attributable to a vulnerability in our products or services, could result in claims of liability against us, damage our reputation or otherwise harm our business.

Our reliance on sole source suppliers could adversely impact our business.

Specific components that are necessary for the hardware assembly of our instruments are obtained from separate sole source suppliers or a limited group of suppliers. These components include our network interface cards and proprietary hardware. Our reliance on sole or limited suppliers involves several risks, including a lack of control over the manufacturing process, inventory management and potential inability to obtain an adequate supply of required components and the inability to exercise control over pricing, quality and timely delivery of components. For most of our products, we do not have the internal manufacturing capabilities to meet our customers' demands. It is our practice to mitigate these risks by partnering with key suppliers, including distributors, to establish a variety of supply continuity practices. These practices may include, among other approaches, establishing buffer supply requiring suppliers to maintain adequate stocks of materials, bonding agreements with distributors, and use-based and kanban programs to set supply thresholds. We also enter into escrow arrangements for certain technologies. Where possible, we use widely-available off the shelf hardware and work with large suppliers with multiple factories and other risk management practices. However, failure of supply or failure to execute effectively on any of these programs could result in our inability to obtain adequate deliveries or the occurrence of any other circumstance that would require us to seek alternative sources of these components would impact our ability to ship our products on a timely basis. Moreover, if we are unable to continue to acquire from these suppliers on acceptable terms, or should any of these suppliers cease to supply us with components for any reason, we may not be able to identify and integrate an alternative source of supply in a timely fashion or at the same costs. Any transition to one or more alternate manufacturers would likely result in delays, operational problems and increased costs, and may limit our ability to deliver our products to our customers on time for such transition period. These risks could damage relationships with our current and prospective customers, cause shortfalls in expected revenue, and could materially and adversely impact our business, operating results and financial condition.

If we violate the U.S. Foreign Corrupt Practices Act or applicable anti-bribery laws in other countries, or if we fail to comply with U.S. export controls and government contracting laws, our business could be harmed.

We earn a significant portion of our total revenues from international sales. As a result, we must comply with complex foreign and U.S. laws and regulations, such as the U.S. Foreign Corrupt Practices Act, the U.K. Bribery Act and other local laws prohibiting corrupt payments to government officials and others, as well as anti-competition regulations.

The U.S. Foreign Corrupt Practices Act (FCPA), which continues to see increased enforcement in recent years, generally prohibits U.S. companies and their intermediaries from making corrupt payments to foreign officials for the purpose of obtaining or keeping business or otherwise obtaining favorable treatment and requires companies to maintain appropriate record-keeping and internal accounting practices to accurately reflect the transactions of the company. Under the FCPA, U.S. companies may be held liable for actions taken by agents or local partners or representatives. In addition, regulators may seek to hold us liable for successor liability FCPA violations committed by companies which we acquire. We are also subject to the U.K. Bribery Act and may be subject to certain anti-corruption laws of other countries in which we do business.

In addition to anti-bribery and anti-corruption laws, we are also subject to the export and re-export control laws of the U.S., including the U.S. Export Administration Regulations (EAR) and to U.S. government contracting laws, rules and regulations, and may be subject to government contracting laws of other countries in which we do business. If we or our distributors, resellers, agents, or other intermediaries fail to comply with the FCPA, the EAR or U.S. government contracting laws, or the anti-corruption, export or governmental contracting laws of other countries, governmental authorities in the U.S. or other countries could seek to impose civil and/or criminal penalties, which could have a material adverse effect on our business, results of operations, financial conditions and cash flows.

Violations of these laws and regulations could result in fines and penalties, criminal sanctions, restrictions on our business conduct and on our ability to offer our products and services in one or more countries. Such violations could also adversely affect our reputation with existing and prospective clients, which could negatively impact our operating results and growth prospects.

The failure to recruit and retain qualified personnel and plan for and manage the succession of key executives could hinder our ability to successfully manage our business, which could have a material adverse effect on our financial position and operating results.

We operate in businesses where there is intense competition for experienced personnel in all of our global markets and have, in some instances, experienced attrition of our employees to direct and indirect competitors. We depend on our ability to identify, recruit, hire, train, develop and retain qualified and effective professionals and to attract and retain talent needed to execute our business strategy. Our future success depends in large part upon our ability to attract, train, motivate and retain highly skilled employees, particularly executives, sales and marketing personnel, software engineers, and technical support personnel. The complexity of our products, processing functionality, software systems and services requires highly trained professionals. While we presently have a sophisticated, dedicated and experienced team of employees who have a deep understanding of our business lines, the labor market for these individuals has historically been very competitive due to the limited number of people available with the necessary technical skills and understanding. If we are unable to attract and retain the highly skilled technical personnel that are integral to our sales, marketing, product development and technical support teams, the rate at which we can generate sales and develop new products or product enhancements may be limited. This inability could have a material and adverse impact on our business, operating results and financial condition.

In addition, we must maintain and periodically increase the size of our sales force in order to increase our direct sales and support our indirect sales channels. Because our products are very technical, sales people require a comparatively long period of time to become productive, typically three to twelve months. This lag in productivity, as well as the challenge of attracting qualified candidates, may make it difficult to meet our sales force growth targets. Further, we may not generate sufficient sales to offset the increased expense resulting from growing our sales force. If we are unable to maintain and periodically expand our sales capability, our business, operating results and financial condition could be materially and adversely impacted.

Loss of key personnel could adversely impact our business. Our future success depends to a significant degree on the skills, experience and efforts of Anil Singhal, our President, Chief Executive Officer, and co-founder, and our other key executive officers and senior managers to work effectively as a team. Effective succession planning is also important for our long-term success. Failure to ensure effective transfers of knowledge and smooth transitions involving key employees could hinder our strategic planning and execution. The loss of one or more of our key personnel could have a material and adverse impact on our business, operating results and financial condition. We must, therefore, plan for and manage the succession of key executives due to retirement, illness or competitive offers elsewhere.

We assumed certain non-U.S. pension benefit obligations associated with the business acquired in the Comms Transaction. Future funding obligations related to these liabilities could restrict cash available for our operations, capital expenditures or other requirements, or require us to borrow additional funds.

As part of the Comms Transaction, we assumed certain unfunded non-U.S. pension obligations related to non-U.S. employees of the Communications Business. While we intend to comply with any future funding obligations for our non-U.S. pension benefit plans through the use of cash from operations, there can be no assurance that we will generate enough cash to do so and also meet our other required or intended cash uses. Our inability to fund these obligations through cash from operations could require us to seek funding from other sources, including through additional borrowings, which could materially increase our outstanding debt or debt service requirements.

Our success depends, in part, on our ability to manage and leverage our distribution channels. Disruptions to, or our failure to effectively develop and manage, these partners and the processes and procedures that support them could adversely affect our ability to generate revenues from the sale of our products and services. Managing these distribution channels and relationships requires experienced personnel, and lack of sufficient expertise could lead to the decrease of the sales of our products and services and our operating results could suffer.

To increase our sales we need to continue to enhance our indirect sales efforts, to continue to manage and expand these existing distribution channels and to develop new indirect distribution channels. Our channel partners have no obligation to purchase any products from us. Some of our distribution and channel partners sell competitive products and services and the loss of, or reduction in sales by, these partners could materially reduce our revenues. In addition, they could internally develop products that compete with our solutions or partner with our competitors or bundle or resell competitors' solutions, possibly at lower prices. The potential inability to develop relationships with new partners in new markets, expand and manage our existing partner relationships, the unwillingness of our partners to market and sell our products effectively or the loss of existing partnerships could have a material and adverse impact on our business, operating results and financial condition. Our international operations, including our operations in the United Kingdom, mainland Europe, India, Asia-Pacific and other regions, are generally also subject to the risk of longer sales cycles through our international distribution channels. Sales to customers outside the United States accounted for 39%, 41%, and 38% of our total revenue for the fiscal years ended March 31, 2019, 2018 and 2017, respectively.

Our future success will likely require us to maintain and increase the number and depth of our relationships with distributors and channel partners and to leverage those relationships to expand our distribution channels and increase revenue. The need to develop such relationships can be particularly acute in areas outside of the U.S. Recruiting and retaining qualified channel partners and training them in the use of our technology and services and ensuring that they comply with our legal and ethical expectations requires significant time and resources.

Our failure to maintain and increase the number and quality of relationships with channel partners, and any inability to successfully execute on the partnerships we initiate, could significantly impede our revenue growth prospects in the short and long term.

Our success depends, in part, on our ability to manage our international research and development operations and related partnerships. Our international research and development efforts may achieve delayed or lower than expected benefits and involve competitive and other risks.

We must continue to enhance our existing products and introduce new products in order to keep up with rapid technological change. Our international research and development teams play a critical role in these efforts. We must attract, train, motivate and retain our international research and development team members. To maintain this stable international employee research and development talent, we believe we must provide our international engineers with compelling and strategically significant work, coupled with technical and architectural ownership of their respective development projects. We must develop the leaders of these international teams, while ensuring their frequent inclusion and participation in corporate strategic and operational planning. We are likely to recognize the costs associated with these investments earlier than some of the anticipated benefits, and the return on these investments may be lower, or may develop more slowly, than we expect. These development efforts also involve risks, including, knowledge transfer issues related to our technology and resulting exposure to misappropriation of intellectual property or information that is proprietary to us, heightened exposure to economic, security and political conditions abroad, and exchange rate and tax compliance issues. The risks related to our research and development efforts abroad could increase our expenses, impair our development efforts, harm our competitive position and/or damage our reputation. If we do not achieve the benefits anticipated from these investments, or if the achievement of these benefits is delayed, our operating results may be adversely affected.

Necessary licenses for third-party technology may not be available to us or may be very expensive.

We currently and will in the future license technology from third parties that we use to produce or embed in our products. While we have generally been able to license required third-party technology to date, third-party licenses required in the future may not be available to us on commercially reasonable terms or at all. Third parties who hold exclusive rights to technology that we seek to license may include our competitors. If we are unable to obtain any necessary third-party licenses, we would be required to redesign our product or obtain substitute technology, which may not perform as well, be of lower quality or be more costly. The loss of these licenses or the inability to maintain any of them on commercially acceptable terms could delay development of future products or the enhancement of existing products. We may also choose to pay a premium price for such a license in certain circumstances where continuity of the licensed product would outweigh the premium cost of the license. The unavailability of these licenses or the necessity of agreeing to commercially unreasonable terms for such licenses could materially adversely affect our business, financial condition, operating results and cash flows.

Our success depends on our ability to protect our intellectual property rights.

Our business is heavily dependent on our intellectual property. We rely upon a combination of patent, copyright, trademark and trade secret laws and registrations and non-disclosure and other contractual and license arrangements to protect our intellectual property rights. The reverse engineering, unauthorized copying, or other misappropriation of our intellectual property could enable third parties to benefit from our technology without compensating us. Furthermore, the laws of some foreign jurisdictions do not offer the same protections for our proprietary rights as the laws of the United States, and we may be subject to unauthorized use of our products in those countries. Legal proceedings to enforce our intellectual property rights could be burdensome and expensive and could involve a high degree of uncertainty. In addition, legal proceedings may divert management's attention from growing our business. There can be no assurance that the steps we have taken to protect our intellectual property rights will be adequate to deter misappropriation of proprietary information, or that we will be able to detect unauthorized use by third parties and take appropriate steps to enforce our intellectual property rights. The unauthorized copying or use of our products or proprietary information could result in reduced sales of our products and eventually harm our operating results.

Others may claim that we infringe on their intellectual property rights.

From time to time we have been and may continue to be subject to claims by others that our products infringe on their intellectual property rights, patents, copyrights or trademarks. In some cases, we may have agreed to indemnify our customers and partners if our products or technology infringe or misappropriate specified third party intellectual property rights; therefore, we could become involved in litigation or claims brought against our customers or partners if our products or technology are the subject of such allegations. These claims, whether or not valid, could require us to spend significant sums in litigation, pay damages or royalties, delay product shipments, reengineer our products, rename our products and rebuild name recognition or acquire licenses to such third-party intellectual property. We may not be able to secure any required licenses on commercially reasonable terms or secure them at all. Any of these claims or resulting events could have a material and adverse impact on our business, operating results and financial condition.

Uncertainties of regulation of the Internet and data traveling over the Internet could have a material and adverse impact on our financial condition and results of operations.

Currently, few laws or regulations apply directly to access to or commerce conducted on the Internet. We could be materially adversely affected by regulation of the Internet and Internet commerce in any country where we operate. Further, governments may regulate or restrict the sales, licensing, distribution, and export or import of certain technologies to certain countries. The adoption of regulation of the Internet and Internet commerce could decrease demand for our products and, at the same time, increase the cost of selling our products, which could have a material and adverse effect on our financial condition and results of operations.

The rapid evolution and increasing enforcement of privacy and security laws and regulations around the world could require significant company resources, limit certain functionalities of our products, and harm our business.

The enactment of new federal, state, and foreign data privacy and security laws and regulations and changes to existing legal frameworks have required an adjustment to some of our internal processes and increased compliance costs. We expect future changes could require similar efforts and resources with regard to compliance. The adoption of or changes to any such data privacy and laws and regulations could affect demand for our products, increase the cost of selling our products and divert time and attention of our management, all of which could have a material and adverse effect on our financial condition and results of operations.

Foreign data protection laws and regulations are rapidly evolving. The European Union (EU) data protection law, the General Data Protection Regulation (GDPR), which became effective in May 2018, is wide-ranging in scope. In order to adapt to these new requirements, we continue to invest resources necessary to enhance our policies and controls across our business units and services relating to how we collect and use personal data from customers and employees and how vendors handle personal data we provide to them.   Similar privacy and data protection laws have also been proposed in other states and at the federal level.

Any actual or perceived failure by us to adequately comply with privacy and security laws and regulations, or to protect personal data and other data we process or maintain may harm our reputation and negatively impact sales, or could result in damage to our reputation, loss of goodwill, decreased sales, regulatory investigations and enforcement actions against us, fines, penalties and other liabilities, and claims by customers and other third parties, any of which could have a material adverse effect on our operations, financial performance and business.

We or our suppliers may be impacted by new regulations related to climate change or other environmental issues.

We or our suppliers may become subject to new laws enacted with regards to climate change or other environmental issues. In the event that new laws are enacted or current laws are modified in countries in which we or our suppliers operate, our flow of product may be impacted which could have a material and adverse effect on our financial condition and results of operations.

The current economic and geopolitical environment may impact some specific industries into which we sell and may lead our customers to delay or forgo technology investments and could have other impacts, any of which could materially adversely affect our business, financial condition, operating results and cash flows.

Many of our customers are concentrated in certain industries, including financial services, public sector, healthcare, and the service provider market segment. Certain industries may be more acutely affected by economic, geopolitical and other factors, including changes in U.S. trade policy with China, than other sectors. Our public sector customers are affected by federal, state and local budget decisions. To the extent that one or more of the sectors in which our customer base operates is adversely impacted, whether as a result of general conditions affecting all sectors or as a result of conditions affecting only those particular sectors, our business, financial condition and results of operations could be materially and adversely impacted. If companies in our target markets reduce capital expenditures, we may experience a reduction in sales, longer sales cycles, slower adoption of new technologies as well as downward pressure on the price of our products.

International economic, political, legal, compliance and business factors could negatively affect our financial statements and growth.

We expect to continue to develop our sales and presence outside the U.S., particularly in high-growth markets. Our international business (and particularly our business in high-growth markets) is subject to risks that are customarily encountered in non-U.S. operations, any of which could negatively affect our business, financial condition and results of operations.

In particular, the decision by voters in the United Kingdom to leave the European Union (EU) has resulted in significant and wide-ranging economic effects across multiple markets. A withdrawal could, among other outcomes, disrupt the free movement of goods, services, and people between the United Kingdom and the EU, and undermine bilateral cooperation in key policy areas. In addition, a withdrawal could lead to legal uncertainty and potentially divergent national laws and regulations as the United Kingdom determines which EU laws to replace or replicate. Given the lack of comparable precedent, it is unclear what financial, trade, and legal implications the withdrawal of the United Kingdom from the EU would have and how such withdrawal would affect us. We have taken steps to assess our Brexit-related risk and continue to monitor developments to assess potential business impacts.

The success of our business depends, in part, on the continued growth in the market for and the continued commercial demand for service delivery, service assurance and network security solutions focused on the performance monitoring and management of applications and networks.

We derive nearly all of our revenue from the sale of products and services that are designed to allow our customers to assure the delivery of services through management of the performance and network security of applications across IP networks. We have actively expanded our operations in the past through acquisitions and organic growth and may continue to expand them in the future in order to gain share in the evolving market in which we operate. Therefore, we must be able to predict the appropriate features and prices for future products to address the market, the optimal distribution strategy and the future changes to the competitive environment. In order for us to be successful, our potential customers must recognize the value of more sophisticated application management and network security solutions, decide to invest in the management of their networked applications and, in particular, adopt our management solutions. Any failure of this market to continue to be viable would materially and adversely impact our business, operating results and financial condition. Additionally, businesses may choose to outsource the operations and management of their networks to managed service providers. Our business may depend on our ability to continue to develop relationships with these service providers and successfully market our products to them.

Changes in industry structure and market conditions could lead to charges related to discontinuances of certain of our products or businesses and asset impairments.

In response to changes in industry and market conditions, we may be required to strategically reallocate managerial, operational, financial and other resources. Any such efforts may result in charges related to consolidation of excess facilities or claims from third parties who were resellers or users of discontinued products.

Our growth could suffer if the markets into which we sell our products and services experience cyclicality.

Our growth will depend in part on the growth of the markets which we serve. We serve certain industries that have historically been cyclical and have experienced periodic downturns that have had a material adverse impact on demand for the products, software and services that we offer. Any of these factors could adversely affect the business, financial condition and results of operations of the combined company in any given period.

Uncertain conditions in the global economy and constraints in the global credit market may adversely affect our revenue and results of operations.

Disruptions in the global economy and constraints in the global credit market may cause some of our customers to reduce, delay, or cancel spending on capital and technology projects, resulting in reduced spending with us. While some industry sectors such as government and telecommunications may be less susceptible to the effects of an economic slowdown, our enterprise customers may be adversely affected, especially in financial services and consumer industries. Continued volatility in, or disruption of financial markets could limit customers' ability to obtain adequate financing to maintain operations and result in a decrease in sales volume that could have a negative impact on our results of operations. Further, competitors may respond to economic conditions by lowering their prices, which could put pressure on our pricing. We could also experience lower than anticipated order levels, cancellations of orders in backlog, defaults on outstanding accounts receivable and extended payment or delivery terms. Economic weakness, customer financial difficulties and constrained spending on IT initiatives have resulted, and may in the future result, in challenging and delayed sales cycles and could negatively impact our ability to forecast future periods. In addition, some of the markets we serve are emerging and the purchase of our products involves material changes to established purchasing patterns and policies. The purchase of our products is often discretionary and may involve a significant commitment of capital and other resources.

Our stock price has been subject to fluctuations, and will likely continue to be subject to fluctuations, which may be volatile and due to factors beyond our control.

The market price of our common stock is subject to wide fluctuations in response to various factors, some of which are beyond our control. In addition to the factors discussed in this "Risk Factors" section and elsewhere in this report, factors that could cause fluctuations in the market price of our common stock include the following:

- actual or anticipated fluctuations in our operating results;
- the financial projections we may provide to the public, any changes in these projections, or our failure to meet these projections;
- failure of securities analysts to initiate or maintain coverage of our company, changes in financial estimates and publication of other news by any securities analysts who follow our company, or our failure to meet these estimates or the expectations of investors;
- ratings changes by any securities analysts who follow our company;
- announcements by us or our competitors of significant technical innovations, acquisitions, strategic partnerships, joint ventures, or capital commitments;
- changes in operating performance and stock market valuations of other technology companies generally, or those in our industry in particular;
- price and volume fluctuations in the overall stock market from time to time, including as a result of trends in the economy as a whole;
- changes in accounting standards, policies, guidelines, interpretations, or principles;
- actual or anticipated developments in our business or our competitors' businesses or the competitive landscape generally;
- developments or disputes concerning our intellectual property or our products and platform capabilities, or third-party proprietary rights;
- cybersecurity attacks or incidents;
- announced or completed acquisitions of businesses or technologies by us or our competitors;
- new laws or regulations or new interpretations of existing laws, or regulations applicable to our business;
- changes in our board of directors or management;
- announced or completed equity or debt transactions involving our securities;
- sales of shares of our common stock by us, our officers, directors, or other stockholders;
- lawsuits filed or threatened against us; and
- other events or factors, including those resulting from war, incidents of terrorism, or responses to these events.

In addition, the market for technology stocks and the stock markets in general have experienced extreme price and volume fluctuations. Stock prices of many technology companies have fluctuated in a manner unrelated or disproportionate to the operating performance of those companies. In the past, stockholders have instituted securities class action litigation following periods of market volatility. If we were to become involved in securities litigation, it could subject us to substantial costs, divert resources and the attention of management from our business, and adversely affect our business, results of operations, financial condition, and cash flows. A decline in the value of our common stock, including as a result of one or more factors set forth above, may result in substantial losses for our stockholders.

Item 1B. Unresolved Staff Comments

None.

Item 2. Properties

Our headquarters are located in Westford, MA, in approximately 175,000 square feet of space under a lease expiring in September 2030. In addition, we lease office and/or manufacturing space in Allen, Texas; San Jose, California; Ann Arbor, Michigan; and Bangalore, India.

Item 3. Legal Proceedings

From time to time, we are subject to legal proceedings and claims in the ordinary course of business. In the opinion of management, the amount of ultimate expense with respect to any current legal proceedings and claims, if determined adversely, will not have a material adverse effect on the our financial condition, results of operations or cash flows.

As previously disclosed, in March 2016, Packet Intelligence LLC (Packet Intelligence or Plaintiff) filed a Complaint against us and two subsidiary entities in the United States District Court for the Eastern District of Texas asserting infringement of five United States patents. Plaintiff’s Complaint alleged that legacy Tektronix GeoProbe products, including the G10 and GeoBlade products, infringed these patents. We filed an Answer denying Plaintiff’s allegations and asserting that Plaintiff’s patents were, among other things, invalid, not infringed, and unenforceable due to inequitable conduct. In October 2017, a jury trial was held to address the parties’ claims and counterclaims regarding infringement of three patents by the G10 and GeoBlade products, invalidity of these patents, and damages. On October 13, 2017, the jury rendered a verdict finding in favor of the Plaintiff and that Plaintiff was entitled to $3,500,000 for pre-suit damages and $2,250,000 for post-suit damages. The jury indicated that the awarded damages amounts were intended to reflect a running royalty. The Court also conducted a bench trial on whether these patents were unenforceable due to, among other things, inequitable conduct. In September 2018, the Court entered judgment and "enhanced" the jury verdict in the amount of $2.8 million as a result of a jury finding. The judgment also awards pre- and post judgement interest, and a running royalty on the G10 and GeoBlade products until the expiration of the patents at issue, the last date being June 2022. The Court denied the Plaintiff's motion for fees. Following the entry of judgment, we filed motions for judgment as a matter of law, seeking to both overturn the verdict and to reduce damages. We have concluded that the risk of loss from this matter is currently neither remote nor probable, and therefore, under GAAP definitions, the risk of loss is termed "reasonably possible". Therefore, accounting rules require us to provide an estimate for the range of potential liability. We currently estimate that the estimated range of liability is between $0 and the aggregate amount awarded by the jury and the Court's award of enhanced damages, plus potential additional pre- and post-judgment interest amounts and costs and any royalties owed on post-trial sales of the accused G10 and GeoBlade products. We intend to continue to vigorously dispute Packet Intelligence’s claims including through appeal, if necessary.

Item 4. Mine Safety Disclosures

None.

PART II

Item 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Price Range of Common Stock

Our common stock trades on the Nasdaq Global Select Market, under the symbol NTCT.

Stockholders

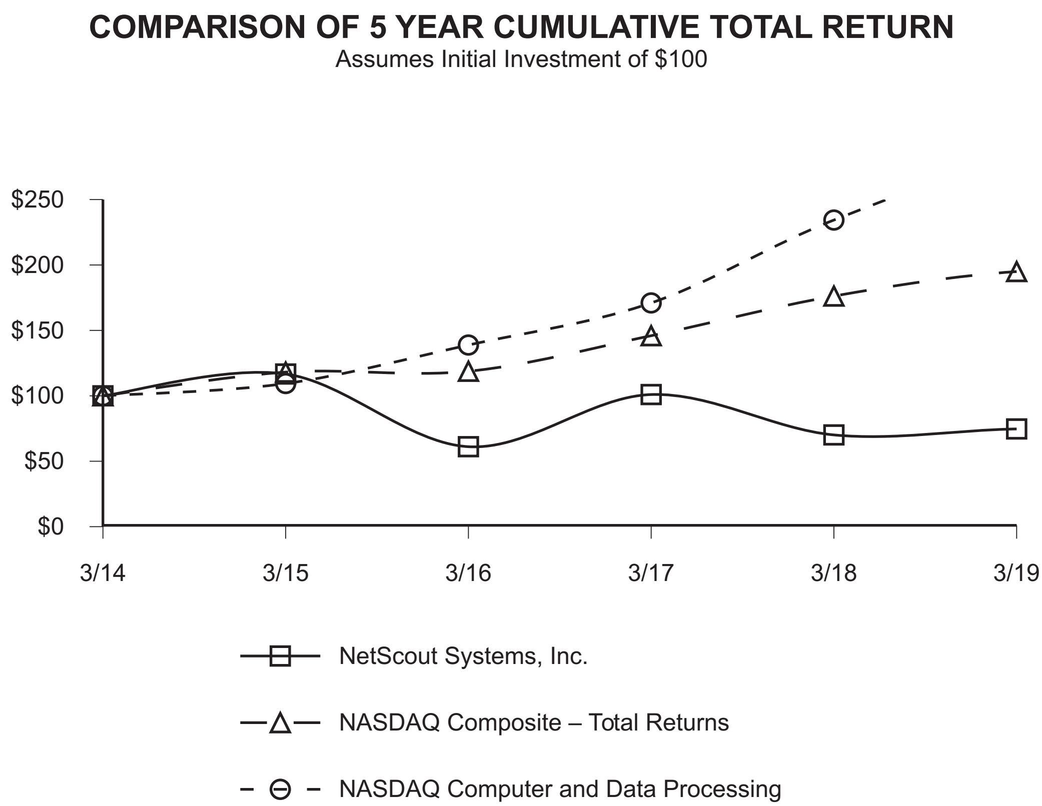
At May 13, 2019, we had 99 stockholders of record. We believe that the number of beneficial holders of our common stock exceeds 14,000.

Stock Performance Graph

This performance graph shall not be deemed "filed" for purposes of Section 18 of the Exchange Act or otherwise subject to the liabilities under that Section, and shall not be deemed to be incorporated by reference into any filing of NetScout under the Exchange Act or the Securities Act of 1933, as amended.

The Stock Performance Graph set forth below compares the yearly change in the cumulative total stockholder return on our common stock during the five-year period from March 31, 2014 through March 31, 2019 with the cumulative total return of the Nasdaq Composite Index and the Nasdaq Computer & Data Processing Index. The comparison assumes $100 was invested on March 31, 2014 in our common stock or in the Nasdaq Composite Index and the Nasdaq Computer & Data Processing Index and assumes reinvestment of dividends, if any.

The stock price performance shown on the graph below is not necessarily indicative of future price performance. Information used in the graph was obtained from Zacks Investment Research, Inc.



	3/31/2014	3/31/2015	3/31/2016	3/31/2017	3/31/2018	3/31/2019
NetScout Systems, Inc.	$ 100.00	$ 116.68	$ 61.12	$ 100.98	$ 70.12	$ 74.69
Nasdaq Composite – Total Returns	$ 100.00	$ 118.12	$ 118.77	$ 145.94	$ 176.24	$ 194.97
Nasdaq Computer and Data Processing	$ 100.00	$ 109.40	$ 138.82	$ 171.00	$ 234.31	$ 279.45

Dividend Policy

In fiscal years 2019 and 2018, we did not declare any cash dividends and do not anticipate declaring cash dividends in the foreseeable future. In addition, the terms of our credit facility limit our ability to pay cash dividends on our capital stock. It is our intention to retain all future earnings for reinvestment to fund our expansion and growth, to pay down our debt, and to fund our stock buyback program further described under Item 7 "Liquidity and Capital Resources." Any future cash dividend declaration will be at the discretion of our Board of Directors and will depend upon, among other things, our future earnings, general financial conditions, capital requirements, existing bank covenants and general business conditions.

Recent Sales of Unregistered Securities

None.

Purchases of Equity Securities by the Issuer

The following table provides information about purchases we made during the quarter ended March 31, 2019 of equity securities that are registered by us pursuant to Section 12 of the Exchange Act:

	Total Number of Shares Purchased(1)	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Maximum Number of Shares That May Yet be Purchased Under the Program
1/1/2019 - 1/31/2019	—	$ —	—	14,902,841
2/1/2019 - 2/28/2019	383,744	26.52	363,098	14,539,743
3/1/2019 - 3/31/2019	180,784	26.79	180,153	14,359,590
Total	564,528	$ 26.61	543,251	14,359,590

(1) We purchased an aggregate of 21,277 shares transferred to us from employees in satisfaction of minimum tax withholding obligations associated with the vesting of restricted stock units during the period. Such purchases reflected in the table do not reduce the maximum number of shares that may be purchased under our previously announced stock repurchase program (our previously disclosed 25 million share repurchase program).

Item 6. Selected Financial Data

SELECTED CONSOLIDATED FINANCIAL DATA

The selected consolidated financial data set forth below should be read in conjunction with our audited consolidated financial statements and notes thereto and "Management's Discussion and Analysis of Financial Condition and Results of Operations" included under Item 7 of this Annual Report on Form 10-K. The consolidated statement of operations data for the fiscal years ended March 31, 2019, 2018 and 2017 and the consolidated balance sheet data at March 31, 2019 and 2018 are derived from audited consolidated financial statements included under Item 8 of this Annual Report on Form 10-K. The consolidated statement of operations data for the fiscal years ended March 31, 2016 and 2015 and the consolidated balance sheet data at March 31, 2017, 2016 and 2015 have been derived from audited consolidated financial statements of NetScout that do not appear in this Annual Report on Form 10-K. Certain amounts for the twelve months ended March 31, 2018, 2017 and 2016, respectively, have been reclassified to conform to the current period presentation. These reclassifications had no effect on the reported results of operations. The historical results are not necessarily indicative of the operating results to be expected in the future.

	Year Ended March 31,				
	2019	2018	2017	2016 (1)	2015
	(In thousands, except per share data)				
Statement of Operations Data:					
Revenue:					
Product	$ 467,289	$ 520,418	$ 715,404	$ 625,537	$ 272,895
Service	442,629	466,369	446,708	329,882	180,774
Total revenue	909,918	986,787	1,162,112	955,419	453,669
Cost of revenue:					
Product	140,938	158,628	233,275	235,996	59,037
Service	113,189	113,277	112,864	92,453	35,524
Total cost of revenue	254,127	271,905	346,139	328,449	94,561
Gross profit	655,791	714,882	815,973	626,970	359,108
Operating expenses:					
Research and development	203,588	215,076	232,701	208,630	75,242
Sales and marketing	291,870	312,536	328,628	293,335	136,446
General and administrative	93,572	109,479	118,438	117,714	47,296
Amortization of acquired intangible assets	74,305	76,640	70,141	32,373	3,351
Restructuring charges	18,693	5,209	4,001	468	—
Impairment of intangible assets	35,871	—	—	—	—
Loss on divestiture of business	9,472	—	—	—	—
Total operating expenses	727,371	718,940	753,909	652,520	262,335
Income (loss) from operations	(71,580)	(4,058)	62,064	(25,550)	96,773
Interest and other expense, net	(21,332)	(14,601)	(9,879)	(6,889)	(1,808)
Income (loss) before income tax expense (benefit)	(92,912)	(18,659)	52,185	(32,439)	94,965
Income tax expense (benefit)	(19,588)	(98,471)	18,894	(4,070)	33,773
Net income (loss)	$ (73,324)	$ 79,812	$ 33,291	$ (28,369)	$ 61,192
Basic net income (loss) per share	$ (0.93)	$ 0.91	$ 0.36	$ (0.35)	$ 1.49
Diluted net income (loss) per share	$ (0.93)	$ 0.90	$ 0.36	$ (0.35)	$ 1.47
Weighted average common shares outstanding used in computing:					
Net income (loss) per share—basic	78,617	87,425	92,226	81,927	41,105
Net income (loss) per share—diluted	78,617	88,261	92,920	81,927	41,637

(1) During the fiscal year ended March 31, 2016, NetScout completed the Comms Transaction. The total equity consideration was approximately $2.3 billion based on issuing approximately 62.5 million new shares of NetScout common stock.

	March 31,				
	2019	2018	2017	2016 (1)	2015
			(In thousands)		
Balance Sheet Data:					
Cash, cash equivalents and short- and long-term marketable securities	$ 486,988	$ 447,762	$ 464,705	$ 352,075	$ 264,857
Working capital	$ 421,286	$ 339,108	$ 394,279	$ 283,422	$ 149,651
Total assets	$ 3,269,994	$ 3,368,608	$ 3,601,513	$ 3,592,843	$ 669,049
Debt	$ 550,000	$ 600,000	$ 300,000	$ 300,000	$ —
Total stockholders' equity	$ 2,065,433	$ 2,068,782	$ 2,436,250	$ 2,443,382	$ 435,750

(1) During the fiscal year ended March 31, 2016, NetScout completed the Comms Transaction. The total equity consideration was approximately $2.3 billion based on issuing approximately 62.5 million new shares of NetScout common stock.

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

The following information should be read in conjunction with the audited consolidated financial information and the notes thereto included in this Annual Report on Form 10-K. In addition to historical information, the following discussion and other parts of this Annual Report contain forward-looking statements that involve risks and uncertainties. You should not place undue reliance on these forward-looking statements. Actual events or results may differ materially due to competitive factors and other factors discussed in Item 1A. "Risk Factors" and elsewhere in this Annual Report. These factors may cause our actual results to differ materially from any forward-looking statement. See the section titled "Cautionary Statement Concerning Forward-Looking Statements" that appears at the beginning of this Annual Report.

Overview

We are an industry leader in providing service assurance and security solutions that are used by customers worldwide to assure their digital business services against disruption. Service providers and enterprises, including local, state and federal government agencies, rely on our solutions to achieve the visibility necessary to optimize network performance, ensure the delivery of high-quality, mission-critical applications and services, gain timely insight into the end user experience and protect the network from attack. With our offerings, customers can quickly, efficiently and effectively identify and resolve issues that result in downtime, interruptions to services, poor service quality or compromised security, thereby driving compelling returns on their investments in their network and broader technology initiatives.

Our operating results are influenced by a number of factors, including, but not limited to, the mix and quantity of products and services sold, pricing, costs of materials used in our products, growth in employee-related costs, including commissions, and the expansion of our operations. Factors that affect our ability to maximize our operating results include, but are not limited to, our ability to introduce and enhance existing products, the marketplace acceptance of those new or enhanced products, continued expansion into international markets, development of strategic partnerships, competition, successful acquisition integration efforts, and our ability to achieve expense reductions and make improvements in a highly competitive industry.

Results Overview

Total revenue for the fiscal year ended March 31, 2019 was primarily impacted by lower spending by customers in the service provider customer segment for both service assurance and DDoS solutions, and the timing of the divestiture of the HNT tools business in mid-September 2018.

Our gross profit percentage remained flat during the fiscal year ended March 31, 2019 as compared with the fiscal year ended March 31, 2018.

Net loss for the fiscal year ended March 31, 2019 was $73.3 million, as compared with net income for the fiscal year ended March 31, 2018 of $79.8 million, resulting in an increase in net loss of $153.1 million. The increase in net loss was primarily due to a $78.9 million decrease in the income tax benefit, a $35.9 million impairment charge of certain intangible assets related to the HNT tools business, a $13.5 million increase in restructuring charges due to the voluntary separation program, a $13.5 million increase in interest expense due to additional amounts drawn down on the credit facility as well as an increase in the average interest rate on the credit facility, and a $9.5 million loss on the divestiture of the HNT tools business during the twelve months ended March 31, 2019. This increase was partially offset by a net $9.0 million decrease in employee-related expenses as a result of a decrease in headcount partially offset by an increase in incentive compensation.

At March 31, 2019, we had cash, cash equivalents, and marketable securities of $487.0 million. This represents an increase of $39.2 million over the previous fiscal year ended March 31, 2018. This increase was primarily due to $149.8 million in cash provided by operations during the fiscal year ended March 31, 2019, partially offset by $50.0 million used to repay long-term debt, $23.4 million used for capital expenditures, $14.5 million used to repurchase shares of our common stock, and $11.9 million used for tax withholdings on restricted stock units.

Use of Non-GAAP Financial Measures

We supplement the United States generally accepted accounting principles (GAAP) financial measures we report in quarterly and annual earnings announcements, investor presentations and other investor communications by reporting the following non-GAAP measures: non-GAAP total revenue, non-GAAP product revenue, non-GAAP service revenue, non-GAAP gross profit, non-GAAP income from operations, non-GAAP operating margin, non-GAAP earnings before interest and other expense, income taxes, depreciation and amortization (EBITDA) from operations, non-GAAP net income, and non-GAAP net income per share (diluted). Non-GAAP revenue (total, product and service) eliminates the GAAP effects of acquisitions by adding back revenue related to deferred revenue revaluation, as well as revenue impacted by the amortization of acquired intangible assets. Non-GAAP gross profit includes the aforementioned revenue adjustments and also removes expenses related to the amortization of acquired intangible assets, share-based compensation, certain expenses relating to acquisitions including depreciation costs, compensation for post-combination services and business development and integration costs and adds back transitional service agreement income. Non-GAAP income from operations includes the aforementioned adjustments and also removes restructuring charges, intangible asset impairment charges, loss on divestiture and costs related to new accounting standard implementation. Non-GAAP EBITDA from operations includes the aforementioned items related to non-GAAP income from operations and also removes non-acquisition-related depreciation expense. Non-GAAP net income includes the foregoing adjustments related to non-GAAP income from operations, net of related income tax effects in addition to the provisional one-time impacts of the U.S. Tax Cuts and Jobs Act (TCJA) while removing transitional service agreement income and changes in contingent consideration. Non-GAAP diluted net income per share also excludes these expenses as well as the related impact of all these adjustments on the provision for income taxes.

These non-GAAP measures are not in accordance with GAAP, should not be considered an alternative for measures prepared in accordance with GAAP (revenue, gross profit, operating profit, net income (loss) and diluted net income (loss) per share), and may have limitations in that they do not reflect all our results of operations as determined in accordance with GAAP. These non-GAAP measures should only be used to evaluate our results of operations in conjunction with the corresponding GAAP measures. The presentation of non-GAAP information is not meant to be considered superior to, in isolation from, or as a substitute for results prepared in accordance with GAAP.

Management believes these non-GAAP financial measures enhance the reader's overall understanding of our current financial performance and our prospects for the future by providing a higher degree of transparency for certain financial measures and providing a level of disclosure that helps investors understand how we plan and measure our business. We believe that providing these non-GAAP measures affords investors a view of our operating results that may be more easily compared with our peer companies and also enables investors to consider our operating results on both a GAAP and non-GAAP basis during and following the integration period of our acquisitions. Presenting the GAAP measures on their own may not be indicative of our core operating results. Furthermore, management believes that the presentation of non-GAAP measures when shown in conjunction with the corresponding GAAP measures provide useful information to management and investors regarding present and future business trends relating to our financial condition and results of operations.

The following table reconciles revenue, gross profit, income (loss) from operations, net income (loss) and net income (loss) per share on a GAAP and non-GAAP basis for the fiscal years ended March 31, 2019, 2018 and 2017:

	Fiscal Year Ended March 31, (Dollars in Thousands, Except per Share Data)		
	2019	2018	2017
GAAP revenue	$ 909,918	$ 986,787	$ 1,162,112
Product deferred revenue fair value adjustment	391	3,064	6,786
Service deferred revenue fair value adjustment	1,199	9,409	19,476
Amortization of acquired intangible assets	—	9	11,439
Non-GAAP revenue	$ 911,508	$ 999,269	$ 1,199,813
GAAP gross profit	$ 655,791	$ 714,882	$ 815,973
Product deferred revenue fair value adjustment	391	3,064	6,786
Service deferred revenue fair value adjustment	1,199	9,409	19,476
Share-based compensation expense	7,422	5,983	4,890
Amortization of acquired intangible assets	31,238	37,332	53,455
Business development and integration expense	—	244	398
Compensation for post-combination services	—	—	552
Acquisition related depreciation expense	75	145	240
Transitional service agreement income	2	—	—
Non-GAAP gross profit	$ 696,118	$ 771,059	$ 901,770
GAAP income (loss) from operations	$ (71,580)	$ (4,058)	$ 62,064
Product deferred revenue fair value adjustment	391	3,064	6,786
Service deferred revenue fair value adjustment	1,199	9,409	19,476
Share-based compensation expense	56,328	47,317	39,189
Amortization of acquired intangible assets	105,543	113,972	123,596
Business development and integration expense	874	2,689	12,083
New standard implementation expense	914	2,630	—
Compensation for post-combination services	789	1,108	5,076
Restructuring charges	18,693	5,209	4,001
Impairment of intangible assets	35,871	—	—
Acquisition related depreciation expense	905	2,057	3,136
Loss on divestiture	9,472	—	—
Transitional service agreement income	2,186	—	—
Non-GAAP income from operations	$ 161,585	$ 183,397	$ 275,407
GAAP net income (loss)	$ (73,324)	$ 79,812	$ 33,291
Product deferred revenue fair value adjustment	391	3,064	6,786
Service deferred revenue fair value adjustment	1,199	9,409	19,476
Share-based compensation expense	56,328	47,317	39,189
Amortization of acquired intangible assets	105,543	113,972	123,596
Business development and integration expense	874	2,689	12,083
New standard implementation expense	914	2,630	—
Compensation for post-combination services	789	1,108	5,076
Restructuring charges	18,693	5,209	4,001

Impairment of intangible assets	35,871	—	—
Acquisition-related depreciation expense	905	2,057	3,136
Loss on divestiture	9,472	—	—
Other income	—	(57)	(426)
Transitional service agreement income	(45)	—	—
Change in contingent consideration	1,495	—	—
Income tax adjustments	(49,877)	(142,546)	(67,662)
Non-GAAP net income	$ 109,228	$ 124,664	$ 178,546
GAAP diluted net income (loss) per share	$ (0.93)	$ 0.90	$ 0.36
Per share impact of non-GAAP adjustments identified above	2.31	0.51	1.56
Non-GAAP diluted net income per share	$ 1.38	$ 1.41	$ 1.92
GAAP income (loss) from operations	$ (71,580)	$ (4,058)	$ 62,064
Previous adjustments to determine non-GAAP income from operations	233,165	187,455	213,343
Non-GAAP income from operations	161,585	183,397	275,407
Depreciation excluding acquisition related	31,430	37,474	34,131
Non-GAAP EBITDA from operations	$ 193,015	$ 220,871	$ 309,538

Critical Accounting Policies

We consider accounting policies related to revenue recognition, marketable securities, valuation of goodwill, intangible assets and other acquisition accounting items, and share based compensation to be critical in fully understanding and evaluating our financial results. We apply significant judgment and create estimates when applying these policies.

Revenue Recognition

We exercise judgment and use estimates in connection with determining the amounts of product and services revenues to be recognized in each accounting period.

We derive revenues primarily from the sale of network management tools and security solutions for service provider and enterprise customers, which include hardware, software and service offerings. The majority of our product sales consist of hardware products with embedded software that are essential to providing customers the intended functionality of the solutions. We also sell software offerings decoupled from the underlying hardware and software solutions to provide customers with enhanced functionality.

We account for revenue once a legally enforceable contract with a customer has been approved by the parties and the related promises to transfer products or services have been identified. A contract is defined to us as an arrangement with commercial substance identifying payment terms, each party's rights and obligations regarding the products or services to be transferred and the amount we deem probable of collection. Customer contracts may include promises to transfer multiple products and services to a customer. Determining whether the products and services are considered distinct performance obligations that should be accounted for separately or as one combined performance obligation may require significant judgment. Revenue is recognized when control of the products or services are transferred to our customers, in an amount that reflects the consideration we expect to be entitled to in exchange for products and services.

Product revenue is typically recognized upon shipment, provided a legally enforceable contract exists, control has passed to the customer, and in the case of software products, when the customer has the rights and ability to access the software, and collection of the related receivable is probable. If any significant obligations to the customer remain post-delivery, typically involving obligations relating to installation and acceptance by the customer, revenue recognition is deferred until such obligations have been fulfilled. Our service offerings include installation, integration, extended warranty and maintenance services, post-contract customer support, stand-ready software-as-a-service (SAAS) and other professional services including consulting and training. We generally provide software and/or hardware support as part of product sales. Revenue related to the initial bundled software and hardware support is recognized ratably over the support period. In addition, customers can elect to purchase extended support agreements for periods after the initial software/hardware warranty expiration. Support services generally include rights to unspecified upgrades (when and if available), telephone and internet-based support, updates, bug fixes and hardware repair and replacement. Consulting services are recognized upon delivery or completion of performance depending on the terms of the underlying contract. Reimbursements of out-of-pocket expenditures incurred in connection with providing consulting services are included in services revenue, with the offsetting expense recorded in cost of service revenue. Training services include on-site and classroom training. Training revenues are recognized upon delivery of the training.

Generally, our contracts are accounted for individually. However, when contracts are closely interrelated and dependent on each other, it may be necessary to account for two or more contracts as one to reflect the substance of the group of contracts.

Bundled arrangements are concurrent customer purchases of a combination of our product and service offerings that may be delivered at various points in time. We allocate the transaction price among the performance obligations in an amount that depicts the relative standalone selling prices (SSP) of each obligation. Judgment is required to determine the SSP for each distinct performance obligation. We use a range of amounts to estimate SSP when we sell each of the products and services separately based on the element's historical pricing. We also consider our overall pricing objectives and practices across different sales channels and geographies, and market conditions. Generally, we have established SSP for a majority of our service elements based on historical standalone sales. In certain instances, we have established SSP for services based upon an estimate of profitability and the underlying cost to fulfill those services. Further, for certain service engagements, we consider quoted prices as part of multi-element arrangements of those engagements as a basis for establishing SSP. SSP has been established for product elements as the average or median selling price the element was recently sold for, whether sold alone or sold as part of a multiple element transaction. We review sales of the product elements on a quarterly basis and update, when appropriate, SSP for such elements to ensure that it reflects recent pricing experience. Our products are distributed through our direct sales force and indirect distribution channels through alliances with resellers and distributors. Revenue arrangements with resellers and distributors are recognized on a sell-in basis; that is, when control of the product transfers to the reseller or distributor. We record consideration given to a reseller or distributor as a reduction of revenue to the extent we have recorded revenue from the reseller or distributor. With limited exceptions, our return policy does not allow product returns for a refund. Returns have been insignificant to date. In addition, we have a history of successfully collecting receivables from our resellers and distributors.

Marketable Securities

We measure the fair value of our marketable securities at the end of each reporting period. Fair value is defined as the exchange price that would be received for an asset in the principal or most advantageous market for the asset in an orderly transaction between market participants on the measurement date. Marketable securities are recorded at fair value and have been classified as Level 1 or 2 within the fair value hierarchy. Fair values determined by Level 1 inputs utilize quoted prices (unadjusted) in accessible active markets for identical assets or liabilities. Fair values determined by Level 2 inputs utilize data points that are observable such as quoted prices, interest rates and yield curves.

Valuation of Goodwill, Intangible Assets and Other Acquisition and Divestiture Accounting Items

We amortize acquired definite-lived intangible assets over their estimated useful lives. Goodwill and other indefinite-lived intangible assets are not amortized but subject to annual impairment tests; more frequently if events or circumstances occur that would indicate a potential decline in their fair value. We perform the assessment annually during the fourth quarter and on an interim basis if potential impairment indicators arise. We have identified two reporting units: (1) Service Assurance and (2) Security.

To test impairment, we first assess qualitative factors to determine whether the existence of events and circumstances indicate that it is more likely than not that the intangible asset is impaired. If based on our qualitative assessment it is more likely than not that the fair value of the intangible asset is less than its carrying amount, quantitative impairment testing is required. However, if we conclude otherwise, quantitative impairment testing is not required. During fiscal year 2019, we performed a quantitative analysis for goodwill. We determined the fair value of the reporting unit's goodwill using established income and market valuation approaches. Goodwill was estimated to be recoverable as of January 31, 2019.

Indefinite-lived intangible assets are tested for impairment at least annually, or on an interim basis if an event occurs or circumstances change that would, more likely than not, reduce the fair value of the indefinite-lived intangible assets below its carrying value. To test impairment, we first assess qualitative factors to determine whether the existence of events and circumstances indicate that it is more likely than not that the indefinite-lived intangible is impaired. If based on our qualitative assessment we conclude that it is more likely than not that the fair value of the indefinite-lived asset is greater than its carrying amount, quantitative impairment testing is not required. We completed our annual impairment test of the indefinite-lived intangible asset at January 31, 2019 using the qualitative Step 0 assessment. No impairment indicators were observed as of January 31, 2019.

We completed two acquisitions and one divestiture during the three-year period ended March 31, 2019. The acquisition method of accounting requires an estimate of the fair value of the assets and liabilities acquired as part of these transactions. In order to estimate the fair value of acquired intangible assets, we use a relief from royalty model which requires management to estimate: future revenues expected to be generated by the acquired intangible assets, a royalty rate which a market participant would pay related to the projected revenue stream, a present value factor which approximates a risk adjusted rate of return for a market participant purchasing the assets, and a technology migration curve representing a period of time over which the technology assets or some portion thereof are still being used. We are also required to develop the fair value for customer relationships acquired as part of these transactions which requires that we create estimates for the following items: a projection of future revenues associated with the acquired company's existing customers, a turnover rate for those customers, a margin related to those sales, and a risk adjusted rate of return for a market participant purchasing those relationships.

We have a contingent consideration asset related to the divestiture of our handheld network test (HNT) tools business in September 2018. The contingent consideration asset represents potential future earnout payments to us of up to $4.0 million over two years that are contingent on the HNT tools business achieving certain milestones. The fair value of the contingent consideration of $2.3 million was recognized on the acquisition date and was measured using observable (Level 3) inputs. The contingent consideration asset at March 31, 2019 was $0.8 million.

We had a contingent liability at March 31, 2018 for $523 thousand related to the acquisition of Efflux Systems, Inc. (Efflux) in July 2017 for which an escrow account was established to cover damages we may have suffered related to any liabilities that we did not agree to assume or as a result of the breach of representations and warranties of the seller as described in the merger agreement. The $523 thousand was paid to the seller in July 2018.

We had a contingent liability at March 31, 2018 for $4.9 million related to the acquisition of Simena LLC (Simena) in November 2011, which was based on the ultimate settlement of assets and liabilities acquired as part of the transaction, and the former owners' future period of employment with us. The contingent purchase consideration of $5.0 million was paid to the seller in November 2018.

We had $660 thousand of contingent purchase consideration related to the acquisition of Avvasi Incorporated (Avvasi) in August 2016 for which an escrow account was established to cover damages we may have suffered related to any liabilities that we did not agree to assume or as a result of the breach of representations and warranties of the seller as described in the asset purchase agreement. The $660 thousand was paid to the seller in August 2017.

Share-Based Compensation

We recognize compensation expense for all share-based payments. Under the fair value recognition provisions, we recognize share-based compensation net of an estimated forfeiture rate and only recognize compensation cost for those shares expected to vest on a straight-line basis over the requisite service period of the award.

We are required to estimate the expected forfeiture rate and only recognize expense for those shares expected to vest. If our actual forfeiture rate is materially different from our estimate, the share-based compensation expense could be significantly different from what we have recorded in the current period.

Based on historical experience, we assumed an annualized forfeiture rate of 0% for awards granted to our directors, an annualized forfeiture rate of approximately 2% for awards granted to our senior executives, and an annualized forfeiture rate of approximately 5% for all remaining employees. We will record additional expense if the actual forfeitures are lower than estimated and will record a recovery of prior expense if the actual forfeitures are higher than estimated.

Results of Operations

Comparison of Years Ended March 31, 2019 and 2018

Revenue

Product revenue consists of sales of our hardware products and licensing of our software products. Service revenue consists of customer support agreements, consulting, training and stand-ready software as a service offerings. During the fiscal years ended March 31, 2019 and 2018, no direct customer or indirect channel partner accounted for more than 10% of our total revenue.

	Fiscal Year Ended March 31, (Dollars in Thousands)					
	2019		2018		Change	
		% of Revenue		% of Revenue	$	%
Revenue:						
Product	$ 467,289	51%	$ 520,418	53%	$ (53,129)	(10)%
Service	442,629	49	466,369	47	(23,740)	(5)%
Total revenue	$ 909,918	100%	$ 986,787	100%	$ (76,869)	(8)%

Product. The 10%, or $53.1 million, decrease in product revenue compared with the same period last year was primarily due to a decrease in revenue from service provider customers for both the service assurance and security offerings, as well as lower enterprise-related product revenue tied to the divestiture of the HNT tools business.

Service. The 5%, or $23.7 million, decrease in service revenue compared to the same period last year was primarily due to lower professional services revenue, a reduction of support renewals on non-core product lines, as well as the divestiture of the HNT tools business.

Total revenue by geography is as follows:

	Fiscal Year Ended March 31, (Dollars in Thousands)					
	2019		2018		Change	
		% of Revenue		% of Revenue	$	%
United States	$ 553,267	61%	$ 581,853	59%	$ (28,586)	(5)%
International:						
Europe	148,036	16	174,445	18	(26,409)	(15)%
Asia	72,355	8	88,917	9	(16,562)	(19)%
Rest of the world	136,260	15	141,572	14	(5,312)	(4)%
Subtotal international	356,651	39	404,934	41	(48,283)	(12)%
Total revenue	$ 909,918	100%	$ 986,787	100%	$ (76,869)	(8)%

United States revenue decreased 5%, or $28.6 million, primarily due to declines in both service assurance and cybersecurity products, as well as the divestiture of the HNT tools business. International revenue decreased 12%, or $43.8 million, primarily due to declines in both service assurance and cybersecurity products, as well as the divestiture of the HNT tools business.

Cost of Revenue and Gross Profit

Cost of product revenue consists primarily of material components, manufacturing personnel expenses, packaging materials, overhead and amortization of capitalized software, acquired developed technology and core technology. Cost of service revenue consists primarily of personnel, material, overhead and support costs.

	Fiscal Year Ended March 31, (Dollars in Thousands)					
	2019		2018		Change	
		% of Revenue		% of Revenue	$	%
Cost of revenue:						
Product	$ 140,938	16%	$ 158,628	16%	$ (17,690)	(11)%
Service	113,189	12	113,277	12	(88)	— %
Total cost of revenue	$ 254,127	28%	$ 271,905	28%	$ (17,778)	(7)%
Gross profit:						
Product $	$ 326,351	36%	$ 361,790	37%	$ (35,439)	(10)%
Product gross profit %	70%		70%		— %	
Service $	329,440	36%	353,092	36%	(23,652)	(7)%
Service gross profit %	74%		76%		(2)%	
Total gross profit $	$ 655,791		$ 714,882		$ (59,091)	(8)%
Total gross profit %	72%		72%		— %	

Product. The 11%, or $17.7 million, decrease in cost of product revenue compared to the same period last year was primarily due to a $17.8 million decrease in direct material costs due to shifts in product mix and the decrease in product revenue, a $6.4 million decrease in the amortization of intangible assets, a net $6.3 million decrease in employee-related expenses associated with the timing of certain projects partially offset by an increase in variable incentive compensation, and a $0.6 million decrease in shipping costs. These decreases were partially offset by an $11.6 million increase in costs to deliver model calibration products and a $1.8 million increase in capitalized overhead costs. The product gross profit percentage remained flat at 70% during the fiscal year ended March 31, 2019 as compared to the same period in the prior year. The 10%, or $35.4 million decrease in product gross profit, corresponds with the 10%, or $53.1 million decrease in product revenue, partially offset by the 11%, or $17.7 million decrease in cost of product.

Service. The $0.1 million decrease in cost of service revenue was primarily due to an $8.5 million decrease in contractor fees, a $2.0 million decrease in travel expenses, and a $1.7 million decrease in expenses associated with the timing of certain projects. These decreases were almost entirely offset with a net $12.0 million increase in employee-related expenses associated with the timing of certain projects as well as an increase in variable incentive compensation partially offset by a decrease due to a reduction in headcount as a result of the voluntary separation program. The service gross profit percentage decreased by two percentage points to 74% during the fiscal year ended March 31, 2019 compared to the fiscal year ended March 31, 2018. The 7%, or $23.7 million, decrease in service gross profit corresponds with the 5%, or $23.7 million, decrease in service revenue, partially offset by the $0.1 million decrease in cost of services.

Gross profit. Our gross profit decreased 8%, or $59.1 million, compared to the fiscal year ended March 31, 2018. This decrease is attributable to the 8%, or $76.9 million, decrease in revenue offset by a $17.8 million, or 7%, decrease in cost of revenue. The gross margin percentage remained flat at 72% during the fiscal year ended March 31, 2019 compared to the same period in the prior year.

Operating Expenses

	Fiscal Year Ended March 31, (Dollars in Thousands)				Change	
	2019		2018			
		% of Revenue		% of Revenue	$	%
Research and development	$ 203,588	22%	$ 215,076	22%	$ (11,488)	(5)%
Sales and marketing	291,870	32	312,536	32	(20,666)	(7)%
General and administrative	93,572	10	109,479	11	(15,907)	(15)%
Amortization of acquired intangible assets	74,305	8	76,640	8	(2,335)	(3)%
Restructuring charges	18,693	2	5,209	1	13,484	259 %
Impairment of intangible assets	35,871	4	—	—	35,871	100 %
Loss on divestiture of business	9,472	1	—	—	9,472	100 %
Total operating expenses	$ 727,371	79%	$ 718,940	74%	$ 8,431	1 %

Research and development. Research and development expenses consist primarily of personnel expenses, fees for outside consultants, overhead and related expenses associated with the development of new products and the enhancement of existing products.

The 5%, or $11.5 million, decrease in research and development expenses compared to the same period last year was primarily due to a net $4.5 million decrease in employee-related expense due to lower headcount partially offset by an increase in incentive compensation, a $4.3 million decrease in consulting fees, a $3.4 million decrease from depreciation expense and a $1.0 million decrease in travel expenses. These decreases were partially offset by a $1.7 million increase in expenses associated with the timing of certain projects.

Sales and marketing. Sales and marketing expenses consist primarily of personnel expenses and commissions, overhead and other expenses associated with selling activities and marketing programs such as trade shows, seminars, advertising, and new product launch activities.

The 7%, or $20.7 million, decrease in total sales and marketing expenses compared to the same period last year was primarily due to a net $12.2 million decrease in employee-related expense due to lower headcount partially offset by an increase in incentive compensation, a $3.1 million decrease in trade shows and other events, a $2.4 million decrease in consulting fees, a $1.7 million decrease in travel expenses, a $1.4 million decrease in depreciation expense and a $1.0 million decrease in commissions expense. These decreases were partially offset by a $2.9 million increase in advertising expenses.

General and administrative. General and administrative expenses consist primarily of personnel expenses for executive, financial, legal and human resource employees, overhead and other corporate expenditures.

The 15%, or $15.9 million, decrease in general and administrative expenses compared to the same period last year was primarily due to a $5.5 million decrease in legal expenses, a $3.6 million decrease in consulting fees, a $2.7 million decrease in tax related items, a $2.0 million decrease in rent and other facilities related expenses and a $1.5 million decrease in business development expenses. These decreases were partially offset by a $2.0 million increase in employee-related expenses primarily due to an increase in variable incentive compensation.

Amortization of acquired intangible assets. Amortization of acquired intangible assets consists primarily of amortization of customer relationships, definite-lived trademark and tradenames, and leasehold interest related to the Comms Transaction, ONPATH Technologies, Inc., Simena, Psytechnics, Ltd, Network General Corporation, Avvasi and Efflux.

The 3%, or $2.3 million, decrease in amortization of acquired intangible assets was largely due to a decrease in amortization of the intangible assets related to the divestiture of the HNT tools business in September 2018.

Impairment of intangible assets. During the first quarter of fiscal year 2019, we performed a quantitative analysis on certain intangible assets related to the HNT tools business. The fair value of these intangible assets was determined to be less than the carrying value, and as a result, we recognized an impairment charge of $35.9 million during the fiscal year ended March 31, 2019.

Restructuring. During fiscal year 2019 and 2018, we restructured certain departments to better align functions, drive productivity and improve efficiency. During the fiscal year ended March 31, 2019, we implemented a voluntary separation program (VSP) for employees who met certain age and service requirements to reduce overall headcount. As a result of the restructuring programs, we recorded $18.7 million and $5.2 million of restructuring charges related to one-time termination benefits as well as facility-related charges during the fiscal years ended March 31, 2019 and 2018, respectively.

Loss of Divestiture of Business. During the fiscal year ended March 31, 2019, we recorded a $9.5 million loss on the divestiture of the HNT tools business.

Interest and Other Expense, Net

Interest and other expense, net includes interest earned on our cash, cash equivalents and marketable securities, interest expense and other non-operating gains or losses.

	Fiscal Year Ended March 31, (Dollars in Thousands)					
	2019		2018		Change	
		% of Revenue		% of Revenue	$	%
Interest and other expense, net	$ (21,332)	(2)%	$ (14,601)	(1)%	$ (6,731)	(46)%

The 46%, or $6.7 million, increase in interest and other expense, net was primarily due to a $13.3 million increase in interest expense due to additional amounts drawn down on the credit facility to fund the ASR as well as an increase in the average interest rate on the credit facility and a $1.6 million increase in other expense due to the change in fair value of the contingent consideration related to the HNT tools business divestiture. These increases were partially offset by a $3.4 million increase in interest income received on investments, a $2.2 million increase in transitional services agreement income related to the HNT tools business divestiture, and a $2.2 million decrease in foreign exchange expense.

Income Tax Expense

The annual effective tax rate for fiscal year 2019 was 21.1%, compared to an annual effective tax rate of 527.7% for fiscal year 2018. Generally, the effective tax rate differs from the statutory tax rate due to state income taxes and foreign withholding taxes, partially offset by the tax benefit associated with our domestic production activities deduction, research and development tax credits and earnings in jurisdictions subject to tax rates lower than the U.S. statutory rate. The provisions of the TCJA that affect the Company’s fiscal year 2019 tax rate include the Base Erosion Anti-Abuse Tax (BEAT), the deduction for Foreign Derived Intangible Income (FDII) and the Global Intangible Low Taxed Income (GILTI) inclusion. The effective tax rate for the twelve months ended March 31, 2019 is lower than the effective rate for the twelve months ended March 31, 2018, primarily due to the enactment of the TCJA during the prior fiscal year. As a result of the enactment, we recorded a significant tax benefit during the fiscal year ended March 31, 2018. This benefit has the effect of increasing the tax rate due to losses generated in the twelve months ended March 31, 2018.

There are several key provisions under the TCJA, which was enacted on December 22, 2017, that impact us. The final impact of the TCJA, as described below, did not differ from the estimates reported at December 31, 2017. The key changes from the TCJA that were reported as of March 31, 2019 are the impact due to the reduced U.S. Federal corporate tax rate from 35.0% to 21.0%, a one-time transition tax on certain foreign earnings on which U.S. income tax was deferred, additional tax expense under BEAT, a deduction for FDII, an income inclusion under GILTI and the repeal of the domestic production activity deduction.

We are required to record deferred tax assets and liabilities based on the enacted tax rate which they are expected to reverse in the future. Therefore, any U.S. related deferred taxes were re-measured from 35.0% down to 21.0% based on the recorded balances. As of December 31, 2017, we recorded an estimate related to the re-measurement of our deferred tax balances, which was a benefit of approximately $87 million. During the third quarter of the current fiscal year we finalized our calculation and did not adjust our estimate recorded.

Additionally, we are required to calculate a one-time transition tax based on our total post-1986 foreign subsidiaries' earnings and profits that were previously deferred from U.S. income taxes. As of December 31, 2017, we recorded an estimate related to this one-time transition charge of approximately $2 million. During the third quarter of the current fiscal year we finalized our calculation and did not adjust our estimate recorded.

We are subject to the tax on the Global Intangible Low-Taxed Income (GILTI). We are required to make an accounting policy election of either (1) treating taxes due on future U.S. inclusions in taxable income related to GILTI as a current period expense when incurred (the "period cost method") or (2) factoring such amounts into our measurement of our deferred taxes (the "deferred method"). We have elected to treat taxes due on future U.S. inclusions in taxable income related to GILTI as a current period expense when incurred (the "period cost method").

As a result of TCJA we expect that current and future foreign earnings may be repatriated tax efficiently. After fully assessing the impact of the TCJA, we have determined that our current and future foreign earnings will not be indefinitely reinvested where we can repatriate those earnings in a tax efficient manner acceptable to management and which comply with local statutory and operational requirements. Additionally, we intend a one-time repatriation of certain previously taxed historical earnings because of TCJA which can be repatriated in a tax efficient manner. We continue to assert that any remainder of its historical book basis in excess of tax basis will be permanently reinvested. It is not practicable to estimate the amount of unrecognized deferred U.S. taxes on these differences.

	Fiscal Year Ended March 31, (Dollars in Thousands)					
	2019		**2018**		**Change**	
		% of Revenue		**% of Revenue**	**$**	**%**
Income tax benefit	$ (19,588)	(2)%	$ (98,471)	(10)%	$ 78,883	80%

Comparison of Years Ended March 31, 2018 and 2017

Revenue

During the fiscal year ended March 31, 2018, no direct customer or indirect channel partner accounted for more than 10% of our total revenue. During the fiscal year ended March 31, 2017, one direct customer, Verizon, accounted for more than 10% of total revenue, while no indirect channel partner accounted for more than 10% of total revenue.

	Fiscal Year Ended March 31, (Dollars in Thousands)					
	2018		2017		Change	
		% of Revenue		% of Revenue	$	%
Revenue:						
Product	$ 520,418	53%	$ 715,404	62%	$ (194,986)	(27)%
Service	466,369	47	446,708	38	19,661	4 %
Total revenue	$ 986,787	100%	$ 1,162,112	100%	$ (175,325)	(15)%

Product. The 27%, or $195.0 million, decrease in product revenue compared with the same period last year was primarily due to the combination of lower product revenue from a large tier-one service provider, and to a lesser extent, lower-than expected orders for service assurance and DDoS offerings by other service providers primarily in North America, as well as lower product revenue from enterprise customers.

Service. The 4%, or $19.7 million, increase in service revenue compared to the same period last year was primarily due to an increase in maintenance contracts.

Total revenue by geography is as follows:

	Fiscal Year Ended March 31, (Dollars in Thousands)					
	2018		2017		Change	
		% of Revenue		% of Revenue	$	%
United States	$ 581,853	59%	$ 722,440	62%	$ (140,587)	(19)%
International:						
Europe	174,445	18	193,441	17	(18,996)	(10)%
Asia	88,917	9	95,735	8	(6,818)	(7)%
Rest of the world	141,572	14	150,496	13	(8,924)	(6)%
Subtotal international	404,934	41	439,672	38	(34,738)	(8)%
Total revenue	$ 986,787	100%	$ 1,162,112	100%	$ (175,325)	(15)%

United States revenue decreased 19%, or $140.6 million, primarily due to the decrease in revenue from service assurance products.

Cost of Revenue and Gross Profit

	Fiscal Year Ended March 31, (Dollars in Thousands)					
	2018		2017		Change	
		% of Revenue		% of Revenue	$	%
Cost of revenue:						
Product	$ 158,628	16%	$ 233,275	20%	$ (74,647)	(32)%
Service	113,277	12	112,864	10	413	— %
Total cost of revenue	$ 271,905	28%	$ 346,139	30%	$ (74,234)	(21)%
Gross profit:						
Product $	$ 361,790	37%	$ 482,129	41%	$ (120,339)	(25)%
Product gross profit %	70%		67%		3%	
Service $	353,092	36%	333,844	29%	19,248	6 %
Service gross profit %	76%		75%		1%	
Total gross profit $	$ 714,882		$ 815,973		$ (101,091)	(12)%
Total gross profit %	72%		70%		2%	

Product. The 32%, or $74.6 million, decrease in cost of product revenue was primarily due to a $62.7 million decrease in direct material costs due to shifts in product mix and the decrease in product revenue, a $3.7 million decrease in the amortization of intangibles, a $2.5 million decrease in employee-related expenses primarily due to a decrease in variable incentive compensation, a $2.3 million decrease in expenses related to the transitional service agreements related to the Comms Transaction, a $1.8 million decrease in capitalized overhead and a $1.7 million decrease in shipping costs. The product gross profit percentage increased by three percentage points to 70% during the fiscal year ended March 31, 2018 as compared to the same period in the prior year. The 25%, or $120.3 million, decrease in product gross profit corresponds with the 27%, or $195.0 million decrease in product revenue, partially offset by the 32%, or $74.6 million decrease in cost of product.

Service. The $0.4 million increase in cost of service revenue was primarily due to a $2.0 million increase in contractor fees, and a $0.8 million increase in depreciation expense. These increases were partially offset by a $1.2 million decrease in expenses associated with certain projects, and a $1.1 million decrease in employee-related expenses primarily due to a decrease in variable incentive compensation. The service gross profit percentage increased by one percentage points to 76% for the twelve months ended March 31, 2018 compared to the twelve months ended March 31, 2017. The 6%, or $19.2 million, increase in service gross profit corresponds with the 4%, or $19.7 million, increase in service revenue, partially offset by the $0.4 million increase in cost of services.

Gross profit. Our gross profit decreased 12%, or $101.1 million. This decrease is attributable to our decrease in revenue of 15%, or $175.3 million, partially offset by a $74.2 million, or 21%, decrease in cost of revenue. The gross margin percentage increased two percentage points to 72% during the fiscal year ended March 31, 2018 compared to the same period in the prior year.

Operating Expenses

	Fiscal Year Ended March 31, (Dollars in Thousands)					
	2018		2017		Change	
		% of Revenue		% of Revenue	$	%
Research and development	$ 215,076	22%	$ 232,701	20%	$ (17,625)	(8)%
Sales and marketing	312,536	32	328,628	28	(16,092)	(5)%
General and administrative	109,479	11	118,438	10	(8,959)	(8)%
Amortization of acquired intangible assets	76,640	8	70,141	6	6,499	9 %
Restructuring charges	5,209	1	4,001	—	1,208	30 %
Total operating expenses	$ 718,940	74%	$ 753,909	64%	$ (34,969)	(5)%

Research and development. The 8%, or $17.6 million, decrease in research and development expenses compared to the same period last year was primarily due to a $13.5 million decrease in employee-related expenses largely due to a decrease in variable incentive compensation, a $5.3 million decrease in consulting fees, a $1.4 million decrease from depreciation expense and a $1.1 million decrease in compensation for post-combination services. These decreases were partially offset by a $2.2 million increase from capitalized software costs. During the fiscal year ended March 31, 2017, there were higher costs capitalized for software development.

Sales and marketing. The 5%, or $16.1 million, decrease in total sales and marketing expenses compared to the same period last year was primarily due to an $18.0 million decrease in commissions expense, a $5.8 million decrease in trade shows and other events, and a $1.4 million decrease in compensation for post-combination services. These decreases were partially offset by a $7.1 million increase in employee-related expenses and a $2.6 million increase in depreciation expense.

General and administrative. The 8%, or $9.0 million, decrease in general and administrative expenses compared to the same period last year was primarily due to a $9.5 million decrease in business development expenses, a $3.0 million decrease in employee-related expenses primarily due to a decrease in variable incentive compensation, a $1.9 million decrease in expenses related to the transitional services agreements related to the Comms Transaction and a $1.4 million decrease in legal expenses. These decreases were partially offset by a $2.8 million increase in consulting fees related to the implementation of new accounting standards, a $1.7 million increase in bad debt expense and a $1.7 million increase in rent expense.

Amortization of acquired intangible assets. The 9%, or $6.5 million, increase in amortization of acquired intangible assets was primarily due to an increase of $3.5 million due to the acceleration of certain intangibles related to the Comms Transaction, with the remaining increase due to changes in percentages of amortization related to the Comms Transaction.

Restructuring. During fiscal year 2018 and 2017, we restructured certain departments to better align functions, drive productivity and improve efficiency. As a result of the restructuring programs, we recorded $5.2 million and $4.0 million of restructuring charges related to costs to be paid to employees for one-time termination benefits as well as facility-related charges during the fiscal years ended March 31, 2018 and 2017, respectively.

Interest and Other Expense, Net

	Fiscal Year Ended March 31, (Dollars in Thousands)					
	2018		2017		Change	
		% of Revenue		% of Revenue	$	%
Interest and other expense, net	$ (14,601)	(1)%	$ (9,879)	(1)%	$ (4,722)	(48)%

The 48%, or $4.7 million, increase in interest and other expense, net was primarily due to a $3.5 million increase in interest expense due to additional amounts drawn down on the credit facility entered into on January 16, 2018 as well as an increase in the average interest rate and a $1.6 million increase in foreign currency exchange expense.

Income Tax Expense

The annual effective tax rate for fiscal year 2018 was 527.7%, compared to an annual effective tax rate of 36.2% for fiscal year 2017. Generally, the effective tax rate differs from the statutory tax rate due to state income taxes and foreign withholding taxes, partially offset by the tax benefit associated with our domestic production activities deduction, research and development tax credits and earnings in jurisdictions subject to tax rates lower than the U.S. statutory rate. The effective tax rate for the twelve months ended March 31, 2018 was higher than the effective rate for the twelve months ended March 31, 2017, primarily due to the enactment of the TCJA during the fiscal year. As a result of the enactment, we recorded a significant tax benefit during the fiscal year ended March 31, 2018. This benefit has the effect of increasing the tax rate due to losses generated in the twelve months ended March 31, 2018.

	Fiscal Year Ended March 31, (Dollars in Thousands)					
	2018		2017		Change	
		% of Revenue		% of Revenue	$	%
Income tax expense (benefit)	$ (98,471)	(10)%	$ 18,894	2%	$ (117,365)	(621)%

Contractual Obligations

At March 31, 2019, we had the following contractual obligations:

Payment due by period (Dollars in thousands)

Contractual Obligations	Total	Less than 1 year	1-3 years	3-5 years	More than 5 years
Long-term debt obligations (1)	$ 640,059	$ 23,765	$ 47,400	$ 568,894	$ —
Unconditional purchase obligations (2)	49,222	43,639	5,193	390	—
Operating lease obligations (3)	98,269	16,102	20,863	17,307	43,997
Pension benefit plan	7,011	382	920	1,148	4,561
Total contractual obligations	$ 794,561	$ 83,888	$ 74,376	$ 587,739	$ 48,558

At March 31, 2019, the total amount of net unrecognized tax benefits for uncertain tax positions and the accrual for the related interest was $1.4 million. We are unable to make a reliable estimate when cash settlement, if any, will occur with a tax authority as the timing of examinations and ultimate resolution of those examinations is uncertain. We have also excluded long-term deferred revenue of $94.6 million as such amounts will be recognized as services are provided.

(1) Includes estimated future interest at an interest rate of 4.25% for our outstanding term loan at March 31, 2019.
(2) Represents estimated open purchase orders to purchase inventory as well as commitments for products and services used in the normal course of business.
(3) We lease facilities and certain equipment under operating lease agreements extending through September 2030 for a total of $98.3 million.

Off-Balance Sheet Arrangements

We do not have any off-balance sheet arrangements as defined in Item 303(a)(4)(ii) of Regulation S-K.

Commitment and Contingencies

We account for claims and contingencies in accordance with authoritative guidance that requires us to record an estimated loss from a claim or loss contingency when information available prior to issuance of our consolidated financial statements indicates that it is probable that a liability has been incurred at the date of the consolidated financial statements and the amount of the loss can be reasonably estimated. If we determine that it is reasonably possible, but not probable, that an asset has been impaired or a liability has been incurred, or if the amount of a probable loss cannot be reasonably estimated, then, in accordance with the authoritative guidance, we disclose the amount or range of estimated loss if the amount or range of estimated loss is material. Accounting for claims and contingencies requires us to use our judgment. We consult with legal counsel on those issues related to litigation and seek input from other experts and advisors with respect to matters in the ordinary course of business.

We have a contingent consideration asset related to the divestiture of our HNT tools business in September 2018. The contingent consideration asset represents potential future earnout payments to us of up to $4.0 million over two years that are contingent on the HNT tools business achieving certain milestones. The fair value of the contingent consideration of $2.3 million was recognized on the acquisition date and was measured using observable (Level 3) inputs. The contingent consideration asset at March 31, 2019 was $0.8 million.

We had a contingent liability at March 31, 2018 for $523 thousand related to the acquisition of Efflux in July 2017 for which an escrow account was established to cover damages we may have suffered related to any liabilities that we did not agree to assume or as a result of the breach of representations and warranties of the seller as described in the merger agreement. The $523 thousand was paid to the seller in July 2018.

We had a contingent liability at March 31, 2018 for $4.9 million related to the acquisition of Simena in November 2011, which was based on the ultimate settlement of assets and liabilities acquired as part of the transaction, and the former owners' future period of employment with us. The contingent purchase consideration of $5.0 million was paid to the seller in November 2018.

We had $660 thousand of contingent purchase consideration related to the acquisition of Avvasi in August 2016 for which an escrow account was established to cover damages we may have suffered related to any liabilities that we did not agree to assume or as a result of the breach of representations and warranties of the seller as described in the asset purchase agreement. The $660 thousand was paid to the seller in August 2017.

Legal - From time to time, we are subject to legal proceedings and claims in the ordinary course of business. In the opinion of management, the amount of ultimate expense with respect to any current legal proceedings and claims, if determined adversely, will not have a material adverse effect on our financial condition, results of operations or cash flows.

As previously disclosed, in March 2016, Packet Intelligence LLC (Packet Intelligence or Plaintiff) filed a Complaint against us and two subsidiary entities in the United States District Court for the Eastern District of Texas asserting infringement of five United States patents. Plaintiff's Complaint alleged that legacy Tektronix GeoProbe products, including the G10 and GeoBlade products, infringed these patents. We filed an Answer denying Plaintiff's allegations and asserting that Plaintiff's patents were, among other things, invalid, not infringed, and unenforceable due to inequitable conduct. In October 2017, a jury trial was held to address the parties' claims and counterclaims regarding infringement of three patents by the G10 and GeoBlade products, invalidity of these patents, and damages. On October 13, 2017, the jury rendered a verdict finding in favor of the Plaintiff and that Plaintiff was entitled to $3,500,000 for pre-suit damages and $2,250,000 for post-suit damages. The jury indicated that the awarded damages amounts were intended to reflect a running royalty. The Court also conducted a bench trial on whether these patents were unenforceable due to, among other things, inequitable conduct. In September 2018, the Court entered judgment and "enhanced" the jury verdict in the amount of $2.8 million as a result of a jury finding. The judgment also awards pre- and post- judgment interest, and a running royalty on the G10 and GeoBlade products until the expiration of the patents at issue, the last date being June 2022. The Court denied the Plaintiff's motion for fees. Following the entry of judgment, we filed motions for judgment as a matter of law, seeking to both overturn the verdict and to reduce damages. We have concluded that the risk of loss from this matter is currently neither remote nor probable, and therefore, under GAAP definitions, the risk of loss is termed "reasonably possible". Therefore, accounting rules require us to provide an estimate for the range of potential liability. We currently estimate that the estimated range of liability is between $0 and the aggregate amount awarded by the jury and the Court's award of enhanced damages, plus potential additional pre- and post-judgment interest amounts and costs and any royalties owed on post-trial sales of the accused G10 and GeoBlade products. We intend to continue to vigorously dispute Packet Intelligence's claims including through appeal, if necessary.

Warranty and Indemnification

We warrant that our software and hardware products will substantially conform to the documentation accompanying such products on their original date of shipment. For software, which also includes firmware, the standard warranty commences upon shipment and generally expires 60 to 90 days thereafter. With regard to hardware, the standard warranty commences upon shipment and generally expires 60 days to 12 months thereafter. Additionally, this warranty is subject to various exclusions which include, but are not limited to, non-conformance resulting from modifications made to the software or hardware by a party other than NetScout; customers' failure to follow our installation, operation or maintenance instructions; and events outside of our reasonable control. We also warrant that all support services will be performed in a good and workmanlike manner. We believe that our product and support service warranties are consistent with commonly accepted industry standards. Warranty cost information is presented and no material warranty costs are accrued since service revenue associated with warranty is deferred at the time of sale and recognized ratably over the warranty period.

Contracts that we enter into in the ordinary course of business may contain standard indemnification provisions. Pursuant to these agreements, we may agree to defend third party claims brought against a partner or direct customer claiming infringement of such third party's (i) U.S. patent and/or European Union (EU), or other selected countries' patents, (ii) Berne convention member country copyright, and/or (iii) U.S., EU, and/or other selected countries' trademark or intellectual property rights. Moreover, this indemnity may require us to pay any damages awarded against the partner or direct customer in such type of lawsuit as well as reimburse the partner or direct customer for reasonable attorney's fees incurred by them from the lawsuit.

We may also agree from time to time to provide other forms of indemnification to partners or direct customers, such as indemnification that would obligate us to defend and pay any damages awarded to a third party against a partner or direct customer based on a lawsuit alleging that such third party has suffered personal injury or tangible property damage legally determined to have been caused by negligently designed or manufactured products.

We have agreed to indemnify our directors and officers and our subsidiaries' directors and officers if they are made a party or are threatened to be made a party to any proceeding (other than an action by or in the right of NetScout) by reason of the fact that the indemnified are agents of NetScout. The indemnity is for any and all expenses and liabilities of any type (including but not limited to, judgments, fines and amounts paid in settlement) reasonably incurred by the directors or officers in connection with the investigation, defense, settlement or appeal of such proceeding, provided they acted in good faith.

Liquidity and Capital Resources

Cash, cash equivalents and marketable securities consist of the following (in thousands):

	At March 31, (Dollars in Thousands)		
	2019	2018	2017
Cash and cash equivalents	$ 409,632	$ 369,821	$ 304,880
Short-term marketable securities	76,344	77,941	137,892
Long-term marketable securities	1,012	—	21,933
Cash, cash equivalents and marketable securities	$ 486,988	$ 447,762	$ 464,705

Cash, cash equivalents and marketable securities

At March 31, 2019 cash, cash equivalents and marketable securities (current and non-current) totaled $487.0 million, a $39.2 million increase from $447.8 million at March 31, 2018. This increase was primarily due to $149.8 million in cash provided by operations during the fiscal year ended March 31, 2019, partially offset by $50.0 million used to repay long-term debt, $23.4 million used for capital expenditures, $14.5 million used to repurchase shares of our common stock, and $11.9 million used for tax withholdings on restricted stock units.

At March 31, 2019, cash, short-term and long-term investments in the United States were $320.1 million, while cash held outside of the United States was approximately $166.9 million.

Cash and cash equivalents were impacted by the following:

	Fiscal Year Ended March 31, (Dollars in Thousands)		
	2019	2018	2017 (1)
Net cash provided by operating activities	$ 149,838	$ 222,454	$ 226,764
Net cash (used in) provided by investing activities	$ (26,252)	$ 57,128	$ (41,621)
Net cash used in financing activities	$ (79,285)	$ (220,962)	$ (89,553)

(1) Represents cash flows as of March 31, 2017, recast to present our retrospective adoption of accounting guidance related to the presentation of the cash flow statement.

Net cash from operating activities

Fiscal year 2019 compared to fiscal year 2018

Cash provided by operating activities was $149.8 million during the fiscal year ended March 31, 2019, compared to $222.5 million of cash provided by operating activities in the fiscal year ended March 31, 2018. This $72.7 million decrease was due in part to a $153.1 million decrease from a larger net loss, a $107.1 million unfavorable impact from accounts receivable, a $17.1 million decrease from prepaid expenses and other assets, and a $15.6 million decrease from depreciation and amortization. These decreases were partially offset by a $94.3 million increase from deferred income taxes, a $37.7 million increase from accrued compensation and other expenses, a $35.9 million increase due to the impairment of certain intangible assets, a $23.3 million increase from deferred revenue, a $9.0 million increase from share based compensation expense associated with equity awards, a $7.7 million increase in loss on divestiture of business, a $5.1 million increase from accounts payable, a $4.3 million increase from inventories, and a $2.1 million increase from income tax payable. Accounts receivable days sales outstanding was 88 days at March 31, 2019 compared to 78 days at March 31, 2018 and 80 days at March 31, 2017.

Fiscal year 2018 compared to fiscal year 2017

Cash provided by operating activities was $222.5 million during the fiscal year ended March 31, 2018, compared to $226.8 million of cash provided by operating activities in the fiscal year ended March 31, 2017. This $4.3 million decrease was due in part to a $116.8 million decrease from deferred income taxes, a $41.2 million decrease from deferred revenue, a $24.5 million decrease from accrued compensation and other expenses, a $21.9 million net decrease from amounts due to and from related parties, an $11.5 million decrease from inventories, a $9.3 million decrease from accounts payable, a $7.4 million decrease from depreciation and amortization, and a $4.7 million decrease from income taxes payable. These decreases were partially offset by a $133.0 million increase from accounts receivable, a $46.5 million increase from net income, a $44.9 million increase from prepaid expenses and other assets and an $8.1 million increase from share-based compensation expense associated with equity awards. Accounts receivable days sales outstanding was 78 days at March 31, 2018 compared to 80 days at March 31, 2017.

Net cash from investing activities

	Fiscal Year Ended March 31, (Dollars in Thousands)		
	2019	2018	2017 (1)
Cash (used in) provided by investing activities included the following:			
Purchase of marketable securities	$ (229,769)	$ (114,178)	$ (199,841)
Proceeds from maturity of marketable securities	230,433	196,041	181,321
Purchase of fixed assets	(23,392)	(15,913)	(29,696)
Purchase of intangible assets	—	(544)	(1,031)
Payments related to the divestiture of business	(3,293)	—	—
Acquisition of businesses, net of cash acquired	—	(8,334)	(4,606)
(Increase) decrease in deposits	(97)	(330)	129
Contingent purchase consideration	—	523	660
Collection of contingently returnable consideration	—	—	12,864
Capitalized software development costs	(134)	(137)	(1,421)
	$ (26,252)	$ 57,128	$ (41,621)

(1) Represents cash flows as of March 31, 2017, recast to present our retrospective adoption of accounting guidance related to the presentation of the cash flow statement.

Cash used in investing activities increased by $83.4 million to $26.3 million during the fiscal year ended March 31, 2019, compared to $57.1 million of cash provided by investing activities during the fiscal year ended March 31, 2018. Cash provided by investing activities increased by $98.7 million to $57.1 million during the fiscal year ended March 31, 2018, compared to $41.6 million of cash used in investing activities during the fiscal year ended March 31, 2017.

Net cash inflows relating to the purchase and sales of marketable securities decreased $81.2 million during the fiscal year ended March 31, 2019 relating to the amount of investments held at each respective balance sheet date, from an inflow of $81.9 million during fiscal year ended March 31, 2018 to an inflow of $0.7 million during fiscal year ended March 31, 2019. Net cash inflows relating to the purchase and sales of marketable securities increased $100.4 million during the fiscal year ended March 31, 2018 relating to the amount of investments held at each respective balance sheet date, from an outflow of $18.5 million during the fiscal year ended March 31, 2017 to an inflow of $81.9 million during the fiscal year ended March 31, 2018.

During the twelve months ended March 31, 2019, there was a $3.3 million cash outflow related to the divestiture of HNT. During the twelve months ended March 31, 2018, there was an $8.3 million cash outflow related to the acquisition of Efflux. During the twelve months ended March 31, 2017, there was a $4.6 million cash outflow related to the acquisition of Avvasi.

Our investments in property and equipment consist primarily of computer equipment, demonstration units, office equipment and facility improvements. We plan to continue to invest in capital expenditures to support our infrastructure in our fiscal year 2020.

During the fiscal year ended March 31, 2019, we did not acquire any technology licenses. During the fiscal years ended March 31, 2018 and 2017, we entered into agreements to acquire technology licenses for $0.5 million and $1.0 million, respectively.

Net cash from financing activities

	Fiscal Year Ended March 31, (Dollars in Thousands)		
	2019	2018	2017 [1]
Cash used in financing activities included the following:			
Issuance of common stock under stock plans	$ 3	$ 1	$ 2
Payment of contingent consideration	(2,851)	(660)	—
Treasury stock repurchases, including accelerated share repurchases	(14,468)	(501,324)	(79,996)
Tax withholding on restricted stock units	(11,969)	(13,598)	(9,559)
Proceeds from issuance of long-term debt, net of issuance costs	—	294,619	—
Repayment of long-term debt	(50,000)	—	—
	$ (79,285)	$ (220,962)	$ (89,553)

(1) Represents cash flows as of March 31, 2017, recast to present our retrospective adoption of accounting guidance related to the presentation of the cash flow statement.

Cash used in financing activities decreased $141.7 million to $79.3 million during the fiscal year ended March 31, 2019, compared to $221.0 million of cash used in financing activities during the fiscal year ended March 31, 2018.

During the twelve months ended March 31, 2019, we repurchased 543,251 shares for $14.5 million under the twenty-five million share repurchase program. During the twelve months ended March 31, 2018, we repurchased 13,190,650 shares for $411.3 million under our stock repurchase and accelerated share repurchase (ASR) programs.

On February 1, 2018, we entered into ASR agreements with two third-party financial institutions to repurchase an aggregate of $300 million of our common stock via accelerated stock repurchase transactions under the twenty million share repurchase program and the twenty five million share repurchase program. We borrowed $300 million under our Amended Credit Agreement and made an up-front payment of $300 million pursuant to the ASR and received an initial delivery of 7,387,862 shares in the aggregate, which is approximately 70 percent of the total number of shares of our common stock expected to be repurchased under the ASR. As part of this purchase, 970,650 shares for $27.6 million were deducted under the twenty million share repurchase program and 6,417,212 shares for $182.4 million were deducted under the twenty five million share repurchase program. Final settlement of the ASR agreements was completed in August 2018. As a result, we received an additional 3,679,947 shares of common stock for $96.8 million, which reduced the number of shares available to be purchased from the twenty-five million share repurchase program during the fiscal year ended March 31, 2019. In total, 11,067,809 shares of our common stock were repurchased under the ASR at an average cost per share of $27.11.

In connection with the delivery of common shares upon vesting of restricted stock units, we have withheld 451,683 shares for $11.9 million, 408,097 shares for $13.6 million and 320,572 shares for $9.6 million related to minimum statutory tax withholding requirements on these restricted stock units during the fiscal years ended March 31, 2019, 2018 and 2017, respectively. These withholding transactions do not fall under the repurchase program described above, and therefore do not reduce the amount that is available for repurchase under that program.

During the fiscal year ended March 31, 2019, we repaid $50.0 million of borrowings under the Amended Credit Agreement.

Credit Facility

On January 16, 2018, we amended and expanded our existing credit agreement (Amended Credit Agreement) with a syndicate of lenders by and among: NetScout; JPMorgan Chase Bank, N.A. (JPMorgan), as administrative agent and collateral agent; J.P. Morgan Securities LLC, KeyBanc Capital Markets, Merrill Lynch, Pierce, Fenner & Smith Incorporated, RBC Capital Markets and Wells Fargo Securities, LLC, as joint lead arrangers and joint bookrunners; Fifth Third Bank, Santander Bank, N.A., SunTrust Bank, N.A. and U.S. Bank National Association, as co-documentation agents; and the lenders party thereto.

The Amended Credit Agreement provides for a five-year $1.0 billion senior secured revolving credit facility, including a letter of credit sub-facility of up to $75.0 million. We may elect to use the new credit facility for general corporate purposes or to finance the repurchase of up to twenty-five million shares of common stock under our common stock repurchase plan. The commitments under the Amended Credit Agreement will expire on January 16, 2023, and any outstanding loans will be due on that date. During the fiscal year ended March 31, 2019, we repaid $50.0 million of borrowings under the Amended Credit Agreement. At March 31, 2019, $550 million was outstanding under the Amended Credit Agreement.

At our election, revolving loans under the Amended Credit Agreement bear interest at either (a) an Alternate Base Rate per annum equal to the greatest of (1) JPMorgan's prime rate, (2) 0.50% in excess of the New York Federal Reserve Bank (NYFRB) rate, or (3) an adjusted one month LIBOR rate plus 1%; or (b) such adjusted LIBOR rate (for the interest period selected by us), in each case plus an applicable margin. For the period from the delivery of our financial statements for the quarter ended December 31, 2018, until we have delivered financial statements for the quarter ended March 31, 2019, the applicable margin will be 1.75% per annum for LIBOR loans and 0.75% per annum for Alternate Base Rate loans, and thereafter the applicable margin will vary depending on our leverage ratio, ranging from 1.00% per annum for Base Rate loans and 2.00% per annum for LIBOR loans if our consolidated leverage ratio is greater than 3.50 to 1.00, down to 0.00% per annum for Alternate Base Rate loans and 1.00% per annum for LIBOR loans if our consolidated leverage ratio is equal to or less than 1.50 to 1.00.

On July 27, 2017, the U.K. Financial Conduct Authority (FCA) announced that it will no longer require banks to submit rates for the calculation of LIBOR after 2021. Our Amended Credit Agreement provides for the Administrative Agent to determine if (i) adequate and reasonable means do not exist for ascertaining the LIBOR rate or (ii) the FCA or Government Authority having jurisdiction over the Administrative Agent has made a public statement identifying a specific date after which the LIBOR rate shall no longer be used for determining interest rates for loans and the Administrative Agent determines that (i) and (ii) above are unlikely to be temporary then the Administrative Agent and NetScout would agree to transition to an Alternate Base Rate Borrowing or amend the Credit Agreement to establish an alternate rate of interest to LIBOR that gives due consideration to the then prevailing market convention for determining a rate of interest for syndicated loans in the United States at such time.

Our consolidated leverage ratio is the ratio of our total funded debt compared to our consolidated adjusted EBITDA. Consolidated adjusted EBITDA includes certain adjustments, including, without limitation, adjustments relating to extraordinary, unusual or non-recurring charges, certain restructuring charges, non-cash charges, certain transaction costs and expenses and certain pro forma adjustments in connection with material acquisitions and dispositions, all as set forth in detail in the definition of consolidated adjusted EBITDA in the Amended Credit Agreement.

Commitment fees will accrue on the daily unused amount of the credit facility. For the period from the delivery of our financial statements for the quarter ended December 31, 2018 until we have delivered financial statements for the quarter ended March 31, 2019, the commitment fee will be 0.30% per annum, and thereafter the commitment fee will vary depending on the our consolidated leverage ratio, ranging from 0.30% per annum if our consolidated leverage ratio is greater than 2.75 to 1.00, down to 0.15% per annum if our consolidated leverage ratio is equal to or less than 1.50 to 1.00.

Letter of credit participation fees are payable to each lender on the amount of such lender's letter of credit exposure, during the period from the closing date of the Amended Credit Agreement to but excluding the date which is the later of (i) the date on which such lender's commitment terminates or (ii) the date on which such lender ceases to have any letter of credit exposure, at a rate per annum equal to the applicable margin for LIBOR loans. Additionally, we will pay a fronting fee to each issuing bank in amounts to be agreed to between us and the applicable issuing bank.

Interest on Alternate Base Rate loans is payable at the end of each calendar quarter. Interest on LIBOR loans is payable at the end of each interest rate period or at the end of each three-month interval within an interest rate period if the period is longer than three months. We may also prepay loans under the Amended Credit Agreement at any time, without penalty, subject to certain notice requirements.

Debt is recorded at the amount drawn on the revolving credit facility plus interest based on floating rates reflective of changes in the market which approximates fair value.

The loans and other obligations under the credit facility are (a) guaranteed by each of our wholly owned material domestic restricted subsidiaries, subject to certain exceptions, and (b) are secured by substantially all of the assets of us and the subsidiary guarantors, including a pledge of all the capital stock of material subsidiaries held directly by us and the subsidiary guarantors (which pledge, in the case of any foreign subsidiary, is limited to 65% of the voting stock), subject to certain customary exceptions and limitations. The Amended Credit Agreement generally prohibits any other liens on the assets of NetScout and its restricted subsidiaries, subject to certain exceptions as described in the Amended Credit Agreement.

The Amended Credit Agreement contains certain covenants applicable to us and our restricted subsidiaries, including, without limitation, limitations on additional indebtedness, liens, various fundamental changes, dividends and distributions, investments (including acquisitions), transactions with affiliates, asset sales, including sale-leaseback transactions, speculative hedge agreements, payment of junior financing, changes in business and other limitations customary in senior secured credit facilities. In addition, we are required to maintain certain consolidated leverage and interest coverage ratios. These covenants and limitations are more fully described in the Amended Credit Agreement. At March 31, 2019, we were in compliance with all of these covenants.

The Amended Credit Agreement provides that events of default will exist in certain circumstances, including failure to make payment of principal or interest on the loans when required, failure to perform certain obligations under the Amended Credit Agreement and related documents, defaults under certain other indebtedness, certain insolvency events, certain events arising under ERISA, a change of control and certain other events. Upon an event of default, the administrative agent with the consent of, or at the request of, the holders of more than 50% in principal amount of the loans and commitments may terminate the commitments and accelerate the maturity of the loans and enforce certain other remedies under the Credit Agreement and the other loan documents.

In connection with NetScout's Amended Credit Agreement described above, we terminated our previous term loan dated as of July 14, 2015, by and among NetScout; JPMorgan Chase Bank, N.A. (JPMorgan), as administrative agent and collateral agent; J.P. Morgan Securities LLC, KeyBanc Capital Markets, Merrill Lynch, Pierce, Fenner & Smith Incorporated, RBC Capital Markets and Wells Fargo Securities, LLC, as joint lead arrangers and joint bookrunners; Santander Bank, N.A., SunTrust Bank, N.A. and U.S. Bank National Association, as co-documentation agents; and the lenders party thereto.

We capitalized debt issuance costs totaling $12.2 million at March 31, 2019, which are being amortized over the life of the revolving credit facility. The unamortized balance was $6.6 million as of March 31, 2019. The balance of $1.7 million was included as prepaid expenses and other current assets and a balance of $4.9 million was included as other assets in our consolidated balance sheet.

Expectations for Fiscal Year 2020

We believe that our cash balances, available debt, short-term marketable securities classified as available-for-sale and future cash flows generated by operations will be sufficient to meet our anticipated cash needs for working capital and capital expenditures for at least the next 12 months.

Additionally, a portion of our cash may be used to acquire or invest in complementary businesses or products or to obtain the right to use complementary technologies. From time to time, in the ordinary course of business, we evaluate potential acquisitions of such businesses, products or technologies. If our existing sources of liquidity are insufficient to satisfy our liquidity requirements, we may seek to sell additional equity or debt securities. The sale of additional equity or debt securities could result in additional dilution to our stockholders.

Recent Accounting Standards

For information with respect to recent accounting pronouncements on our consolidated financial statements, See Note 2 contained in the "Notes to Consolidated Financial Statements" included in Part IV of this Annual Report on Form 10-K.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk

Interest Rate Risk. We hold our cash, cash equivalents and investments for working capital purposes. Some of the securities we invest in are subject to market risk. This means that a change in prevailing interest rates may cause the principal amount of the investment to fluctuate. To minimize this risk, we maintain our portfolio of cash, cash equivalents and investments in a variety of securities, including money market funds and government debt securities. The risk associated with fluctuating interest rates is limited to our investment portfolio. Due to the short-term nature of these instruments, we believe that we do not have any material exposure to changes in the fair value of our investment portfolio as a result of changes in interest rates. Declines in interest rates, however, would reduce future interest income. The effect of a hypothetical 10% increase or decrease in overall interest rates would not have had a material impact on our operating results or the total fair value of the portfolio.

We are exposed to market risks related to fluctuations in interest rates related to our credit facility. As of March 31, 2019, we owed $550 million on this loan with an interest rate of 4.25%. A sensitivity analysis was performed on the outstanding portion of our debt obligation as of March 31, 2019. Should the current weighted average interest rate increase or decrease by 10%, the resulting annual increase or decrease to interest expense would be approximately $2.3 million as of March 31, 2019.

Credit Risk. Our cash equivalents and marketable securities consist primarily of money market instruments, U.S. Treasury bills, certificates of deposit, commercial paper, corporate bonds and municipal obligations.

At March 31, 2019 and periodically throughout the year, we have maintained cash balances in various operating accounts in excess of federally insured limits. We limit the amount of credit exposure with any one financial institution by evaluating the creditworthiness of the financial institutions with which we invest.

Foreign Currency Exchange Risk. As a result of our foreign operations, we face exposure to movements in foreign currency exchange rates, primarily the Euro, British Pound, Canadian Dollar and Indian Rupee. The current exposures arise primarily from expenses denominated in foreign currencies. We currently engage in foreign currency hedging activities in order to limit these exposures. We do not use derivative financial instruments for speculative trading purposes.

At March 31, 2019, we had foreign currency forward contracts with notional amounts totaling $4.6 million. The valuation of outstanding foreign currency forward contracts at March 31, 2019 resulted in a liability balance of $68 thousand, reflecting unfavorable contract rates in comparison to current market rates at this date and an asset balance of $58 thousand reflecting favorable rates in comparison to current market rates. At March 31, 2018, we had foreign currency forward contracts with notional amounts totaling $11.2 million. The valuation of outstanding foreign currency forward contracts at March 31, 2018 resulted in a liability balance of $40 thousand, reflecting unfavorable contract rates in comparison to current market rates at this date and an asset balance of $122 thousand reflecting favorable rates in comparison to current market rates.

Item 8. Financial Statements and Supplementary Data

Our Consolidated Financial Statements and Schedule and Report of Independent Registered Public Accounting Firm appear beginning on page F-1 attached to this report.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

There have been no changes in or disagreements with accountants on accounting or financial disclosure matters.

Item 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

As of March 31, 2019, NetScout, under the supervision and with the participation of our management, including our principal executive officer and principal financial officer, evaluated the effectiveness of the design and operation of our disclosure controls and procedures pursuant to Rule 13a-15(b) promulgated under the Exchange Act. Based upon that evaluation, our principal executive officer and principal financial officer concluded that, as of March 31, 2019 our disclosure controls and procedures were effective in ensuring that material information relating to NetScout, including its consolidated subsidiaries, required to be disclosed by NetScout in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms, including ensuring that such material information is accumulated and communicated to our management, including our principal executive officer and principal financial officer, as appropriate, to allow timely decisions regarding required disclosure.

Changes in Internal Control over Financial Reporting

During the year ended March 31, 2019, there were no changes in our internal control over financial reporting that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Management's Report on Internal Control Over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting as such term is defined in Exchange Act Rule 13a-15(f). Our internal control over financial reporting was designed to provide reasonable assurance regarding reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate. Our management assessed the effectiveness of our internal control over financial reporting as of March 31, 2019. In making this assessment, our management used the criteria set forth by the Committee of Sponsoring Organizations of the Treadway Commission (COSO) in Internal Control—Integrated Framework in 2013. Based on our assessment, we concluded that our internal control over financial reporting was effective as of March 31, 2019.

The effectiveness of our internal control over financial reporting as of March 31, 2019 has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their report which appears herein.

Item 9B. Other Information

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance

The information required by this Item 10 will be included under the captions "Directors and Executive Officers," "Election of Directors," "Delinquent Section 16(a) Reports," "Code of Ethics," "The Board of Directors and its Committees" and "Corporate Governance" in our definitive Proxy Statement with respect to our 2019 Annual Meeting of Stockholders to be filed with the SEC no later than 120 days after the end of the fiscal year covered by this Annual Report and is incorporated herein by reference.

Item 11. Executive Compensation

The information required by this Item 11 will be included under the caption "Compensation and Other Information Concerning Directors and Executive Officers" in our definitive Proxy Statement with respect to our 2019 Annual Meeting of Stockholders to be filed with the SEC not later than 120 days after the end of the fiscal year covered by this Annual Report and is incorporated herein by reference.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The information required by this Item 12 will be included under the captions "Security Ownership of Certain Beneficial Owners and Management" and "Equity Compensation Plan Information" in our definitive Proxy Statement with respect to our 2019 Annual Meeting of Stockholders to be filed with the SEC not later than 120 days after the end of the fiscal year covered by this Annual Report and is incorporated herein by reference.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The information required by this Item 13 will be included, as applicable, under the captions "Director Independence," "Employment and Other Agreements" and "Transactions with Related Persons" in our definitive Proxy Statement with respect to our 2019 Annual Meeting of Stockholders to be filed with the SEC not later than 120 days after the end of the fiscal year covered by this Annual Report and is incorporated herein by reference.

Item 14. Principal Accounting Fees and Services

The information required by this Item 14 will be included under the captions "Auditors Fees and Services" and "Policy on Audit Committee Pre-approval of Audit and Non-Audit Services" in our definitive Proxy Statement with respect to our 2019 Annual Meeting of Stockholders to be filed with the SEC not later than 120 days after the end of the fiscal year covered by this Annual Report and is incorporated herein by reference.

PART IV

Item 15. Exhibits, Financial Statement Schedules

(a) 1. Consolidated Financial Statements.

2. Financial Statement Schedule.

No other financial statement schedules have been included because they are either not applicable or the information is in the consolidated financial statements.

3. Exhibits listed in the accompanying Index to Exhibits are filed or incorporated by reference as part of this report.

(b) We hereby file as part of this Annual Report on Form 10-K the exhibits listed in Item 15(a)(3) above.

(c) We hereby file as part of this Annual Report on Form 10-K the financial statement schedule listed in Item 15(a)(2) above.

NetScout Systems, Inc.

Index to Exhibits

3.1, 4.1	Composite conformed copy of Third Amended and Restated Certificate of Incorporation of NetScout (as amended) (filed as Exhibit 3.2 to NetScout’s current report on Form 8-K, SEC File No. 000-26251, filed on September 21, 2016, and incorporated herein by reference).
3.2, 4.2	Amended and Restated By-laws of NetScout (filed as Exhibit 3.1 to NetScout’s current Report on Form 8-K, SEC File No. 000-26251, filed on October 30, 2017 and incorporated herein by reference).
4.3	Specimen Certificate for shares of NetScout’s Common Stock (filed as Exhibit 4.3 to NetScout’s Annual Report on Form 10-K for the fiscal year ended March 31, 2001, SEC File No. 000-26251, filed on June 29, 2001, and incorporated herein by reference).
4.4	Description of Common Stock (filed herewith).
10.1*	Form of Amended and Restated Indemnification Agreement between NetScout and each director and executive officer filed as Exhibit 10.1 to NetScout's Quarterly Report on Form 10-Q for the quarterly period ended December 31, 2013, SEC File No. 000-26251, filed January 28, 2014, and incorporated herein by reference).
10.2*	Form of Incentive Stock Option Agreement – Incorporated Terms and Conditions pursuant to 1999 Stock Option and Incentive Plan, as amended (filed as Exhibit 10.1 to NetScout’s Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2004, SEC File No 000-26251, filed November 4, 2004 and incorporated herein by reference).
10.3	Lease between Arturo J. Gutierrez and John A. Cataldo, Trustees of Nashoba Westford Realty Trust, u/d/t dated April 27, 2000 and recorded with the Middlesex North Registry of Deeds in Book 10813, Page 38 and NetScout for Westford Technology Park West, as amended (filed as Exhibit 10.26 to NetScout’s Annual Report on Form 10-K for the fiscal year ended March 31, 2001, SEC File No. 000-26251, filed on June 29, 2001, and incorporated herein by reference).
10.4*	Agreement Relating to Employment, dated January 3, 2007, by and between NetScout and Anil K. Singhal (filed as Exhibit 10.2 to NetScout’s Current Report on Form 8-K, SEC File No. 000-26251, filed on January 5, 2007 and incorporated herein by reference).
10.5*	Amendment No. 1, dated February 2, 2007, to Agreement Relating to Employment by and between the Company and Anil K. Singhal (filed as exhibit 10.1 to NetScout’s Quarterly Report on Form 10-Q for the quarterly period ended December 31, 2006, SEC File No. 000-26251, filed February 5, 2007 and incorporated herein by reference).
10.6*	Amendment No. 2, dated December 22, 2008, to Agreement Relating to Employment by and between the Company and Anil K. Singhal (filed as exhibit 10.1 to NetScout’s Quarterly Report on Form 10-Q for the quarterly period ended December 31, 2008, SEC File No. 000-26251, filed February 6, 2009 and incorporated herein by reference).
10.7*	Amendment No. 3, dated May 28, 2012, to Agreement Relating to Employment, by and between the Company and Anil K. Singhal (filed as Exhibit 10.3 to NetScout’s Current Report on Form 8-K, SEC File No. 000-26251, filed on June 1, 2012 and incorporated herein by reference).
10.8*	NetScout Systems, Inc. 2007 Equity Incentive Plan, as amended (filed as Appendix A to the Registrant’s Definitive Proxy Statement on Schedule 14A, SEC File No. 000-26251, filed with the Commission on July 28, 2015 and incorporated herein by reference)
10.9*	NetScout Form of Restricted Stock Unit Agreement with respect to the NetScout 2007 Equity Incentive Plan (filed as Exhibit 99.2 to NetScout’s Registration Statement on Form S-8, SEC File No. 333-148364, filed on December 27, 2007 and incorporated herein by reference).
10.10*	Form of Amended and Restated Severance Agreement for Named Executive Officers (other than the CEO and CFO) (filed as Exhibit 10.1 to NetScout’s Current Report on Form 8-K, SEC File No. 000-26251, filed on June 1, 2012 and incorporated herein by reference).

10.11*	Amended and Restated Severance Agreement, dated May 28, 2012, by and between the Company and Jean Bua (filed as Exhibit 10.2 to NetScout's Current Report on Form 8-K, SEC File No. 000-26251, filed on June 1, 2012 and incorporated herein by reference).
10.12	Third Amendment Agreement, dated August 10, 2010, to that certain Lease, dated August 17, 2000, as amended, between the Company and Westford West I Limited Partnership, as successor to Arturo J. Gutierrez and John A. Cataldo, Trustees of Nashoba Westford Realty Trust, u/d/t dated April 27, 2000 (filed as Exhibit 10.1 to NetScout's Quarterly Report on Form 10-Q for the quarterly period ended September 30, 2010, SEC File No. 000-26251, filed November 9, 2010 and incorporated herein by reference).
10.13*	NetScout Systems, Inc. Amended and Restated 2011 Employee Stock Purchase Plan (filed as Exhibit 10.1 to NetScout's Current Report on Form 8-K, SEC File No. 000-26251, filed on September 13, 2018 and incorporated herein by reference).
10.14 *	Form of Amendment to Amended and Restated Severance Agreement for Executive Officers (filed as Exhibit 10.9 to NetScout's Quarterly Report on Form 10-Q for the quarterly period ended December 31, 2014, SEC File No. 000-26251, filed on January 27, 2015 and incorporated herein by reference).
10.15	Tax Matters Agreement dated July 14, 2015 by and among Danaher Corporation, NetScout Systems, Inc. and Potomac Holding LLC (filed as Exhibit 10.1 to NetScout's current report on Form 8-K, SEC File No. 000-26251, filed with the SEC on July 15, 2015 and incorporated herein by reference).
10.16	Transition Services Agreement dated July 14, 2015 by and among NetScout Systems, Inc., Danaher Corporation and Potomac Holding LLC (filed as Exhibit 10.2 to NetScout's current report on Form 8-K, SEC File No. 000-26251, filed with the SEC on July 15, 2015 and incorporated herein by reference).
10.17	Employee Matters Agreement dated July 14, 2015 by and among NetScout Systems, Inc., Danaher Corporation and Potomac Holding LLC (filed as Exhibit 10.3 to NetScout's current report on Form 8-K, SEC File No. 000-26251, filed with the SEC on July 15, 2015 and incorporated herein by reference).
10.18	Intellectual Property Cross-License Agreement dated July 14, 2015 by and between Danaher Corporation and Potomac Holding LLC (filed as Exhibit 10.4 to NetScout's current report on Form 8-K, SEC File No. 000-26251, filed with the SEC on July 15, 2015 and incorporated herein by reference).
10.19	Amendment and Restatement Agreement dated as of January 16, 2018, to the Credit Agreement, dated as of July 14, 2015, by and among NetScout Systems, Inc.; certain subsidiaries of NetScout Systems, Inc. as loan parties; the lenders and issuing banks party thereto and JPMorgan Chase Bank, N.A., as administrative agent attaching the Amended and Restated Credit Agreement, dated as of January 16, 2018, by and among NetScout Systems, Inc.; JPMorgan Chase Bank, N.A., as administrative agent and collateral agent; JPMorgan Chase Bank, N.A., Wells Fargo Securities, LLC, Merrill Lynch, Pierce, Fenner & Smith Incorporated, RBC Capital Markets and KeyBanc Capital Markets Inc., as joint lead arrangers and joint bookrunners; SunTrust Bank, N.A., Santander Bank, N.A., U.S. Bank National Association and Fifth Third Bank, as co-documentation agents; and the lenders party thereto (filed as Exhibit 10.5 to NetScout's current report on Form 8-K, SEC File No. 000-26251, filed with the SEC on January 18, 2018 and incorporated by reference herein.
10.20*	Summary of Non-Employee Director Compensation (filed as Exhibit 10.1 to NetScout's Quarterly Report on Form 10-Q for the quarterly period ended December 31, 2016, SEC File No. 000-26251, filed on February 2, 2017 and incorporated herein by reference).
10.21*	Summary of Non-Employee Director Compensation (filed as Exhibit 10.1 to NetScout's Quarterly Report on Form 10Q for the quarterly period ended September 30, 2018, SEC file No. 000-26251, filed on November 8, 2018 and incorporated herein by reference.
21	Subsidiaries of NetScout (filed herewith).
23	Consent of PricewaterhouseCoopers LLP (filed herewith).
31.1	Certification Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (filed herewith).
31.2	Certification Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002 (filed herewith).
32.1†	Certification Pursuant to Section 906 of the Sarbanes–Oxley Act of 2002 (furnished herewith).
32.2†	Certification Pursuant to Section 906 of the Sarbanes–Oxley Act of 2002 (furnished herewith).
101.INS**	XBRL Instance Document.

101.SCH**	XBRL Taxonomy Extension Schema Document.
101.CAL**	XBRL Taxonomy Extension Calculation Linkbase Document.
101.DEF**	XBRL Taxonomy Extension Definition Linkbase Document.
101.LAB**	XBRL Taxonomy Extension Label Linkbase Document.
101.PRE**	XBRL Taxonomy Extension Presentation Linkbase Document.

* Indicates a management contract or compensatory plan or arrangement.

** XBRL (Extensible Business Reporting Language) information is furnished and not filed or a part of a registration statement or prospectus for purposes of sections 11 or 12 of the Securities Act of 1933, as amended, is deemed not filed for purposes of section 18 of the Securities Exchange Act of 1934, as amended, and otherwise is not subject to liability under these sections.

† Exhibit has been furnished, is not deemed filed and is not to be incorporated by reference into any of the Company's filings under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended, irrespective of any general incorporation language contained in any such filing

Item 16. Form 10-K Summary

Not provided.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

NETSCOUT SYSTEMS, INC.

By: /S/ ANIL K. SINGHAL

Anil K. Singhal

President, Chief Executive Officer, and Chairman

Date: May 28, 2019

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

Signature	Title(s)	Date
/S/ ANIL K. SINGHAL **Anil K. Singhal**	President, Chief Executive Officer, and Chairman (Principal Executive Officer)	May 28, 2019
/S/ JEAN BUA **Jean Bua**	Executive Vice President and Chief Financial Officer (Principal Financial Officer) (Principal Accounting Officer)	May 28, 2019
/S/ MICHAEL SZABADOS **Michael Szabados**	Chief Operating Officer	May 28, 2019
/S/ ROBERT E. DONAHUE **Robert E. Donahue**	Director	May 28, 2019
/S/ JOHN R. EGAN **John R. Egan**	Director	May 28, 2019
/S/ ALFRED GRASSO **Alfred Grasso**	Director	May 28, 2019
/S/ JOSEPH G. HADZIMA, JR. **Joseph G. Hadzima, Jr.**	Director	May 28, 2019
/S/ CHRISTOPHER PERRETTA **Christopher Perretta**	Director	May 28, 2019
/S/ SUSAN L. SPRADLEY **Susan L. Spradley**	Director	May 28, 2019
/S/ VIVIAN VITALE **Vivian Vitale**	Director	May 28, 2019

NetScout Systems, Inc.

Index to Consolidated Financial Statements

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of NetScout Systems, Inc.:

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of NetScout Systems, Inc. and its subsidiaries (the "Company") as of March 31, 2019 and 2018, and the related consolidated statements of operations, comprehensive income (loss), stockholders' equity, and cash flows for each of the three years in the period ended March 31, 2019, including the related notes and schedule of valuation and qualifying accounts listed in the index appearing under Item 15(a)(2) (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of March 31, 2019, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of March 31, 2019 and 2018, and the results of its operations and its cash flows for each of the three years in the period ended March 31, 2019 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of March 31, 2019 based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the COSO.

Change in Accounting Principle

As discussed in Note 3 to the consolidated financial statements, the Company changed the manner in which it accounts for revenues from contracts with customers in 2019.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Report on Internal Control Over Financial Reporting appearing under Item 9A. Our responsibility is to express opinions on the Company's consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ PricewaterhouseCoopers LLP
Boston, Massachusetts
May 28, 2019

We have served as the Company's auditor since 1993.

NetScout Systems, Inc.

Consolidated Balance Sheets
(In thousands, except share and per share data)

	March 31, 2019	March 31, 2018
Assets		
Current assets:		
Cash and cash equivalents	$ 409,632	$ 369,821
Marketable securities	76,344	77,941
Accounts receivable and unbilled costs, net of allowance for doubtful accounts of $1,583 and $1,991 at March 31, 2019 and 2018, respectively	235,318	213,438
Inventories and deferred costs	26,270	34,774
Prepaid income taxes	18,000	22,932
Prepaid expenses and other current assets (related party balances of $335 and $3,187 at March 31, 2019 and 2018, respectively)	35,658	33,502
Total current assets	801,222	752,408
Fixed assets, net	58,951	52,511
Goodwill	1,715,485	1,712,764
Intangible assets, net	669,118	831,374
Deferred income taxes	7,218	6,685
Long-term marketable securities	1,012	—
Other assets	16,988	12,866
Total assets	$ 3,269,994	$ 3,368,608
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable (related party balances of $244 and $369 at March 31, 2019 and 2018, respectively)	$ 24,582	$ 30,133
Accrued compensation	58,501	46,552
Accrued other	23,027	33,164
Income taxes payable	1,318	1,526
Deferred revenue and customer deposits	272,508	301,925
Total current liabilities	379,936	413,300
Other long-term liabilities	19,493	8,308
Deferred tax liability	124,229	151,563
Accrued long-term retirement benefits	36,284	35,246
Long-term deferred revenue and customer deposits	94,619	91,409
Long-term debt	550,000	600,000
Total liabilities	1,204,561	1,299,826
Commitments and contingencies (Note 18)		
Stockholders' equity:		
Preferred stock, $0.001 par value: 5,000,000 shares authorized; no shares issued or outstanding at March 31, 2019 and 2018	—	—
Common stock, $0.001 par value: 300,000,000 shares authorized; 119,760,132 and 117,744,913 shares issued and 77,610,361 and 80,270,023 shares outstanding at March 31, 2019 and 2018, respectively	120	117
Additional paid-in capital	2,828,922	2,665,120
Accumulated other comprehensive income (loss)	(2,639)	2,895
Treasury stock at cost, 42,149,771 and 37,474,890 shares at March 31, 2019 and 2018, respectively	(1,119,063)	(995,843)
Retained earnings	358,093	396,493
Total stockholders' equity	2,065,433	2,068,782
Total liabilities and stockholders' equity	$ 3,269,994	$ 3,368,608

The accompanying notes are an integral part of these consolidated financial statements.

NetScout Systems, Inc.

Consolidated Statements of Operations
(In thousands, except per share data)

	Year Ended March 31,		
	2019	2018	2017
Revenue:			
Product	$ 467,289	$ 520,418	$ 715,404
Service	442,629	466,369	446,708
Total revenue	909,918	986,787	1,162,112
Cost of revenue:			
Product (related party balances of $0, $245, and $7,229, respectively)	140,938	158,628	233,275
Service (related party balances of $529, $665, and $745, respectively)	113,189	113,277	112,864
Total cost of revenue	254,127	271,905	346,139
Gross profit	655,791	714,882	815,973
Operating expenses:			
Research and development (related party balances of $20, $3, and $1,624, respectively)	203,588	215,076	232,701
Sales and marketing (related party balances of $0, $2, and $2,423, respectively)	291,870	312,536	328,628
General and administrative (related party balances of $20, $1,703, and $4,099, respectively)	93,572	109,479	118,438
Amortization of acquired intangible assets	74,305	76,640	70,141
Restructuring charges	18,693	5,209	4,001
Impairment of intangible assets	35,871	—	—
Loss on divestiture of business	9,472	—	—
Total operating expenses	727,371	718,940	753,909
Income (loss) from operations	(71,580)	(4,058)	62,064
Interest and other income (expense), net:			
Interest income	5,245	1,808	1,021
Interest expense	(26,143)	(12,633)	(9,184)
Other expense, net (related party balances of $0, $56, and $426, respectively)	(434)	(3,776)	(1,716)
Total interest and other expense, net	(21,332)	(14,601)	(9,879)
Income (loss) before income tax expense (benefit)	(92,912)	(18,659)	52,185
Income tax expense (benefit)	(19,588)	(98,471)	18,894
Net income (loss)	$ (73,324)	$ 79,812	$ 33,291
Basic net income (loss) per share	$ (0.93)	$ 0.91	$ 0.36
Diluted net income (loss) per share	$ (0.93)	$ 0.90	$ 0.36
Weighted average common shares outstanding used in computing:			
Net income (loss) per share—basic	78,617	87,425	92,226
Net income (loss) per share—diluted	78,617	88,261	92,920

The accompanying notes are an integral part of these consolidated financial statements.

NetScout Systems, Inc.

Consolidated Statements of Comprehensive Income (Loss)
(In thousands)

	Year Ended March 31,		
	2019	2018	2017
Net income (loss)	$ (73,324)	$ 79,812	$ 33,291
Other comprehensive income (loss):			
Cumulative translation adjustments	(3,229)	4,889	(1,000)
Recognition of actuarial net (loss) gain from pension and other post-retirement plans, net of (benefit) taxes of ($976), $435, and ($368)	(2,278)	1,353	(858)
Changes in market value of investments:			
Changes in unrealized gains (losses), net of taxes (benefit) of $19, $15, and $0	60	(6)	(59)
Total net change in market value of investments	60	(6)	(59)
Changes in market value of derivatives:			
Changes in market value of derivatives, net of tax (benefits) of ($172), $267, and ($167)	(524)	812	(277)
Reclassification adjustment for net (losses) gains included in net income (loss), net of (benefit) taxes of $138, ($219), and $135	437	(681)	223
Total net change in market value of derivatives	(87)	131	(54)
Other comprehensive income (loss)	(5,534)	6,367	(1,971)
Total comprehensive income (loss)	$ (78,858)	$ 86,179	$ 31,320

The accompanying notes are an integral part of these consolidated financial statements.

NetScout Systems, Inc.
Consolidated Statements of Stockholders' Equity
(In thousands, except share data)

	Common stock Voting Shares	Par Value	Additional Paid In Capital	Accumulated Other Comprehensive Income (Loss)	Treasury stock Shares	Treasury stock Stated Value	Retained Earnings	Total Stockholders' Equity
Balance, March 31, 2016	114,495,614	$ 114	$ 2,642,745	$ (1,501)	20,407,145	$ (481,366)	$ 283,390	$ 2,443,382
Net income							33,291	33,291
Unrealized net investment losses				(59)				(59)
Unrealized net losses on derivative financial instruments				(54)				(54)
Cumulative translation adjustments				(1,000)				(1,000)
Recognition of actuarial net losses from pension and other post-retirement plan				(858)				(858)
Issuance of common stock pursuant to vesting of restricted stock units	950,159	2						2
Stock-based compensation expense for restricted stock units granted to employees			36,449					36,449
Issuance of common stock under employee stock purchase plan	471,658		15,697					15,697
Repurchase of treasury stock					3,468,998	(89,555)		(89,555)
Shortfall from tax benefit from share-based compensation awards			(1,045)					(1,045)
Balance, March 31, 2017	115,917,431	116	2,693,846	(3,472)	23,876,143	(570,921)	316,681	2,436,250
Net income							79,812	79,812
Unrealized net investment losses				(6)				(6)
Unrealized net gains on derivative financial instruments				131				131
Cumulative translation adjustments				4,889				4,889
Recognition of actuarial net gains from pension and other post-retirement plan				1,353				1,353
Issuance of common stock pursuant to vesting of restricted stock units	1,216,535	1						1
Stock-based compensation expense for restricted stock units granted to employees			43,425					43,425
Issuance of common stock under employee stock purchase plan	610,947		17,849					17,849
Repurchase of treasury stock			(90,000)		13,598,747	(424,922)		(514,922)
Balance, March 31, 2018	117,744,913	117	2,665,120	2,895	37,474,890	(995,843)	396,493	2,068,782
Net loss							(73,324)	(73,324)
Unrealized net investment gains				60				60
Unrealized net losses on derivative financial instruments				(87)				(87)
Cumulative translation adjustments				(3,229)				(3,229)
Recognition of actuarial net losses from pension and other post-retirement plan				(2,278)				(2,278)
Issuance of common stock pursuant to vesting of restricted stock units	1,438,219	3						3
Stock-based compensation expense for restricted stock units granted to employees			51,945					51,945
Issuance of common stock under employee stock purchase plan	577,000		15,074					15,074
Repurchase of treasury stock			96,783		4,674,881	(123,220)		(26,437)
Cumulative effect of adoption of ASU 2014-09							34,924	34,924
Balance, March 31, 2019	119,760,132	$ 120	$ 2,828,922	$ (2,639)	42,149,771	$(1,119,063)	$ 358,093	$ 2,065,433

The accompanying notes are an integral part of these consolidated financial statements.

NetScout Systems, Inc.
Consolidated Statements of Cash Flows
(In thousands)

	Year Ended March 31,		
	2019	2018	2017
Cash flows from operating activities:			
Net income (loss)	$ (73,324)	$ 79,812	$ 33,291
Adjustments to reconcile net income (loss) to cash provided by operating activities, net of the effects of acquisitions:			
Depreciation and amortization	137,878	153,503	160,863
Loss on divestiture of business	7,660	—	—
Loss on disposal of fixed assets	260	481	271
Deal related compensation expense and accretion charges	102	153	153
Share-based compensation expense associated with equity awards	56,328	47,317	39,189
Net change in fair value of contingent and contractual liabilities	1,614	—	—
Accretion of contingent consideration	(119)	—	—
Impairment charge	35,871	—	—
Deferred income taxes	(33,442)	(127,784)	(11,008)
Other (gains) losses	(152)	18	(111)
Changes in assets and liabilities			
Accounts receivable and unbilled costs	(22,180)	84,952	(48,080)
Due from related party	172	443	25,055
Inventories	5,321	1,006	12,456
Prepaid expenses and other assets	3,034	20,147	(24,751)
Accounts payable	(3,876)	(8,929)	405
Accrued compensation and other expenses	19,964	(17,718)	6,785
Due to related party	234	(75)	(2,792)
Income taxes payable	(639)	(2,734)	1,963
Deferred revenue	15,132	(8,138)	33,075
Net cash provided by operating activities	149,838	222,454	226,764
Cash flows from investing activities:			
Purchase of marketable securities	(229,769)	(114,178)	(199,841)
Proceeds from maturity of marketable securities	230,433	196,041	181,321
Purchase of fixed assets	(23,392)	(15,913)	(29,696)
Purchase of intangible assets	—	(544)	(1,031)
Payments related to the divestiture of business	(3,293)	—	—
Acquisition of businesses, net of cash acquired	—	(8,334)	(4,606)
(Increase) decrease in deposits	(97)	(330)	129
Contingent purchase consideration	—	523	660
Collection of contingently returnable consideration	—	—	12,864
Capitalized software development costs	(134)	(137)	(1,421)
Net cash (used in) provided by investing activities	(26,252)	57,128	(41,621)
Cash flows from financing activities:			
Issuance of common stock under stock plans	3	1	2
Payment of contingent consideration	(2,851)	(660)	—
Treasury stock repurchases, including accelerated share repurchases	(14,468)	(501,324)	(79,996)
Tax withholding on restricted stock units	(11,969)	(13,598)	(9,559)
Proceeds from issuance of long-term debt, net of issuance costs	—	294,619	—
Repayment of long-term debt	(50,000)	—	—
Net cash used in financing activities	(79,285)	(220,962)	(89,553)
Effect of exchange rate changes on cash and cash equivalents	(5,212)	6,385	(761)
Net increase in cash and cash equivalents	39,089	65,005	94,829
Cash and cash equivalents, beginning of year	370,731	305,726	210,897
Cash and cash equivalents, end of year	$ 409,820	$ 370,731	$ 305,726
Supplemental disclosures of cash flow information:			
Cash paid for interest	$ 23,281	$ 9,604	$ 6,442
Cash paid for income taxes	$ 13,381	$ 18,216	$ 49,290
Non-cash transactions:			
Transfers of inventory to fixed assets	$ 2,152	$ 5,556	$ 4,928
Additions to property, plant and equipment included in accounts payable	$ 455	$ 1,379	$ 1,241
Issuance of common stock under employee stock purchase plans	$ 15,074	$ 17,849	$ 15,697
Contingent consideration related to acquisition, included in accrued other	$ —	$ 523	$ 660
Tenant improvement allowance	$ 10,171	$ 2,104	$ —
Initial fair value of contingent consideration received as partial consideration for divestiture of business	$ 2,257	$ —	$ —

The accompanying notes are an integral part of these consolidated financial statements.

NetScout Systems, Inc.

Notes to Consolidated Financial Statements

NOTE 1 – NATURE OF BUSINESS

NetScout Systems, Inc., or NetScout or the Company, has been a technology innovator for three-plus decades since its founding in 1984. The Company's solutions, based on patented Adaptive Service Intelligence (ASI) technology, help customers identify network and application performance issues, defend their networks from denial of service (DDoS) attacks, and rapidly find and isolate advanced network threats. As a result, customers can quickly resolve issues that cause business disruptions, downtime, poor service quality or compromised security, thereby driving compelling returns on their investments in their network and broader information technology (IT) initiatives. The Company reports revenue and income in one reportable segment.

NOTE 2 – SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Principles of Consolidation

The consolidated financial statements include the accounts of NetScout and its wholly owned subsidiaries. Inter-company transactions and balances have been eliminated in consolidation.

Certain amounts for the twelve months ended March 31, 2018 and March 31, 2017, respectively, have been reclassified to conform to the current period presentation. These reclassifications had no effect on the reported results of operations.

Segment Reporting

The Company's operating segments are determined based on the units that constitute a business for which financial information is available and for which operating results are regularly reviewed by the Chief Operating Decision Maker (CODM). The Company reports revenue and income in one reportable segment.

Use of Estimates

The preparation of financial statements in conformity with generally accepted accounting principles (GAAP) requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosures of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenues and expenses during the reporting period. Significant estimates in these financial statements include those involving revenue recognition, valuation of goodwill and acquired assets and liabilities, valuation of the pension obligation, valuation of contingent consideration and share-based compensation. These items are continuously monitored and analyzed by management for changes in facts and circumstances and material changes in these estimates could occur in the future.

Cash and Cash Equivalents and Marketable Securities

Under current authoritative guidance, NetScout has classified its investments as "available-for-sale" which are carried at fair value based on quoted market prices and associated unrealized gains or losses are recorded as a separate component of stockholders' equity until realized. NetScout considers all highly liquid investments purchased with an original maturity of three months or less to be cash equivalents and those investments with original maturities greater than three months to be marketable securities.

At March 31, 2019 and periodically throughout the year, NetScout has maintained cash balances in various operating accounts in excess of federally insured limits. NetScout limits the amount of credit exposure by investing only with credit worthy institutions which the Company believes are those institutions with an investment grade rating for deposits.

Revenue Recognition

The Company accounts for revenue in accordance with ASU No. 2014-09, Revenue from Contracts with Customers (Topic 606), which was adopted on April 1, 2018 using the modified retrospective transition method. For further discussion of the Company's accounting policies related to revenue see Note 3, "Revenue Recognition."

Commission Expense

Sales commissions are recorded as an asset when the initial contract's duration is longer than 12 months and amortized to expense ratably over the remaining performance periods of the related contracts.

Uncollected Deferred Revenue

Because of NetScout's revenue recognition policies, there are circumstances for which the Company does not recognize revenue relating to sales transactions that have been billed, but the related account receivable has not been collected. While the receivable represents an enforceable obligation, for balance sheet presentation purposes, the Company has not recognized the deferred revenue or the related account receivable and no amounts appear in the consolidated balance sheets for such transactions because control of the underlying deliverable has not transferred. The aggregate amount of unrecognized accounts receivable and deferred revenue was $23.3 million and $20.0 million at March 31, 2019 and 2018, respectively.

Concentration of Credit Risk

Financial instruments that potentially subject the Company to concentration of credit risk consist primarily of investments, trade accounts receivable and accounts payable. NetScout's cash, cash equivalents, and marketable securities are placed with financial institutions with high credit standings.

At March 31, 2019 and 2018 respectively, the Company had no direct customers or indirect channel partners which accounted for more than 10% of the accounts receivable balance.

During the fiscal years ended March 31, 2019 and 2018 respectively, no direct customers or indirect channel partners accounted for more than 10% of total revenue. During the fiscal year ended March 31, 2017, one direct customer, Verizon Communications Inc. (Verizon), accounted for more than 10% of total revenue, while no indirect channel partner accounted for more than 10% of total revenue.

Historically, the Company has not experienced any significant failure of its customers to meet their payment obligations nor does the Company anticipate material non-performance by its customers in the future; accordingly, the Company does not require collateral from its customers. However, if the Company’s assumptions are incorrect, there could be an adverse impact on its allowance for doubtful accounts.

Trade Receivable Valuations

Accounts receivable are stated at their net realizable value. The allowance against gross trade receivables reflects the best estimate of probable losses inherent in the receivables portfolio determined on the basis of historical experience, specific allowances for known troubled accounts and other currently available information.

Inventories

Inventories are stated at the lower of actual cost or net realizable value. Cost is determined by using the first-in, first-out (FIFO) method.

Fixed Assets

Fixed assets are stated at cost and depreciated using the straight-line method over the estimated useful lives of the assets. Leasehold improvements are amortized on a straight-line basis over the shorter of the lease term or anticipated useful life of the improvement. Gains and losses upon asset disposal are recognized in the year of disposition. Expenditures for replacements and building improvements are capitalized, while expenditures for maintenance and repairs are charged against earnings as incurred.

Valuation of Goodwill, Intangible Assets and Other Acquisition and Divestiture Accounting Items

The Company amortizes acquired definite-lived intangible assets over their estimated useful lives. Goodwill and other indefinite-lived intangible assets are not amortized but subject to annual impairment tests; more frequently if events or circumstances occur that would indicate a potential decline in their fair value. The Company performs the assessment annually during the fourth quarter and on an interim basis if potential impairment indicators arise. The Company has identified two reporting units: (1) Service Assurance and (2) Security.

To test impairment, the Company first assesses qualitative factors to determine whether the existence of events and circumstances indicate that it is more likely than not that the intangible asset is impaired. If based on the Company's qualitative assessment it is more likely than not that the fair value of the intangible asset is less than its carrying amount, quantitative impairment testing is required. However, if the Company concludes otherwise, quantitative impairment testing is not required. During fiscal year 2019, the Company performed a quantitative analysis for goodwill. The Company determined the fair value of the reporting unit's goodwill using established income and market valuation approaches. Goodwill was estimated to be recoverable as of January 31, 2019.

Indefinite-lived intangible assets are tested for impairment at least annually, or on an interim basis if an event occurs or circumstances change that would, more likely than not, reduce the fair value of the indefinite-lived intangible assets below its carrying value. To test impairment, the Company first assesses qualitative factors to determine whether the existence of events and circumstances indicate that it is more likely than not that the indefinite-lived intangible is impaired. If based on the Company's qualitative assessment, the Company concludes that it is more likely than not that the fair value of the indefinite-lived asset is greater than its carrying amount, quantitative impairment testing is not required. The Company completed its annual impairment test of the indefinite-lived intangible asset at January 31, 2019 using the qualitative Step 0 assessment. No impairment indicators were observed as of January 31, 2019.

The Company completed two acquisitions and one divestiture during the three-year period ended March 31, 2019. The acquisition method of accounting requires an estimate of the fair value of the assets and liabilities acquired as part of these transactions. In order to estimate the fair value of acquired intangible assets, the Company uses a relief from royalty model which requires management to estimate: future revenues expected to be generated by the acquired intangible assets, a royalty rate which a market participant would pay related to the projected revenue stream, a present value factor which approximates a risk adjusted rate of return for a market participant purchasing the assets, and a technology migration curve representing a period of time over which the technology assets or some portion thereof are still being used. The Company is also required to develop the fair value for customer relationships acquired as part of these transactions which requires that it create estimates for the following items: a projection of future revenues associated with the acquired company's existing customers, a turnover rate for those customers, a margin related to those sales, and a risk adjusted rate of return for a market participant purchasing those relationships.

The Company has a contingent consideration asset related to the divestiture of its handheld network test (HNT) tools business in September 2018. The contingent consideration asset represents potential future earnout payments to the Company of up to $4.0 million over two years that are contingent on the HNT tools business achieving certain milestones. The fair value of the contingent consideration of $2.3 million was recognized on the acquisition date and was measured using unobservable (Level 3) inputs. The value of the contingent consideration asset at March 31, 2019 was $0.8 million.

The Company had a contingent liability at March 31, 2018 for $523 thousand related to the acquisition of Efflux in July 2017 for which an escrow account was established to cover damages NetScout may have suffered related to any liabilities that NetScout did not agree to assume or as a result of the breach of representations and warranties of the seller as described in the merger agreement. The $523 thousand was paid to the seller in July 2018.

The Company had a contingent liability at March 31, 2018 for $4.9 million related to the acquisition of Simena LLC in November 2011, which was based on the ultimate settlement of assets and liabilities acquired as part of the transaction, and the former owners' future period of employment with NetScout. The contingent purchase consideration of $5.0 million was paid to the seller in November 2018.

The Company had $660 thousand of contingent purchase consideration related to the acquisition of Avvasi Incorporated (Avvasi) in August 2016 for which an escrow account was established to cover damages NetScout may have suffered related to any liabilities that NetScout did not agree to assume or as a result of the breach of representations and warranties of the seller as described in the asset purchase agreement. The $660 thousand was paid to the seller in August 2017.

Capitalized Software Development Costs

Costs incurred in the research and development of the Company’s products are expensed as incurred, except for certain software development costs. Costs associated with the development of computer software are expensed prior to the establishment of technological feasibility and capitalized thereafter until the related software products are available for first customer shipment. Such costs are amortized using the straight-line method over the estimated economic life of the product, which generally does not exceed three years. Capitalized software development costs are periodically assessed for recoverability in the event of changes to the anticipated future revenue for the software products or changes in product technologies. Unamortized capitalized software development costs that are determined to be in excess of the net realizable value of the software products would be expensed in the period in which such a determination is made.

Typically for accounting purposes, these R&D investments have not been capitalized because of the development methodology employed. The developments are added individually to the core code over a shorter period of time but marketed as a release once all portions are complete.

Amortization included as cost of product revenue was $1.1 million, $1.0 million and $594 thousand for the fiscal years ended March 31, 2019, 2018, and 2017, respectively. The Company capitalized $0.1 million and $0.1 million in software development costs in the fiscal years ended March 31, 2019 and 2018.

Derivative Financial Instruments

Under authoritative guidance for derivative instruments and hedging activities, all hedging activities must be documented at the inception of the hedge and must meet the definition of highly effective in offsetting changes to future cash flows in order for the derivative to qualify for hedge accounting. Under the guidance, if an instrument qualifies for hedge accounting, the changes in the fair value each period for open contracts, measured at the end of the period, are recorded to other comprehensive income. Otherwise, changes in the fair value are recorded in earnings each period. Management must perform initial and ongoing tests in order to qualify for hedge accounting. In accordance with the guidance, the Company accounts for its instruments under hedge accounting. The effectiveness and a measurement of ineffectiveness of qualifying hedge contracts are assessed by the Company quarterly. The Company records the fair value of its derivatives in prepaid expenses and other current assets and accrued other in the Company's consolidated balance sheet. The effective portion of gains or losses resulting from changes in the fair value of qualifying hedges are recorded in other comprehensive income (loss) until the forecasted transaction occurs, with any ineffective portion classified directly to the Company’s consolidated statement of operations based on the expense categories of the items being hedged. When forecasted transactions occur, unrealized gains or losses associated with the effective portion of the hedge are reclassified to the respective expense categories in the Company’s consolidated statement of operations. Gains or losses related to hedging activity are included as operating activities in the Company’s consolidated statement of cash flows. If the underlying forecasted transactions do not occur, or it becomes probable that they will not occur, the gain or loss on the related cash flow hedge is recognized immediately in earnings.

Contingencies

NetScout accounts for claims and contingencies in accordance with authoritative guidance that requires an estimated loss to be recorded from a claim or loss contingency when information available prior to issuance of its consolidated financial statements indicates that it is probable that a liability has been incurred at the date of the consolidated financial statements and the amount of the loss can be reasonably estimated. If NetScout determines that it is reasonably possible but not probable that an asset has been impaired or a liability has been incurred or if the amount of a probable loss cannot be reasonably estimated, then in accordance with the authoritative guidance, Netscout discloses the amount or range of estimated loss if the amount or range of estimated loss is material. Accounting for claims and contingencies requires NetScout to use its judgment. NetScout consults with legal counsel on those issues related to litigation and seeks input from other experts and advisors with respect to matters in the ordinary course of business.

Contingent assets and liabilities include contingent consideration in connection with the Company’s acquisitions and divestitures. Contingent consideration represents earnout payments in connection with the Company’s acquisitions and divestitures and is recognized at fair value on the acquisition date and remeasured each reporting period with subsequent adjustments recognized in the consolidated statements of income. The Company discounts the contingent purchase consideration to present value using a risk adjusted interest rate at each reporting period. Contingent consideration is valued using significant inputs that are not observable in the market which are defined as Level 3 inputs pursuant to fair value measurement accounting. The Company believes its estimates and assumptions are reasonable, however, there is significant judgment involved.

Changes in the fair value of contingent assets and liabilities may result from changes in discount periods. The Company reflects changes in fair value due to probability changes in earnings in the consolidated statements of income. Earnout payments are reflected in both cash flows from operating and financing activities and the changes in fair value are reflected in cash flows from operating activities in the consolidated statements of cash flows.

Share-Based Compensation

NetScout recognizes compensation expense for all share-based payments granted. Under the fair value recognition provisions, share-based compensation is calculated net of an estimated forfeiture rate and compensation cost is only recognized for those shares expected to vest on a straight-line basis over the expected requisite service period of the award.

Foreign Currency

NetScout accounts for its reporting of foreign operations in accordance with guidance which establishes guidelines for the determination of the functional currency of foreign subsidiaries. In accordance with the guidance, NetScout has determined its functional currency for those foreign subsidiaries that are an extension of NetScout's U.S. operations to be the U.S. Dollar.

Assets and liabilities of subsidiaries operating outside the United States with a functional currency other than U.S. dollars are translated into United States dollars using the period-end exchange rate, and income and expense items are translated using the average exchange rate during the period. Cumulative translation adjustments are reflected as a separate component of stockholders' equity.

NetScout will experience currency exchange risk with respect to foreign currency denominated expenses. In order to partially offset the risks associated with the effects of certain foreign currency exposures, NetScout has established a program that utilizes foreign currency forward contracts. Under this program, increases or decreases in foreign currency exposures are partially offset by gains or losses on forward contracts, to mitigate the impact of foreign currency transaction gains or losses. The Company does not use forward contracts to engage in currency speculation. All outstanding foreign currency forward contracts are recorded at fair value at the end of each fiscal period.

The Company had foreign currency losses of $2.0 million, $4.1 million and $2.5 million for the fiscal years ended March 31, 2019, 2018 and 2017, respectively. These amounts are included in other expense, net.

Advertising Expense

NetScout recognizes advertising expense as incurred. Advertising expense was $9.4 million, $6.5 million and $8.1 million for the fiscal years ended March 31, 2019, 2018 and 2017, respectively.

Comprehensive Income (Loss)

Comprehensive income (loss) consists of net income (loss) and other comprehensive income (loss). Other comprehensive income (loss) typically consists of unrealized gains and losses on marketable securities, unrealized gain (loss) on hedge contracts, actuarial gains and losses, and foreign currency translation adjustments.

Income Taxes

NetScout accounts for its income taxes under the asset and liability method. Under the asset and liability method, deferred tax assets and liabilities are recognized based on anticipated future tax consequences attributable to differences between financial statement carrying amounts of assets and liabilities and their respective tax basis, as well as the effect of any net operating loss and tax credit carryforwards. Income tax expense is comprised of the current tax liability or benefit and the change in deferred tax assets and liabilities. NetScout evaluates the recoverability of deferred tax assets by considering all positive and negative evidence relating to future profitability. NetScout weighs objective and verifiable evidence more heavily in this analysis. In situations where NetScout concludes that it does not have sufficient objective and verifiable evidence to support the realizability of the deferred tax asset, NetScout creates a valuation allowance against it.

Recent Accounting Standards

In August 2018, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update 2018-15, Intangibles – Goodwill and Other – Internal-Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract (ASU 2018-15). This ASU clarifies the accounting treatment for implementation costs for cloud computing arrangements (hosting arrangements) that is a service contract. This guidance is effective for fiscal years beginning after December 15, 2019, including interim periods within that fiscal year. The Company adopted ASU 2018-15 effective July 1, 2018. The adoption has had an immaterial impact to the consolidated financial statements for the twelve months ended March 31, 2019.

In August 2018, the FASB issued ASU 2018-14, Compensation – Retirement Benefits – Defined Benefit Plans – General (Subtopic 715-20): Disclosure Framework—Changes to the Disclosure Requirements for Defined Benefit Plans. This ASU adds, modifies and clarifies several disclosure requirements for employers that sponsor defined benefit pension or other postretirement plans. This guidance is effective for fiscal years ending after December 15, 2020. ASU 2018-14 is effective for NetScout beginning April 1, 2021. Early adoption is permitted. The Company is currently assessing the effect that ASU 2018-14 will have on its financial position, results of operations, and disclosures.

In August 2018, the FASB issued ASU 2018-13, Fair Value Measurement (Topic 820): Disclosure Framework – Changes to the Disclosure Requirements for Fair Value Measurement. ASU 2018-13 adds, modifies and removes several disclosure requirements relative to the three levels of inputs used to measure fair value in accordance with Topic 820, Fair Value Measurement. This guidance is effective for fiscal years beginning after December 15, 2019, including interim periods within that fiscal year. ASU 2018-13 is effective for NetScout beginning April 1, 2020. Early adoption is permitted. The Company is currently assessing the effect that ASU 2018-13 will have on its financial position, results of operations, and disclosures.

In February 2018, the FASB issued ASU 2018-02, Reclassification of Certain Tax Effects From Accumulated Other Comprehensive Income. ASU 2018-02 amends ASC 220, Income Statement - Reporting Comprehensive Income, to allow a reclassification from accumulated other comprehensive income to retained earnings for stranded tax effects resulting from the Tax Act. In addition, under the ASU 2018-02, the Company may be required to provide certain disclosures regarding stranded tax effects. ASU 2018-02 is effective for years beginning after December 15, 2018, and interim periods within those fiscal years. ASU 2018-02 is effective for the Company beginning April 1, 2019. Early adoption is permitted. The Company does not believe the adoption of ASU 2018-02 will have a material impact on its consolidated financial statements.

In August 2017, the FASB issued ASU 2017-12, Derivatives and Hedging (Topic 815), Targeted Improvements to Accounting for Hedging Activities (ASU 2017-12). ASU 2017-12 intends to better align an entity's risk management activities and financial reporting for hedging relationships through changes to both the designation and measurement guidance for qualifying hedging relationships and the presentation of hedge results. The amendments expand and refine hedge accounting for both non-financial and financial risk components and align the recognition and presentation of the effects of the hedging instrument and the hedged item in the financial statements. This standard is effective for financial statements issued for fiscal years beginning after December 15, 2018, with early adoption permitted. ASU 2017-12 is effective for the Company beginning April 1, 2019. The Company does not believe the adoption of ASU 2017-12 will have a material impact on its consolidated financial statements.

In February 2016, the FASB issued ASU 2016-02, Leases (Topic 842) and issued subsequent amendments to initial guidance: ASU 2017-13, ASU 2018-10, ASU 2018-11, ASU 2018-20 and ASU 2019-01 (collectively, Topic 842). ASC 842 aims to increase transparency and comparability among organizations with respect to accounting for leases. Lessees will recognize a right-of-use (ROU) asset and a lease liability measured at the present value of lease payments for virtually all of their leases. Short term leases with a term of 12 months or less are not required to be recognized. ASC 842 also requires disclosure of key information about leasing arrangements. ASC 842 will be effective for fiscal years beginning after December 15, 2018, including interim periods within such fiscal years. Early adoption is permitted. The Company adopted the new standard on April 1, 2019 using the effective date as the date of initial application. Consequently, financial information will not be updated and disclosures required under the new standard will not be provided for dates and periods before April 1, 2019.

The new standard provides a number of optional practical expedients in transition. The Company elected the package of practical expedients, which among other things, allows the carryforward of the historical lease classification. Further, the Company elected the practical expedients to combine lease and non-lease components, and to not recognize ROU assets and lease liabilities for short-term leases.

The Company currently anticipates that the adoption of this new standard will materially impact the consolidated balance sheets by recognizing new ROU assets and lease liabilities for operating leases with the most significant impact from the recognition of ROU assets and lease liabilities related to the Company's office space operating leases. The impact on the Company's results of operations and cash flows is not expected to be material.

The Company has implemented a new lease accounting system and is updating processes and controls in preparation for the adoption of the new standard, including the requirement to provide significant new disclosures about the Company's leasing activities. Please refer to Note 18, "Commitments and Contingencies" for additional information about the Company's leases, including the future minimum lease payments for operating leases at March 31, 2019.

In May 2014, the FASB issued ASU No. 2014-09, Revenue from Contracts with Customers: Topic 606 (Topic 606). Topic 606 supersedes the revenue recognition requirements in Topic 605, Revenue Recognition, and requires entities to recognize revenue when control of the promised goods or services is transferred to customers at an amount that reflects the consideration to which the entity expects to be entitled to in exchange for those goods or services. The Company adopted Topic 606 as of April 1, 2018 using the modified retrospective transition method. Please refer to Note 3, "Revenue Recognition" for further details.

NOTE 3 - REVENUE RECOGNITION

Revenue from Contracts with Customers

In May 2014, the FASB issued Topic 606, which requires an entity to recognize the amount of revenue to which it expects to be entitled for the transfer of promised goods or services to customers. Topic 606 replaced most existing revenue recognition guidance under GAAP. The new standard introduces a five-step process to be followed in determining the amount and timing of revenue recognition. It also provides guidance on accounting for costs incurred to obtain or fulfill contracts with customers and establishes disclosure requirements which are more extensive than those required under prior GAAP.

Topic 606 became effective for the Company on April 1, 2018. The Company elected to use the modified retrospective transition approach. Therefore, the comparative financial information has not been restated and continues to be reported under the accounting standards in effect for those periods.

Revenue Recognition Policy

The Company exercises judgment and uses estimates in connection with determining the amounts of product and services revenues to be recognized in each accounting period.

The Company derives revenues primarily from the sale of network management tools and security solutions for service provider and enterprise customers, which include hardware, software and service offerings. The majority of the Company’s product sales consist of hardware products with embedded software that are essential to providing customers the intended functionality of the solutions. The Company also sells software offerings decoupled from the underlying hardware and software solutions to provide customers with enhanced functionality.

The Company accounts for revenue once a legally enforceable contract with a customer has been approved by the parties and the related promises to transfer products or services have been identified. A contract is defined by the Company as an arrangement with commercial substance identifying payment terms, each party’s rights and obligations regarding the products or services to be transferred and the amount the Company deems probable of collection. Customer contracts may include promises to transfer multiple products and services to a customer. Determining whether the products and services are considered distinct performance obligations that should be accounted for separately or as one combined performance obligation may require significant judgment. Revenue is recognized when control of the products or services are transferred to the Company's customers, in an amount that reflects the consideration the Company expects to be entitled to in exchange for products and services.

Product revenue is typically recognized upon shipment, provided a legally enforceable contract exists, control has passed to the customer, and in the case of software products, when the customer has the rights and ability to access the software, and collection of the related receivable is probable. If any significant obligations to the customer remain post-delivery, typically involving obligations relating to installation and acceptance by the customer, revenue recognition is deferred until such obligations have been fulfilled. The Company's service offerings include installation, integration, extended warranty and maintenance services, post-contract customer support, stand-ready software-as-a-service (SAAS) and other professional services including consulting and training. The Company generally provides software and/or hardware support as part of product sales. Revenue related to the initial bundled software and hardware support is recognized ratably over the support period. In addition, customers can elect to purchase extended support agreements for periods after the initial software/hardware warranty expiration. Support services generally include rights to unspecified upgrades (when and if available), telephone and internet-based support, updates, bug fixes and hardware repair and replacement. Consulting services are recognized upon delivery or completion of performance depending on the terms of the underlying contract. Reimbursements of out-of-pocket expenditures incurred in connection with providing consulting services are included in services revenue, with the offsetting expense recorded in cost of service revenue. Training services include on-site and classroom training. Training revenues are recognized upon delivery of the training.

Generally, the Company's contracts are accounted for individually. However, when contracts are closely interrelated and dependent on each other, it may be necessary to account for two or more contracts as one to reflect the substance of the group of contracts.

Bundled arrangements are concurrent customer purchases of a combination of the Company's product and service offerings that may be delivered at various points in time. The Company allocates the transaction price among the performance obligations in an amount that depicts the relative standalone selling prices (SSP) of each obligation. Judgment is required to determine the SSP for each distinct performance obligation. The Company uses a range of amounts to estimate SSP when it sells each of the products and services separately based on the element's historical pricing. The Company also considers its overall pricing objectives and practices across different sales channels and geographies, and market conditions. Generally, the Company has established SSP for a majority of its service elements based on historical standalone sales. In certain instances, the Company has established SSP for services based upon an estimate of profitability and the underlying cost to fulfill those services. Further, for certain service engagements, the Company considers quoted prices as part of multi-element arrangements of those engagements as a basis for establishing SSP. SSP has been established for product elements as the average or median selling price the element was recently sold for, whether sold alone or sold as part of a multiple element transaction. The Company reviews sales of the product elements on a quarterly basis and updates, when appropriate, its SSP for such elements to ensure that it reflects recent pricing experience. The Company's products are distributed through its direct sales force and indirect distribution channels through alliances with resellers and distributors. Revenue arrangements with resellers and distributors are recognized on a sell-in basis; that is, when control of the product transfers to the reseller or distributor. The Company records consideration given to a reseller or distributor as a reduction of revenue to the extent they have recorded revenue from the reseller or distributor. With limited exceptions, the Company's return policy does not allow product returns for a refund. Returns have been insignificant to date. In addition, the Company has a history of successfully collecting receivables from its resellers and distributors.

Financial Statement Impact of Adoption

The cumulative impact of applying Topic 606 to all contracts with outstanding performance obligations as of April 1, 2018 was recorded as an adjustment to retained earnings as of the adoption date. As a result of applying the modified retrospective approach to adopt the new standard, the following adjustments were made to accounts on the consolidated balance sheet at April 1, 2018 (in thousands):

	Balance at March 31, 2018	Adjustments from Adopting Topic 606	Balance at April 1, 2018
ASSETS:			
Accounts receivable and unbilled costs	$ 213,438	$ 1,195	$ 214,633
Prepaid expenses and other current assets	33,502	4,626	38,128
Other assets	12,866	4,748	17,614
LIABILITIES:			
Deferred revenue and customer deposits	301,925	(30,227)	271,698
Deferred tax liability	151,563	7,124	158,687
Long-term deferred revenue and customer deposits	91,409	(1,252)	90,157
STOCKHOLDERS' EQUITY:			
Retained earnings	396,493	34,924	431,417

In connection with the adoption of Topic 606, the Company increased its retained earnings by $34.9 million, due to uncompleted contracts at April 1, 2018, of which $34.9 million of revenue will not be recognized in future periods under the new standard. The Company capitalized $7.1 million of incremental sales commission costs on the adoption date directly related to obtaining customer contracts and is amortizing these costs as it satisfies the underlying performance obligations, which for certain contracts can include anticipated renewal periods. As of April 1, 2018, the acceleration of revenue that was deferred under prior guidance was primarily attributable to no longer requiring the separation of promised goods or services, such as software licenses, technical support, specified and unspecified upgrade rights on the basis of vendor specific objective evidence, and the impact of allocating the transaction price to the software performance obligations in the contract on a relative basis using standalone selling price rather than allocating under the residual method, which allocates the entire arrangement discount to the delivered performance obligations. In addition, revenue from perpetual licenses and associated hardware with extended payment terms and term licenses are now recognized when control is transferred to the customer, the point in time when the customer can use and benefit from the license. Previously the Company recognized revenue over the term of the agreements as payments became due or earlier if prepaid.

The net change in deferred income taxes of $7.1 million is primarily due to the deferred tax effects resulting from the adjustment to retained earnings for the cumulative effect of applying Topic 606 to active contracts as of the adoption date.

Impact of Topic 606 on Financial Statement Line Items

The impact of adoption of Topic 606 on the Company's consolidated balance sheet at March 31, 2019 and on the Company's consolidated statement of operations for the twelve months ended March 31, 2019 was as follows (in thousands):

	March 31, 2019		
	As Reported	Balance without Adoption of Topic 606	Effect of Change Higher (Lower)
ASSETS:			
Accounts receivable and unbilled costs	235,318	229,708	5,610
Inventories and deferred costs	26,270	26,418	(148)
Prepaid expenses and other current assets	35,658	31,810	3,848
Other assets	16,988	12,074	4,914
LIABILITIES:			
Deferred revenue and customer deposits	272,508	306,799	(34,291)
Deferred tax liability	124,229	121,535	2,694
Long-term deferred revenue and customer deposits	94,619	106,025	(11,406)
STOCKHOLDERS' EQUITY:			—
Retained earnings	358,093	339,765	18,328

	Twelve Months Ended March 31, 2019		
	As Reported	Balance without Adoption of Topic 606	Effect of Change Higher (Lower)
Total revenues	$ 909,918	$ 888,950	$ 20,968
Total cost of revenue	254,127	253,979	148
Sales and marketing expense	291,870	292,080	(210)
Income tax benefit	(19,588)	(24,022)	4,434
Net loss	(73,324)	(89,920)	16,596
Basic net loss per share	$ (0.93)	$ (1.14)	$ 0.21
Diluted net loss per share	$ (0.93)	$ (1.14)	$ 0.21

During the twelve months ended March 31, 2019, the Company recognized revenue of $260.1 million related to the Company's deferred revenue balance reported as of April 1, 2018. The adoption of Topic 606 had no impact to net cash provided by or used in operating, investing and financing activities on the Company's consolidated statements of cash flows during the twelve months ended March 31, 2019.

Performance Obligations

Customer contracts may include promises to transfer multiple products and services to a customer. Determining whether the products and services are considered distinct performance obligations that should be accounted for separately or as one combined performance obligation may require significant judgment. The transaction price is allocated among performance obligations in bundled contracts in an amount that depicts the relative standalone selling prices of each obligation.

For contracts involving distinct hardware and software licenses, the performance obligations are satisfied at a point in time when control is transferred to the customer. For standalone maintenance and post-contract support (PCS) the performance obligation is satisfied ratably over the contract term as a stand-ready obligation. For consulting and training services, the performance obligation may be satisfied over the contract term as a stand-ready obligation, satisfied over a period of time as those services are delivered, or satisfied at the completion of the service when control has transferred, or the services have expired unused.

Payments for hardware, software licenses, one-year maintenance, PCS and consulting services, are typically due up front with payment terms of 30 to 90 days. However, the Company does have contracts pursuant to which billings occur ratably over a period of years following the transfer of control for the contracted performance obligations. Payments on multi-year maintenance, PCS and consulting services are typically due in annual installments over the contract term. The Company did not have any material variable consideration such as obligations for returns, refunds or warranties at March 31, 2019.

At March 31, 2019, the Company had total deferred revenue of $367.1 million, which represents the aggregate total contract price allocated to undelivered performance obligations. The Company expects to recognize $272.5 million, or 74%, of this revenue during the next 12 months, and expects to recognize the remaining $94.6 million, or 26%, of this revenue thereafter.

NetScout expects that the amount of billed and unbilled deferred revenue will change from quarter to quarter for several reasons, including the specific timing, duration and size of large customer support and service agreements, varying billing cycles of such agreements, the specific timing of customer renewals, and foreign currency fluctuations. The Company did not have any significant financing components, or variable consideration or performance obligations satisfied in a prior period recognized during the twelve months ended March 31, 2019.

Contract Balances

The Company receives payments from customers based on a billing schedule as established by the Company’s contracts. Contract assets relate to performance obligations where control has transferred to the customer in advance of scheduled billings. Upon adoption, the Company recorded unbilled accounts receivable representing the right to consideration in exchange for goods or services that have been transferred to a customer conditional on the passage of time. The Company did not record any contract assets upon adoption. Deferred revenue relates to payments received in advance of performance under the contract. The following table provides information about contract assets and liabilities (in thousands):

	April 1, 2018	March 31, 2019	Increase/ (Decrease)
ASSETS:			
Customer accounts receivable	$ 205,299	$ 240,482	35,183
Unbilled receivables	4,338	3,354	(984)
Other receivables	4,996	3,577	(1,419)
Long-term unbilled receivables	2,254	2,754	500
	$ 216,887	$ 250,167	33,280
LIABILITIES:			
Deferred revenue	$ 271,698	$ 272,508	$ 810
Deferred revenue, long-term	90,157	94,619	4,462
	$ 361,855	$ 367,127	$ 5,272

Costs to Obtain Contracts

The Company has determined that the only significant incremental costs incurred to obtain contracts with customers within the scope of Topic 606 are sales commissions paid to its employees. Sales commissions are recorded as an asset and amortized to expense ratably over the remaining performance periods of the related contracts with remaining performance obligations. The Company applies the practical expedient in Topic 606 and expenses costs as incurred for sales commissions when the amortization period would have been one year or less.

At March 31, 2019, the consolidated balance sheet included $6.4 million in assets related to sales commissions to be expensed in future periods. A balance of $3.8 million was included in prepaid expenses and other current assets, and a balance of $2.6 million was included as other assets in the Company's consolidated balance sheet at March 31, 2019.

During the twelve months ended March 31, 2019, the Company recognized $6.5 million of amortization related to this sales commission asset, which is included in the sales and marketing expense line in the Company's consolidated statements of operations.

NOTE 4 – CASH, CASH EQUIVALENTS AND MARKETABLE SECURITIES

Cash and cash equivalents consisted of money market instruments and cash maintained with various financial institutions at March 31, 2019 and 2018.

Cash, Cash Equivalents and Restricted Cash

The following table provides a reconciliation of cash, cash equivalents and restricted cash reported within the consolidated balance sheets that sum to the total of the same such amounts shown in the consolidated statements of cash flows (in thousands):

	March 31, 2019	March 31, 2018	March 31, 2017	March 31, 2016
Cash and cash equivalents	$ 409,632	$ 369,821	$ 304,880	$ 210,711
Restricted cash	188	910	846	186
Total cash, cash equivalents and restricted cash	$ 409,820	$ 370,731	$ 305,726	$ 210,897

The Company's restricted cash includes cash balances which are legally or contractually restricted. The Company's restricted cash is included within prepaid and other current assets and consists of amounts related to holdbacks associated with prior acquisitions.

Marketable Securities

The following is a summary of marketable securities held by NetScout at March 31, 2019 classified as short-term and long-term (in thousands):

	Amortized Cost	Unrealized Gains	Fair Value
Type of security:			
U.S. government and municipal obligations	$ 27,610	$ 12	$ 27,622
Commercial paper	48,722	—	48,722
Total short-term marketable securities	76,332	12	76,344
Corporate bonds	1,007	5	1,012
Total long-term marketable securities	1,007	5	1,012
Total marketable securities	$ 77,339	$ 17	$ 77,356

The following is a summary of marketable securities held by NetScout at March 31, 2018, classified as short-term and long-term (in thousands):

	Amortized Cost	Unrealized Losses	Fair Value
Type of security:			
U.S. government and municipal obligations	$ 42,246	$ (60)	$ 42,186
Commercial paper	33,003	—	33,003
Corporate bonds	2,754	(2)	2,752
Total short-term marketable securities	78,003	(62)	77,941
Total long-term marketable securities	—	—	—
Total marketable securities	$ 78,003	$ (62)	$ 77,941

Contractual maturities of the Company's marketable securities held at March 31, 2019 and March 31, 2018 were as follows (in thousands):

	March 31, 2019	March 31, 2018
Available-for-sale securities:		
Due in 1 year or less	$ 76,344	$ 77,941
Due after 1 year through 5 years	1,012	—
	$ 77,356	$ 77,941

NOTE 5 – FAIR VALUE MEASUREMENTS

The fair value hierarchy has three levels based on the reliability of the inputs used to determine fair value. Level 1 refers to fair values determined based on quoted prices in active markets for identical assets. Level 2 refers to fair values estimated using significant other observable inputs, and Level 3 includes fair values estimated using significant unobservable inputs. The following tables present the Company's financial assets and liabilities measured on a recurring basis using the fair value hierarchy at March 31, 2019 and 2018 (in thousands):

	Fair Value Measurements at March 31, 2019			
	Level 1	Level 2	Level 3	Total
ASSETS:				
Cash and cash equivalents	$ 409,632	$ —	$ —	$ 409,632
U.S. government and municipal obligations	10,732	16,890	—	27,622
Commercial paper	—	48,722	—	48,722
Corporate bonds	1,012	—	—	1,012
Derivative financial instruments	—	58	—	58
Contingent consideration	—	—	762	762
	$ 421,376	$ 65,670	$ 762	$ 487,808
LIABILITIES:				
Derivative financial instruments	$ —	$ (68)	$ —	$ (68)
	$ —	$ (68)	$ —	$ (68)

	Fair Value Measurements at March 31, 2018			
	Level 1	Level 2	Level 3	Total
ASSETS:				
Cash and cash equivalents	$ 369,821	$ —	$ —	$ 369,821
U.S. government and municipal obligations	14,513	27,673	—	42,186
Commercial paper	—	33,003	—	33,003
Corporate bonds	2,752	—	—	2,752
Derivative financial instruments	—	122	—	122
	$ 387,086	$ 60,798	$ —	$ 447,884
LIABILITIES:				
Contingent purchase consideration	$ —	$ —	$ (5,464)	$ (5,464)
Derivative financial instruments	—	(40)	—	(40)
	$ —	$ (40)	$ (5,464)	$ (5,504)

This hierarchy requires the Company to use observable market data, when available, and to minimize the use of unobservable inputs when determining fair value. On a recurring basis, the Company measures certain financial assets and liabilities at fair value, including marketable securities and derivative financial instruments.

The Company’s Level 1 investments are classified as such because they are valued using quoted market prices or alternative pricing sources with reasonable levels of price transparency.

The Company’s Level 2 investments are classified as such because fair value is calculated using market observable data for similar but not identical instruments, or a discounted cash flow model using the contractual interest rate as compared to the underlying interest yield curve. The Company classifies municipal obligations as Level 2 because the fair values are determined using quoted prices from markets the Company considers to be inactive. Commercial paper is classified as Level 2 because the Company uses market information from similar but not identical instruments and discounted cash flow models based on interest rate yield curves to determine fair value. The Company's derivative financial instruments consist of forward foreign exchange contracts and are classified as Level 2 because the fair values of these derivatives are determined using models based on market observable inputs, including spot prices for foreign currencies and credit derivatives, as well as an interest rate factor.

The Company's Level 3 assets consist of contingent consideration related to the divestiture of the Company's handheld network test (HNT) tools business in September 2018. The contingent consideration represents potential future earnout payments to the Company of up to $4.0 million over two years that are contingent on the HNT tools business achieving certain milestones. The fair value of the contingent consideration of $2.3 million was recognized on the acquisition date and was measured using unobservable (Level 3) inputs. The Company recorded a $1.6 million change in the fair value of the contingent consideration, which is included in other expense, net within the Company's consolidated statement of operations for the year ended March 31, 2019. The $0.8 million of contingent consideration is included in other assets within the Company’s consolidated balance sheet at March 31, 2019.

The Company's Level 3 liabilities at March 31, 2018 consist of contingent purchase consideration.

The Company's contingent purchase consideration at March 31, 2018 included $523 thousand related to the acquisition of certain assets and liabilities of Efflux Systems, Inc. (Efflux) in the second quarter of fiscal year 2018. The contingent purchase consideration was released from escrow to the sellers in July 2018.

The fair value of contingent purchase consideration at March 31, 2018 included $4.9 million related to the acquisition of Simena LLC (Simena) in November 2011 for future consideration to be paid to the seller. The contingent purchase consideration was included as a contingent liability within accrued other in the Company's consolidated balance sheet at March 31, 2018. The contingent purchase consideration was paid to the seller in November 2018.

The following table sets forth a reconciliation of changes in the fair value of the Company’s Level 3 financial liabilities for the year ended March 31, 2019 (in thousands):

	Contingent Purchase Consideration	Contingent Consideration
Balance at March 31, 2018	$ (5,464)	$ —
Contingent consideration pursuant to divestiture of the HNT tools business	—	2,257
Change in fair value of contingent consideration	(102)	(1,495)
Payments made	5,566	—
Balance at March 31, 2019	$ —	$ 762

Deal-related compensation expense and accretion charges related to the contingent purchase consideration for the fiscal year ended March 31, 2019 were $102 thousand and were included within research and development expense. Accretion income related to the contingent consideration received as partial consideration for the divestiture of the HNT tools business for the fiscal year ended March 31, 2019 was $119 thousand and was included within interest income.

The following table sets forth a reconciliation of changes in the fair value of the Company's Level 3 financial liabilities for the year ended March 31, 2018 (in thousands):

		Contingent Purchase Consideration
Balance at March 31, 2017	$	(5,449)
Additions to Level 3		(523)
Change in fair value of contingent consideration		(152)
Payments made		660
Balance at March 31, 2018	$	(5,464)

Deal related compensation expense and accretion charges related to the contingent purchase consideration for the fiscal year ended March 31, 2018 were $152 thousand and were included within research and development expense.

NOTE 6 – INVENTORIES

Inventories are stated at the lower of actual cost or net realizable value. Cost is determined by using the FIFO method. Inventories consist of the following (in thousands):

	March 31,			
	2019		2018	
Raw materials	$	14,432	$	20,860
Work in process		1,181		2,589
Finished goods		7,738		8,500
Deferred costs		2,919		2,825
	$	26,270	$	34,774

NOTE 7 – FIXED ASSETS

Fixed assets consist of the following (in thousands):

	Estimated Useful Life in Years	March 31,			
		2019		2018	
Furniture and fixtures	3-7	$	9,373	$	6,596
Computer equipment and internal use software	3-5		158,797		147,237
Demonstration and spare part units	2-5		17,928		31,338
Leasehold improvements (1)	up to 12		46,662		19,340
			232,760		204,511
Less – accumulated depreciation			(173,809)		(152,000)
		$	58,951	$	52,511

(1) Leasehold improvements are depreciated over the shorter of the lease term or anticipated useful life of the improvement.

Depreciation expense was $27.4 million, $34.7 million and $33.0 million for the fiscal years ended March 31, 2019, 2018 and 2017, respectively.

NOTE 8 – ACQUISITIONS & DIVESTITURES

HNT Tools Business Divestiture

On September 14, 2018 (the HNT Divestiture Date), the Company divested its HNT tools business for cash proceeds of $1.3 million and potential future earnout payments of up to $4.0 million over two years that are contingent on the HNT tools business achieving certain milestones. The fair value of the contingent consideration in the amount of $2.3 million was recognized on the HNT Divestiture Date and was measured using unobservable (Level 3) inputs. The contingent consideration is presented as a non-cash investing activity on the consolidated statement of cash flows. The Company transferred $4.6 million of consideration along with net liabilities of the HNT tools business related to a working capital adjustment during the year ended March 31, 2019. The Company recorded a loss on the divestiture for the year ended March 31, 2019 totaling $9.5 million, which included $1.3 million of transaction costs and $0.5 million of incentive compensation payable to the HNT tools business employees negotiated as part of the sale. In connection with the divestiture, the Company has entered into a transitional services agreement with the buyer to provide certain services for a period of up to eighteen months. Income associated with the transitional services agreement for the fiscal year ended March 31, 2019 was $2.2 million and is included within other expense, net in the Company's consolidated statement of operations.

The Company recorded a $1.6 million change in the fair value of the contingent consideration, which is included in other expense, net within the Company’s consolidated statements of operations for the year ended March 31, 2019. The $0.8 million of contingent consideration is included in other assets within the Company’s consolidated balance sheet at March 31, 2019

The Company determined that the sale of the HNT tools business did not represent a strategic shift and will not have a major effect on its consolidated results of operations, financial position or cash flows. Accordingly, the Company has not presented the sale as a discontinued operation in the consolidated financial statements.

Efflux

On July 12, 2017 (the Efflux Closing Date), the Company completed the acquisition of Efflux for $8.6 million. Efflux's technology detects, analyzes and correlates threat activity within enterprise networks. The Efflux technology and engineering talent have been integrated into our security products in order to support the ongoing enhancement of that products portfolio.

Goodwill was recognized for the excess purchase price over the fair value of the net assets acquired. Goodwill of $6.1 million from the acquisition was included within the Security reporting unit. Goodwill and intangible assets recorded as part of the acquisition are not deductible for tax purposes.

NOTE 9 – GOODWILL & INTANGIBLE ASSETS

Goodwill

The Company has two reporting units: (1) Service Assurance and (2) Security. At March 31, 2019, goodwill attributable to the Company's Service Assurance and Security reporting units was $1.2 billion and $555.1 million, respectively. At March 31, 2018, goodwill attributable to the Company's Service Assurance and Security reporting units was $1.2 billion and $555.9 million, respectively. Goodwill is tested for impairment at a reporting unit level at least annually, or on an interim basis if an event occurs or circumstances change that would, more likely than not, reduce the fair value of the reporting unit below its carrying value. The Company completed its annual impairment test on January 31, 2019.

In fiscal years 2019 and 2018, the Company's quantitative impairment tests indicated that goodwill was not impaired. The Company determined the fair values of its reporting units by preparing a discounted cash flow analysis using forward looking projections of the reporting units’ future operating results and by comparing the value of the reporting units to the implied market value of selected peers. The significant assumptions used in the discounted cash flow analysis include: revenue and revenue growth, selling margins, other operating expenditures, the discounted rate used to present value future cash flows and terminal growth rates. The discount rate used is a cost of equity method, which is essentially equal to the "market participant" weighted-average cost of capital (WACC). The Service Assurance and Security reporting units' goodwill fair value substantially exceeded their respective carrying value.

The change in the carrying amount of goodwill for the fiscal year ended March 31, 2019 is due to the divestiture of the HNT tools business and impact of foreign currency translation adjustments related to asset balances that are recorded in currencies other than the U.S. Dollar.

The changes in the carrying amount of goodwill for the fiscal years ended March 31, 2019 and 2018 are as follows (in thousands):

Balance at March 31, 2017	$ 1,718,162
Goodwill attributable to the Efflux acquisition	6,077
Foreign currency translation impact	(11,475)
Balance as of March 31, 2018	$ 1,712,764
Divestiture of the HNT tools business	(4,414)
Foreign currency translation impact	7,135
Balance as of March 31, 2019	$ 1,715,485

Intangible Assets

The net carrying amounts of intangible assets were $669.1 million and $831.4 million at March 31, 2019 and 2018, respectively. Intangible assets acquired in a business combination are recorded under the acquisition method of accounting at their estimated fair values at the date of acquisition. The Company amortizes intangible assets over their estimated useful lives, except for the acquired trade name which resulted from the Network General acquisition, which has an indefinite life and thus is not amortized. The carrying value of the indefinite lived trade name is evaluated for potential impairment annually or more frequently if events or changes in circumstances indicate that the asset might be impaired.

During fiscal year 2019, the Company performed a quantitative analysis on certain intangible assets related to the HNT tools business, which has since been divested. The fair value for the intangible assets related to the HNT tools business was calculated considering a range of potential transaction prices which the Company considers to be a Level 3 measurement. The fair value of these intangible assets was determined to be less than the carrying value, and as a result, the Company recognized an impairment charge of $35.9 million in the twelve months ended March 31, 2019. The impairment charge was recorded within a separate operating expense line item in the Company's consolidated statements of operations during the twelve months ended March 31, 2019.

In September 2018, the Company completed the divestiture of the HNT tools business. As a result, the net carrying value of the Company's intangible assets was reduced by $10.2 million.

In fiscal year 2019 and 2018, the Company's annual impairment tests indicated that the acquired trade name was not impaired. In the fourth quarter of fiscal year 2019, the Company completed its annual impairment test of the indefinite lived intangible at January 31, 2019, using the qualitative Step 0 assessment. No impairment indicators were observed at January 31, 2019.

The Company did not acquire any technology licenses during the fiscal year ended March 31, 2019. During the fiscal year ended March 31, 2018, the Company acquired technology licenses for $0.5 million. This amount is included within distributor relationships and is being amortized using the economic benefit method over a useful life of 3 years.

Intangible assets include the indefinite lived trade name with a carrying value of $18.6 million and the following amortizable intangible assets at March 31, 2019 (in thousands):

	Cost	Accumulated Amortization	Net
Developed technology	$ 242,259	$ (168,289)	$ 73,970
Customer relationships	772,969	(218,043)	554,926
Distributor relationships and technology licenses	6,882	(5,237)	1,645
Definite-lived trademark and trade name	39,304	(20,586)	18,718
Core technology	7,192	(6,845)	347
Net beneficial leases	336	(336)	—
Non-compete agreements	292	(292)	—
Leasehold interest	500	(500)	—
Backlog	16,397	(16,397)	—
Capitalized software	3,317	(2,690)	627
Other	1,208	(923)	285
	$ 1,090,656	$ (440,138)	$ 650,518

Intangible assets include the indefinite lived trade name with a carrying value of $18.6 million and the following amortizable intangible assets at March 31, 2018 (in thousands):

	Cost	Accumulated Amortization	Net
Developed technology	$ 259,758	$ (148,937)	$ 110,821
Customer relationships	845,490	(176,425)	669,065
Distributor relationships and technology licenses	9,019	(5,389)	3,630
Definite-lived trademark and trade name	44,387	(18,138)	26,249
Core technology	7,345	(6,712)	633
Net beneficial leases	336	(336)	—
Non-compete agreements	317	(317)	—
Leasehold interest	2,600	(2,130)	470
Backlog	18,544	(18,544)	—
Capitalized software	3,183	(1,621)	1,562
Other	1,247	(903)	344
	$ 1,192,226	$ (379,452)	$ 812,774

Amortization included as product revenue consists of amortization of backlog. Amortization included as cost of product revenue consists of amortization of developed technology, distributor relationships and technology licenses, core technology and software. Amortization included as operating expense consists of all other intangible assets. The following table provides a summary of amortization expense during the fiscal years ended March 31, 2019, 2018, and 2017 (in thousands).

	Years Ended March 31,		
	2019	2018	2017
Amortization of intangible assets included as:			
Product revenue	$ —	$ 9	$ 11,438
Cost of product revenue	34,039	40,286	44,326
Operating expense	74,325	76,661	70,325
	$ 108,364	$ 116,956	$ 126,089

The following is the expected future amortization expense at March 31, 2019 for the fiscal years ended March 31 (in thousands):

2020	$ 90,924
2021	79,643
2022	69,232
2023	61,511
2024	53,403
Thereafter	295,805
Total	$ 650,518

The weighted average amortization period of developed technology and core technology is 11.3 years. The weighted average amortization period for customer and distributor relationships is 15.9 years. The weighted average amortization period for trademarks and trade names is 8.6 years. The weighted average amortization period for capitalized software is 3.0 years. The weighted average amortization period for all amortizing intangible assets is 14.6 years.

NOTE 10 – DERIVATIVE INSTRUMENTS AND HEDGING ACTIVITIES

NetScout operates internationally and, in the normal course of business, is exposed to fluctuations in foreign currency exchange rates. The exposures result from costs that are denominated in currencies other than the U.S. Dollar, primarily the Euro, British Pound, Canadian Dollar, and Indian Rupee. The Company manages its foreign cash flow risk by hedging forecasted cash flows for operating expenses denominated in foreign currencies for up to twelve months, within specified guidelines through the use of forward contracts. The Company enters into foreign currency exchange contracts to hedge cash flow exposures from costs that are denominated in currencies other than the U.S. Dollar. These hedges are designated as cash flow hedges at inception.

All of the Company's derivative instruments are utilized for risk management purposes, and the Company does not use derivatives for speculative trading purposes. These contracts will mature over the next twelve months and are expected to impact earnings on or before maturity.

The notional amounts and fair values of derivative instruments in the consolidated balance sheets at March 31, 2019 and 2018 were as follows (in thousands):

	Notional Amounts (a)		Prepaid Expenses and Other Current Assets		Accrued Other	
	March 31, 2019	March 31, 2018	March 31, 2019	March 31, 2018	March 31, 2019	March 31, 2018
Derivatives Designated as Hedging Instruments:						
Forward contracts	$ 4,550	$ 11,225	$ 58	$ 122	$ 68	$ 40

(a) Notional amounts represent the gross contract/notional amount of the derivatives outstanding.

The following table provides the effect foreign exchange forward contracts had on other comprehensive income (loss), (OCI) and results of operations at March 31, 2019 and 2018 (in thousands):

Derivatives in Cash Flow Hedging Relationships	Effective Portion					Ineffective Portion		
	Gain (Loss) Recognized in OCI on Derivative (a)		Gain (Loss) Reclassified from Accumulated OCI into Income (b)			Gain (Loss) Recognized in Income (Amount Excluded from Effectiveness Testing) (c)		
	March 31, 2019	March 31, 2018	Location	March 31, 2019	March 31, 2018	Location	March 31, 2019	March 31, 2018
Forward contracts	$ (696)	$ 1,079	Research and development	$ 164	$ (121)	Research and development	$ 69	$ 60
			Sales and marketing	411	(779)	Sales and marketing	(196)	(153)
	$ (696)	$ 1,079		$ 575	$ (900)		$ (127)	$ (93)

(a) The amount represents the change in fair value of derivative contracts due to changes in spot rates.
(b) The amount represents reclassification from other comprehensive income to earnings that occurs when the hedged item affects earnings.
(c) The amount represents the change in fair value of derivative contracts due to changes in the difference between the spot price and forward price that is excluded from the assessment of hedge effectiveness and therefore recognized in earnings. No gains or losses were reclassified as a result of discontinuance of cash flow hedges.

NOTE 11 – RESTRUCTURING CHARGES

During the fiscal year ended March 31, 2016, the Company recorded a restructuring charge of $500 thousand related to one-time termination benefits to be paid to one employee, which was the completion of a plan that was required as a closing condition related to the acquisition of Danaher Corporation's (Danaher) Communications Business in July 2015 (Comms Transaction).

During the fiscal year ended March 31, 2017, the Company approved two restructuring plans. During the first quarter of fiscal year 2017, the Company restructured certain departments to better align functions subsequent to the Comms Transaction. As a result of the restructuring program, the Company recorded $2.0 million of restructuring charges related to one-time termination benefits to be paid to nineteen employees which was recorded during the fiscal year ended March 31, 2017. The one-time termination benefits related to this plan were paid in full during the fiscal year ended March 31, 2017. In addition, during the fourth quarter of fiscal year 2017, the Company restructured certain departments to better align functions subsequent to the Comms Transaction, resulting in the termination of forty-one employees. Communication of the plan to the impacted employees was substantially completed on March 31, 2017. As a result of the workforce reduction, during the fiscal year ended March 31, 2017, the Company recorded a restructuring change totaling $1.9 million related to one-time termination benefits and $0.4 million in facility related charges. All of the workforce reduction was completed during the quarter ended September 30, 2017. During the fiscal year ended March 31, 2018, the Company recorded an additional charge for one-time termination benefits and facility-related costs of $0.9 million. The one-time termination benefits and facilities-related costs related to this plan were paid in full during the fiscal year ended March 31, 2018.

During the fiscal year ended March 31, 2018, the Company restructured certain departments to better align functions resulting in the termination of sixty-one employees. As a result of the workforce reduction, during the fiscal year ended March 31, 2018, the Company recorded a restructuring charge totaling $5.1 million related to one-time termination benefits for the employees that were notified during the period. Additional one-time termination benefit charges and facility-related costs of approximately $1.7 million were recorded during the fiscal year ended March 31, 2019. The one-time termination benefits and facility-related costs related to this plan were paid in full during the fiscal year ended March 31, 2019.

During the fiscal year ended March 31, 2019, the Company implemented a voluntary separation program (VSP) for employees who met certain requirements to reduce overall headcount. As a result of the related workforce reduction, the Company recorded restructuring charges totaling $17.2 million related to one-time termination benefits for one hundred fifty-five employees who voluntarily terminated their employment with the Company during the period. Additional one-time termination benefit charges of approximately $0.1 million for one employee are anticipated to be recorded in the next three months. The one-time termination benefits are expected to be paid in full by the end of the first quarter of the fiscal year ending March 31, 2020.

The following table provides a summary of the activity related to the restructuring plans and the related restructuring liability (in thousands):

	FY2016 Plan	Q1 FY2017 Plan	Q4 FY2017 Plan		FY2018 Plan		VSP	
	Employee -Related	Employee -Related	Employee -Related	Facilities Related	Employee -Related	Facilities Related	Employee -Related	Total
Balance at March 31, 2016	$ 272	$ —	$ —	$ —	$ —	$ —	$ —	$ 272
Restructuring charges to operations	—	2,034	1,867	405	—	—	—	4,306
Cash payments	(272)	(1,739)	(317)	—	—	—	—	(2,328)
Other adjustments	—	(295)	—	—	—	—	—	(295)
Balance at March 31, 2017	$ —	$ —	$ 1,550	$ 405	$ —	$ —	$ —	$ 1,955
Restructuring charges to operations	—	—	729	208	5,085	—	—	6,022
Cash payments	—	—	(1,867)	(374)	(1,331)	—	—	(3,572)
Other adjustments	—	—	(412)	(239)	(58)	—	—	(709)
Balance at March 31, 2018	$ —	$ —	$ —	$ —	$ 3,696	$ —	$ —	$ 3,696
Restructuring charges to operations	—	—	—	—	1,017	643	17,248	18,908
Cash payments	—	—	—	—	(4,240)	(458)	(17,329)	(22,027)
Other adjustments	—	—	—	—	(473)	(185)	81	(577)
Balance at March 31, 2019	$ —	$ —	$ —	$ —	$ —	$ —	$ —	$ —

NOTE 12 – LONG-TERM DEBT

On January 16, 2018, the Company amended and expanded its existing credit agreement (Amended Credit Agreement) with a syndicate of lenders by and among: the Company; JPMorgan Chase Bank, N.A. (JPMorgan), as administrative agent and collateral agent; J.P. Morgan Securities LLC, KeyBanc Capital Markets, Merrill Lynch, Pierce, Fenner & Smith Incorporated, RBC Capital Markets and Wells Fargo Securities, LLC, as joint lead arrangers and joint bookrunners; Fifth Third Bank, Santander Bank, N.A., SunTrust Bank, N.A. and U.S. Bank National Association, as co-documentation agents; and the lenders party thereto.

The Amended Credit Agreement provides for a five-year $1.0 billion senior secured revolving credit facility, including a letter of credit sub-facility of up to $75.0 million. The Company may elect to use the new credit facility for general corporate purposes or to finance the repurchase of up to twenty-five million shares of the Company's common stock under the Company's common stock repurchase plan. The commitments under the Amended Credit Agreement will expire on January 16, 2023, and any outstanding loans will be due on that date. During the fiscal year ended March 31, 2019, the Company repaid $50.0 million of borrowings under the Amended Credit Agreement. At March 31, 2019, $550 million was outstanding under the Amended Credit Agreement.

At the Company's election, revolving loans under the Amended Credit Agreement bear interest at either (a) an Alternate Base Rate per annum equal to the greatest of (1) JPMorgan's prime rate, (2) 0.50% in excess of the New York Federal Reserve Bank (NYFRB) rate, or (3) an adjusted one month LIBOR rate plus 1%; or (b) such adjusted LIBOR rate (for the interest period selected by the Company), in each case plus an applicable margin. For the period from the delivery of the Company's financial statements for the quarter ended December 31, 2018, until the Company has delivered financial statements for the quarter ended March 31, 2019, the applicable margin will be 1.75% per annum for LIBOR loans and 0.75% per annum for Alternate Base Rate loans, and thereafter the applicable margin will vary depending on the Company's leverage ratio, ranging from 1.00% per annum for Base Rate loans and 2.00% per annum for LIBOR loans if the Company's consolidated leverage ratio is greater than 3.50 to 1.00, down to 0.00% per annum for Alternate Base Rate loans and 1.00% per annum for LIBOR loans if the Company's consolidated leverage ratio is equal to or less than 1.50 to 1.00.

On July 27, 2017, the U.K. Financial Conduct Authority (FCA) announced that it will no longer require banks to submit rates for the calculation of LIBOR after 2021. The Company's Amended Credit Agreement provides for the Administrative Agent to determine if (i) adequate and reasonable means do not exist for ascertaining the LIBOR rate or (ii) the FCA or Government Authority having jurisdiction over the Administrative Agent has made a public statement identifying a specific date after which the LIBOR rate shall no longer be used for determining interest rates for loans and the Administrative Agent determines that (i) and (ii) above are unlikely to be temporary then the Administrative Agent and the Company would agree to transition to an Alternate Base Rate Borrowing or amend the Credit Agreement to establish an alternate rate of interest to LIBOR that gives due consideration to the then prevailing market convention for determining a rate of interest for syndicated loans in the United States at such time.

The Company's consolidated leverage ratio is the ratio of its total funded debt compared to its consolidated adjusted EBITDA. Consolidated adjusted EBITDA includes certain adjustments, including, without limitation, adjustments relating to extraordinary, unusual or non-recurring charges, certain restructuring charges, non-cash charges, certain transaction costs and expenses and certain pro forma adjustments in connection with material acquisitions and dispositions, all as set forth in detail in the definition of consolidated adjusted EBITDA in the Amended Credit Agreement.

Commitment fees will accrue on the daily unused amount of the credit facility. For the period from the delivery of the Company's financial statements for the quarter ended December 31, 2018 until the Company has delivered financial statements for the quarter ended March 31, 2019, the commitment fee will be 0.30% per annum, and thereafter the commitment fee will vary depending on the Company's consolidated leverage ratio, ranging from 0.30% per annum if the Company's consolidated leverage ratio is greater than 2.75 to 1.00, down to 0.15% per annum if the Company's consolidated leverage ratio is equal to or less than 1.50 to 1.00.

Letter of credit participation fees are payable to each lender on the amount of such lender’s letter of credit exposure, during the period from the closing date of the Amended Credit Agreement to but excluding the date which is the later of (i) the date on which such lender’s commitment terminates or (ii) the date on which such lender ceases to have any letter of credit exposure, at a rate per annum equal to the applicable margin for LIBOR loans. Additionally, the Company will pay a fronting fee to each issuing bank in amounts to be agreed to between the Company and the applicable issuing bank.

Interest on Alternate Base Rate loans is payable at the end of each calendar quarter. Interest on LIBOR loans is payable at the end of each interest rate period or at the end of each three-month interval within an interest rate period if the period is longer than three months. The Company may also prepay loans under the Amended Credit Agreement at any time, without penalty, subject to certain notice requirements.

Debt is recorded at the amount drawn on the revolving credit facility plus interest based on floating rates reflective of changes in the market which approximates fair value.

The loans and other obligations under the credit facility are (a) guaranteed by each of the Company's wholly owned material domestic restricted subsidiaries, subject to certain exceptions, and (b) are secured by substantially all of the assets of the Company and the subsidiary guarantors, including a pledge of all the capital stock of material subsidiaries held directly by the Company and the subsidiary guarantors (which pledge, in the case of any foreign subsidiary, is limited to 65% of the voting stock), subject to certain customary exceptions and limitations. The Amended Credit Agreement generally prohibits any other liens on the assets of the Company and its restricted subsidiaries, subject to certain exceptions as described in the Amended Credit Agreement.

The Amended Credit Agreement contains certain covenants applicable to the Company and its restricted subsidiaries, including, without limitation, limitations on additional indebtedness, liens, various fundamental changes, dividends and distributions, investments (including acquisitions), transactions with affiliates, asset sales, including sale-leaseback transactions, speculative hedge agreements, payment of junior financing, changes in business and other limitations customary in senior secured credit facilities. In addition, the Company is required to maintain certain consolidated leverage and interest coverage ratios. These covenants and limitations are more fully described in the Amended Credit Agreement. At March 31, 2019, the Company was in compliance with all of these covenants.

The Amended Credit Agreement provides that events of default will exist in certain circumstances, including failure to make payment of principal or interest on the loans when required, failure to perform certain obligations under the Amended Credit Agreement and related documents, defaults under certain other indebtedness, certain insolvency events, certain events arising under ERISA, a change of control and certain other events. Upon an event of default, the administrative agent with the consent of, or at the request of, the holders of more than 50% in principal amount of the loans and commitments may terminate the commitments and accelerate the maturity of the loans and enforce certain other remedies under the Amended Credit Agreement and the other loan documents.

In connection with the Company's Amended Credit Agreement described above, the Company terminated its previous term loan dated as of July 14, 2015, by and among the Company; JPMorgan Chase Bank, N.A. (JPMorgan), as administrative agent and collateral agent; J.P. Morgan Securities LLC, KeyBanc Capital Markets, Merrill Lynch, Pierce, Fenner & Smith Incorporated, RBC Capital Markets and Wells Fargo Securities, LLC, as joint lead arrangers and joint bookrunners; Santander Bank, N.A., SunTrust Bank, N.A. and U.S. Bank National Association, as co-documentation agents; and the lenders party thereto.

The Company has capitalized debt issuance costs totaling $12.2 million at March 31, 2019, which are being amortized over the life of the revolving credit facility. The unamortized balance was $6.6 million as of March 31, 2019. The balance of $1.7 million was included as prepaid expenses and other current assets and a balance of $4.9 million was included as other assets in the Company's consolidated balance sheet.

NOTE 13 – NET INCOME (LOSS) PER SHARE

Calculations of the basic and diluted net income (loss) per share and potential common shares are as follows (in thousands, except for per share data):

	Year Ended March 31,		
	2019	2018	2017
Numerator:			
Net income (loss)	$ (73,324)	$ 79,812	$ 33,291
Denominator:			
Denominator for basic net income (loss) per share - weighted average common shares outstanding	78,617	87,425	92,226
Dilutive common equivalent shares:			
Weighted average restricted stock units	—	836	694
Denominator for diluted net income (loss) per share - weighted average shares outstanding	78,617	88,261	92,920
Net income (loss) per share:			
Basic net income (loss) per share	$ (0.93)	$ 0.91	$ 0.36
Diluted net income (loss) per share	$ (0.93)	$ 0.90	$ 0.36

The following table sets forth restricted stock units excluded from the calculation of diluted net income per share, since their inclusion would be antidilutive (in thousands):

	Year Ended March 31,		
	2019	2018	2017
Restricted stock units	706	1,450	1,320

Basic net income (loss) per share is calculated by dividing net income (loss) by the weighted average number of shares outstanding during the period. Unvested restricted shares, although legally issued and outstanding, are not considered outstanding for purposes of calculating basic earnings per share. Diluted net income (loss) per share is calculated by dividing net income (loss) by the weighted average number of shares outstanding plus the dilutive effect, if any, of outstanding restricted shares and restricted stock units using the treasury stock method. The calculation of the dilutive effect of outstanding equity awards under the treasury stock method includes consideration of proceeds from the assumed exercise of unrecognized compensation expense. As the Company incurred a net loss in the fiscal year ended March 31, 2019, all outstanding restricted stock units have an anti-dilutive effect and are therefore excluded from the computation of diluted weighted average share outstanding.

For the fiscal year ended March 31, 2018, the delivery of 7.4 million shares under the Company's accelerated share repurchase (ASR) agreements reduced its outstanding shares used to determine its weighted average common shares outstanding for purposes of calculating basic and diluted earnings per share. See Note 14 for additional information. The Company evaluated the ASR agreements for potential dilutive effects of any shares remaining to be received or owed upon settlement and determined the additional shares to be received would be anti-dilutive, and therefore they were not included in the Company's calculation of diluted earnings per share for the fiscal year ended March 31, 2018.

NOTE 14 – TREASURY STOCK

On May 19, 2015, the Company’s Board of Directors approved a share repurchase program, conditional upon the completion of the Comms Transaction. This program enabled the Company to repurchase up to 20 million shares of its common stock. This plan became effective on July 14, 2015 upon the completion of the Comms Transaction and replaced the Company's previously existing open market stock repurchase program. The Company was not obligated to acquire any specific amount of common stock within any particular timeframe under this program. The Company repurchased 6,773,438 shares for $227.6 million, and 3,148,426 shares for $80.0 million in the open market under this stock repurchase plan during the fiscal years ended March 31, 2018, and 2017, respectively. At March 31, 2018, there were no shares of common stock that remained available to be purchased under this plan.

On October 24, 2017, the Company’s Board of Directors approved a new share repurchase program that enables the Company to repurchase up to twenty-five million shares of its common stock. This new program became effective once the Company’s previously disclosed twenty million share repurchase program was completed. The Company is not obligated to acquire any specific amount of common stock within any particular timeframe as a result of its new share repurchase program.

On February 1, 2018, the Company entered into ASR agreements with two third-party financial institutions (the Dealers) to repurchase an aggregate of $300 million of the Company's common stock via accelerated stock repurchase transactions under the Company’s twenty million share repurchase program and the twenty-five million share repurchase program. The Company borrowed $300 million against its Amended Credit Facility in order to finance the payment of the initial purchase price to each of the Dealers. Under the terms of the ASR, the Company made a $150 million payment to each of the Dealers on February 2, 2018, and received an initial delivery of 3,693,931 shares from each of the Dealers, or 7,387,862 shares in the aggregate, which is approximately 70 percent of the total number of shares of the Company's common stock expected to be repurchased under the ASR. As part of this purchase, 970,650 shares for $27.6 million were deducted under the twenty million share repurchase program and 6,417,212 shares for $182.4 million were deducted from the twenty-five million share repurchase program during the fiscal year ended March 31, 2018. Final settlement of the ASR agreements was completed in August 2018. As a result, the Company received an additional 3,679,947 shares of its common stock for $96.8 million, which reduced the number of shares available to be purchased from the twenty-five million share repurchase program during the fiscal year ended March 31, 2019. In total, 11,067,809 shares of the Company's common stock were repurchased under the ASR at an average cost per share of $27.11.

The Company repurchased an additional 543,251 shares for $14.5 million under the twenty-five million share repurchase program during the fiscal year ended March 31, 2019. At March 31, 2019, 14,359,590 shares of common stock remained available to be purchased under the current repurchase program.

In connection with the vesting and release of the restriction on previously vested shares of restricted stock, the Company repurchased 451,683 shares for $11.9 million, 408,097 shares for $13.6 million and 320,572 shares for $9.6 million related to minimum statutory tax withholding requirements on these restricted stock units during the fiscal years ended March 31, 2019, 2018 and 2017, respectively. These repurchase transactions do not fall under the repurchase program described above, and therefore do not reduce the amount that is available for repurchase under those programs.

NOTE 15 – STOCK PLANS

2011 Employee Stock Purchase Plan

On September 7, 2011, the Company's stockholders approved the 2011 Employee Stock Purchase Plan (the ESPP), under which 2,500,000 shares of the Company's common stock have been reserved for issuance. On November 8, 2018, the Company increased the number of shares available under the ESPP by an additional 3,000,000 shares. The Company implemented the ESPP on March 1, 2012. Eligible employees may purchase shares of the Company's common stock through regular payroll deductions of up to 20% of their eligible compensation. Under the terms of the offering under the ESPP, the number of shares of the Company's common stock which a participant could purchase during any purchase period is limited to 2,000. In addition, the fair market value of shares purchased by an individual participant in the plan may not exceed $25,000 if the contribution period is within any calendar year. However, if contribution periods overlap calendar years, an individual participant is eligible to utilize the unused portion of the $25,000 limit from the subsequent purchase in the current purchase up to $50,000. Under the ESPP, shares of the company's common stock may be purchased on the last day of each bi-annual offering period at 85% of the fair market value on the last day of such offering period. The offering periods run from March 1 through August 31 and from September 1 through the last day of February of each year. During the fiscal year ended March 31, 2019, employees purchased 577,000 shares under the ESPP with a weighted average purchase price per share of $26.13. At March 31, 2019, 2,908,143 shares were available for future issuance under the ESPP.

2007 Equity Incentive Plan

Enacted in September 2007, the 2007 Equity Incentive Plan (2007 Plan) permits the granting of stock options, restricted stock and restricted stock units, collectively referred to as "share-based awards." Periodically, the Company grants share-based awards to employees and officers of the Company and its subsidiaries. The Company accounts for these share-based awards in accordance with GAAP, which requires the measurement and recognition of compensation expense based on estimated fair values for all share-based payment awards made to its employees and directors. Share-based award grants are generally measured at fair value on the date of grant based on the number of shares granted and the quoted price of the Company's common stock. Such value is recognized as a cost of revenue or an operating expense over the corresponding vesting period. On September 7, 2011, the Company's stockholders approved an amendment and restatement of the 2007 Equity Incentive Plan to increase the shares of common stock reserved for issuance by 8,000,000 shares. On September 22, 2015, the Company's stockholders approved an amendment and restatement of the 2007 Equity Incentive Plan (the Amended 2007 Plan) to increase the shares of common stock reserved for issuance by 8,500,000. A total of 21,500,000 shares are reserved for issuance under the Amended 2007 Plan. In addition, any shares not delivered to a participant because an award is exercised through a reduction of shares subject to the award (cashless exercise) will not be available for issuance under the Amended 2007 Plan and any shares reacquired by the Company to cover withholding taxes upon exercise of a stock option or stock appreciation right or as consideration for the exercise of a stock option or stock appreciation right will not become available for issuance under the Amended 2007 Plan. Shares withheld to cover tax liabilities of restricted stock unit grants will be restored to the available reserve on the 2 for 1 amount. Furthermore, the share reserve under the Amended 2007 Plan is reduced one share for each share of common stock issued pursuant to a stock option or stock appreciation right and two shares for each share of common stock issued pursuant to restricted stock, restricted stock units, performance stock awards, or other stock awards granted under the Amended 2007 Plan on or after March 31, 2011. At March 31, 2019, an aggregate of 4,210,655 unvested equity awards were outstanding under the Amended 2007 Plan.

The Amended 2007 Plan is administered by the Compensation Committee of the Board of Directors. The Compensation Committee operates under guidelines established by the Board of Directors. The Compensation Committee has the authority to select the employees and consultants to whom awards are granted (except for directors and executive officers) and determine the terms of each award, including the number of shares of common stock subject to the award.

Share-based awards generally vest over four years. The exercise price of incentive stock options shall not be less than 100% of the fair market value of the common stock at the date of grant (110% for incentive stock options granted to holders of more than 10% of the voting stock of NetScout). The term of options granted cannot exceed ten years (five years for incentive stock options granted to holders of more than 10% of the voting stock of NetScout).

Based on historical experience, the Company assumed an annualized forfeiture rate of 0% for awards granted to its independent directors, approximately 2% for awards granted to its senior executives, and approximately 5% granted to all remaining employees during the fiscal years ended March 31, 2019, 2018 and 2017.

The following is a summary of share-based compensation expense including restricted stock units and employee stock purchases made under the Company's employee stock purchase plan (ESPP) based on estimated fair values within the applicable cost and expense lines identified below (in thousands):

	Year Ended March 31,		
	2019	2018	2017
Cost of product revenue	$ 1,463	$ 1,159	$ 934
Cost of service revenue	5,959	4,824	3,956
Research and development	17,321	14,711	12,362
Sales and marketing	18,923	15,213	12,823
General and administrative	12,662	11,410	9,114
	$ 56,328	$ 47,317	$ 39,189

Transactions under the Amended 2007 Plan during the fiscal years ended March 31, 2019, 2018 and 2017 are summarized in the table below.

	Restricted Stock Units	
	Number of Awards	Weighted Average Fair Value
Outstanding – March 31, 2016	2,873,306	$ 35.32
Granted	2,020,536	24.92
Vested	(950,159)	33.16
Canceled	(333,382)	33.40
Outstanding – March 31, 2017	3,610,301	$ 30.24
Granted	1,962,590	34.01
Vested	(1,216,585)	31.09
Canceled	(277,526)	31.70
Outstanding – March 31, 2018	4,078,780	$ 31.77
Granted	2,178,339	30.10
Vested	(1,438,219)	32.49
Canceled	(608,245)	30.52
Outstanding – March 31, 2019	4,210,655	$ 30.84

At March 31, 2019, there were 3,811,505 shares of common stock available for grant under the Amended 2007 Plan.

The Company does not currently expect to repurchase shares from any source to satisfy its obligations under the Amended 2007 Plan.

The aggregate intrinsic value of stock options exercised and the fair value of restricted stock units vested at March 31, 2019, 2018 and 2017 were as follows (in thousands):

	Year Ended March 31,		
	2019	2018	2017
Total fair value of restricted stock unit awards vested	$ 38,070	$ 40,539	$ 28,293

At March 31, 2019, the total unrecognized compensation cost related to restricted stock unit awards was $98.1 million, which is expected to be amortized over a weighted-average period of 1.3 years.

NOTE 16 – PENSION BENEFIT PLANS

401(k) Plan

The Company has a defined contribution program for certain employees that is qualified under Section 401(k) of the Internal Revenue Code of 1986, as amended. The Company matches 50% of the employee’s contribution up to 6% of the employee’s salary. NetScout contributions vest at a rate of 25% per year of service. NetScout made matching contributions of $6.6 million, $8.0 million and $9.4 million to the plan for the fiscal years ended March 31, 2019, 2018 and 2017, respectively.

Defined Benefit Pension Plan

Certain of the Company's non-U.S. employees participate in certain noncontributory defined benefit pension plans acquired in the Comms Transaction on July 14, 2015. None of the Company's employees in the U.S. participate in any noncontributory defined benefit pension plans. In general, these plans are funded based on considerations relating to legal requirements, underlying asset returns, the plan’s funded status, the anticipated deductibility of the contribution, local practices, market conditions, interest rates and other factors.

The components of the change in benefit obligation of the pension plan is as follows (in thousands):

	March 31, 2019	March 31, 2018
Benefit obligation, at beginning of year	$ 33,464	$ 30,141
Service cost	304	407
Interest cost	704	718
Benefits paid and other	(302)	(288)
Actuarial loss (gain)	3,254	(1,788)
Foreign exchange rate impact	(2,529)	4,274
Benefit obligation, at end of year	$ 34,895	$ 33,464

The reconciliation of the beginning and ending balances of the fair value of the assets of the pension plan is as follows (in thousands):

	March 31, 2019	March 31, 2018
Fair value of plan assets, at beginning of year	$ —	$ —
Employer direct benefit payments	302	288
Benefits paid and other	(302)	(288)
Fair value of plan assets, at end of year	$ —	$ —

The following sets forth the components of the Company's net periodic pension cost of the noncontributory defined benefit pension plans for the fiscal years ended March 31, 2019, 2018, and 2017 (in thousands):

	Year Ended March 31,		
	2019	2018	2017
Service cost	$ 304	$ 407	$ 329
Interest cost	704	718	638
Net periodic pension cost	$ 1,008	$ 1,125	$ 967

Weighted average assumptions used to determine net periodic pension cost at date of measurement:

	March 31, 2019	March 31, 2018	March 31, 2017
Discount rate	1.80%	2.30%	2.10%
Rate of compensation increase	3.00%	2.25%	2.25%

As of March 31, 2019, unrecognized actuarial loss of $3.3 million ($2.3 million, net of tax) which have not yet been recognized in net periodic pension cost are included in accumulated other comprehensive income (loss). The unrecognized actuarial gains and losses are calculated as the difference between the actuarially determined projected benefit obligation and the value of the plan assets less accrued pension costs. None of this amount is expected to be recognized in net periodic pension costs during the fiscal year ending March 31, 2020. No plan assets are expected to be returned to the Company during the fiscal year ending March 31, 2020.

Expected Contributions

During the fiscal year ended March 31, 2019, the Company contributed $302 thousand to its defined benefit pension plan. The following sets forth benefit payments, which reflect expected future service, as appropriate, expected to be paid by the plan in the periods indicated (in thousands):

2020	$ 382
2021	$ 436
2022	$ 484
2023	$ 549
2024	$ 599
2025 - 2030	$ 4,561

NOTE 17 – INCOME TAXES

Income (loss) before income tax expense (benefit) consisted of the following (in thousands):

	Year Ended March 31, 2019	2018	2017
Domestic	$ (107,088)	$ (35,032)	$ 32,475
Foreign	14,176	16,373	19,710
	$ (92,912)	$ (18,659)	$ 52,185

The components of the income tax expense (benefit) are as follows (in thousands):

	Year Ended March 31, 2019	2018	2017
Current income tax expense (benefit):			
Federal	$ 3,902	$ 14,191	$ 15,912
State	(136)	1,925	3,152
Foreign	10,618	12,249	11,175
	14,384	28,365	30,239
Deferred income tax expense (benefit):			
Federal	(25,347)	(113,122)	(8,278)
State	(3,845)	(10,037)	3,578
Foreign	(4,780)	(3,677)	(6,645)
	(33,972)	(126,836)	(11,345)
	$ (19,588)	$ (98,471)	$ 18,894

The income tax expense (benefit) computed using the federal statutory income tax rate differs from NetScout's effective tax rate primarily due to the following:

	Year Ended March 31, 2019	2018	2017
Statutory U.S. federal tax rate	21.0%	31.6%	35.0%
State taxes, net of federal tax effect	3.4	6.9	9.7
Research and development tax credits	7.1	39.5	(8.2)
Effect of foreign operations	(0.6)	15.5	(6.7)
Meals and entertainment	(1.0)	(6.7)	2.5
Domestic production activities deduction	—	13.8	(4.0)
Change in valuation allowance	2.2	(0.2)	(0.1)
Stock Compensation	(2.6)	(2.5)	3.1
Divestiture	(1.0)	—	—
GILTI/FDII	2.9	—	—
BEAT	(7.0)	—	—
2017 Tax Act (transition tax and re-measurement of deferreds)	0.4	454.1	—
Foreign withholding	(3.0)	(21.0)	3.8
Other permanent differences	(0.7)	(3.3)	1.1
	21.1%	527.7%	36.2%

The components of net deferred tax assets and liabilities are as follows (in thousands):

	Year Ended March 31, 2019	2018
Deferred tax assets:		
Accrued expenses	$ 4,359	$ 4,068
Deferred revenue	11,278	12,168
Reserves	5,463	3,375
Pension and other retiree benefits	5,960	5,307
Net operating loss carryforwards	14,992	21,251
Tax credit carryforwards	9,043	6,625
Share-based compensation	5,505	5,164
Other	166	418
Total gross deferred tax assets	56,766	58,376
Valuation allowance	(835)	(3,108)
Net deferred tax assets	55,931	55,268
Deferred tax liabilities:		
Intangible assets	(164,199)	(195,959)
Other Deferred Liabilities	(1,609)	—
Depreciation	(7,134)	(4,187)
Total deferred tax asset (liability)	$ (117,011)	$ (144,878)

Deferred tax assets and liabilities are recognized based on the anticipated future tax consequences, attributable to differences between financial statement carrying amounts of assets and liabilities and their respective tax bases. Deferred tax assets and liabilities are measured using enacted tax rates in effect for the year in which the differences are expected to reverse. The Company evaluates the recoverability of deferred tax assets by considering all positive and negative evidence relating to future profitability. The Company weighs objective and verifiable evidence more heavily in this analysis. In situations where the Company concludes that it does not have sufficient objective and verifiable evidence to support the realizability of the asset it creates a valuation allowance against it. As a result, the Company established a valuation allowance of $3.1 million as of March 31, 2018 and $0.8 million as of March 31, 2019, representing a decrease of $2.3 million. The decrease in the valuation allowance as of March 31, 2019, as compared to March 31, 2018, is primarily related to deferred tax assets related to Psytechnics Ltd that the Company believes are more likely than not to be realized. If it is later determined the Company is able to use all or a portion of the deferred tax assets for which a valuation allowance has been established, then the Company may be required to recognize these deferred tax assets through a tax benefit recorded in the period such determination is made.

At March 31, 2019, the Company had U.S. federal net operating loss carry forwards of approximately $26 million, state net operating loss carryforwards of approximately $21 million and tax credit carryforwards of approximately $11 million. The net operating loss and credit carryforwards will expire at various dates beginning in 2021. The Company also had foreign net operating loss carryforwards of approximately $59 million at March 31, 2019. The majority of foreign net operating losses have no expiration dates. Utilization of the U.S. net operating losses and credits are subject to an annual limitation due to the ownership change limitations provided by the Internal Revenue Code of 1986, as amended, and similar state tax provisions.

The Company files U.S. federal tax returns and files returns in various state, local and foreign jurisdictions. With respect to the U.S. federal and primary state jurisdictions, the Company is no longer subject to examinations by tax authorities for tax years before 2015, although carryforward attributes that were generated prior to 2015 may still be adjusted upon examination if they either have been or will be used in a future period. The Company also receives inquiries from various tax jurisdictions during the year, and some of those inquiries may include an audit of the tax return previously filed. In the normal course of business, NetScout and its subsidiaries are examined by various taxing authorities, including the IRS in the United States.

A reconciliation of the beginning and ending amount of unrecognized tax benefits for the fiscal years ended March 31, 2019, 2018 and 2017 is as follows (in thousands):

	Year Ended March 31,		
	2019	2018	2017
Balance at April 1,	$ 2,215	$ 2,926	$ 1,588
Additions based on tax positions related to the current year	28	126	46
Release of tax positions of prior years	(194)	(481)	(154)
Increase in unrecognized tax benefits as a result of a tax position taken during a prior period	—	—	1,446
Decrease relating to settlements with taxing authorities	(735)	(356)	—
Balance at March 31,	$ 1,314	$ 2,215	$ 2,926

The Company is unable to make a reliable estimate when cash settlement, if any, will occur with a tax authority as the timing of examinations and ultimate resolution of those examinations is uncertain. All of the unrecognized tax benefits would affect the effective tax rate if recognized.

The Company includes interest and penalties accrued in the consolidated financial statements as a component of the tax provision.

Several key provisions under the Tax Cuts and Jobs Act of 2017 (TCJA), enacted on December 22, 2017, impact the Company. The final impact of the TCJA, as described below, did not differ from the estimates reported at December 31, 2017. The key changes from the TCJA that were reported as of March 31, 2019 are the impact due to the reduced U.S. Federal corporate tax rate from 35.0% to 21.0%, a one-time transition tax on certain foreign earnings on which U.S. income tax was deferred, the Base Erosion Anti-Abuse Tax (BEAT), the deduction for Foreign Derived Intangible Income (FDII) and the Global Intangible Low Tax Income (GILTI).

The Company is required to record deferred tax assets and liabilities based on the enacted tax rate which they are expected to reverse in the future. Therefore, any U.S. related deferred taxes were re-measured from 35.0% down to 21.0% based on the recorded balances. As of December 31, 2017, the Company recorded an estimate related to the re-measurement of its deferred tax balances, which was a benefit of approximately $87.0 million. During the third quarter of the current fiscal year the Company finalized its calculation and did not adjust its estimate recorded.

Additionally, the Company is required to calculate a one-time transition tax based on its total post-1986 foreign subsidiaries' earnings and profits that were previously deferred from U.S. income taxes. As of December 31, 2017, the Company recorded an estimate related to this one-time transition charge of approximately $2.0 million. During the third quarter of the current fiscal year the Company finalized its calculation and did not adjust its estimate recorded.

The Company is subject to the tax on the Global Intangible Low-Taxed Income (GILTI). The Company is required to make an accounting policy election of either (1) treating taxes due on future U.S. inclusions in taxable income related to GILTI as a current period expense when incurred (the "period cost method") or (2) factoring such amounts into the Company's measurement of its deferred taxes (the "deferred method"). The Company has elected to treat taxes due on future U.S. inclusions in taxable income related to GILTI as a current period expense when incurred (the "period cost method").

The Company expects that current and future foreign earnings may be repatriated tax efficiently as a result of the TCJA. After fully assessing the impact of the TCJA, the Company has determined that its current and future foreign earnings will not be indefinitely reinvested where the Company can repatriate those earnings in a tax efficient manner acceptable to management and which comply with local statutory and operational requirements. Additionally, the Company intends a one-time repatriation of certain previously taxed historical earnings because of TCJA which can be repatriated in a tax efficient manner. The Company continues to assert that any remainder of its historical book basis in excess of tax basis will be permanently reinvested. It is not practicable to estimate the amount of unrecognized deferred U.S. taxes on these differences.

NOTE 18 – COMMITMENTS AND CONTINGENCIES

Acquisition and Divestiture Related

The Company has a contingent consideration asset related to the divestiture of its HNT tools business in September 2018. The contingent consideration asset represents potential future earnout payments to the Company of up to $4.0 million over two years that are contingent on the HNT tools business achieving certain milestones. The fair value of the contingent consideration of $2.3 million was recognized on the acquisition date and was measured using unobservable (Level 3) inputs. The contingent consideration asset at March 31, 2019 was $0.8 million.

The Company had a contingent liability at March 31, 2018 for $523 thousand related to the acquisition of Efflux in July 2017 for which an escrow account was established to cover damages NetScout may have suffered related to any liabilities that NetScout did not agree to assume or as a result of the breach of representations and warranties of the seller as described in the merger agreement. The $523 thousand was paid to the sellers in July 2018.

The Company had a contingent liability at March 31, 2018 for $4.9 million related to the acquisition of Simena LLC in November 2011, which was based on the ultimate settlement of assets and liabilities acquired as part of the transaction, and the former owners' future period of employment with NetScout. The contingent purchase consideration of $5.0 million was paid to the seller in November 2018.

The Company had $660 thousand of contingent purchase consideration related to the acquisition of Avvasi Incorporated (Avvasi) in August 2016 for which an escrow account was established to cover damages NetScout may have suffered related to any liabilities that NetScout did not agree to assume or as a result of the breach of representations and warranties of the seller as described in the asset purchase agreement. The $660 thousand was paid to the seller in August 2017.

Legal

From time to time, NetScout is subject to legal proceedings and claims in the ordinary course of business. In the opinion of management, the amount of ultimate expense with respect to any current legal proceedings and claims, if determined adversely, will not have a material adverse effect on the Company’s financial condition, results of operations or cash flows.

As previously disclosed, in March 2016, Packet Intelligence LLC (Packet Intelligence or Plaintiff) filed a Complaint against NetScout and two subsidiary entities in the United States District Court for the Eastern District of Texas asserting infringement of five United States patents. Plaintiff’s Complaint alleged that legacy Tektronix GeoProbe products, including the G10 and GeoBlade products, infringed these patents. NetScout filed an Answer denying Plaintiff’s allegations and asserting that Plaintiff’s patents were, among other things, invalid, not infringed, and unenforceable due to inequitable conduct. In October 2017, a jury trial was held to address the parties’ claims and counterclaims regarding infringement of three patents by the G10 and GeoBlade products, invalidity of these patents, and damages. On October 13, 2017, the jury rendered a verdict finding in favor of the Plaintiff and that Plaintiff was entitled to $3,500,000 for pre-suit damages and $2,250,000 for post-suit damages. The jury indicated that the awarded damages amounts were intended to reflect a running royalty. The Court also conducted a bench trial on whether these patents were unenforceable due to, among other things, inequitable conduct. In September 2018, the Court entered judgment and "enhanced" the jury verdict in the amount of $2.8 million as a result of a jury finding. The judgment also awards pre- and post judgement interest, and a running royalty on the G10 and GeoBlade products until the expiration of the patents at issue, the last date being June 2022. The Court denied the Plaintiff's motion for fees. Following the entry of judgment, NetScout filed motions for judgment as a matter of law, seeking to both overturn the verdict and to reduce damages. NetScout has concluded that the risk of loss from this matter is currently neither remote nor probable, and therefore, under GAAP definitions, the risk of loss is termed "reasonably possible". Therefore, accounting rules require NetScout to provide an estimate for the range of potential liability. NetScout currently estimates that the estimated range of liability is between $0 and the aggregate amount awarded by the jury and the Court's award of enhanced damages, plus potential additional pre- and post-judgment interest amounts and costs and any royalties owed on post-trial sales of the accused G10 and GeoBlade products. NetScout intends to continue to vigorously dispute Packet Intelligence’s claims including through appeal, if necessary.

Unconditional purchase obligations

At March 31, 2019, the Company had unconditional purchase obligations of $49.2 million, which represent estimated open purchase orders to purchase inventory as well as commitments for products and services used in the normal course of business.

Leases

NetScout leases office space under non-cancelable operating leases. Total rent expense under the leases was $16.3 million, $16.6 million and $13.8 million for the fiscal years ended March 31, 2019, 2018 and 2017, respectively.

At March 31, 2019, future non-cancelable minimum lease commitments (including office space, copiers and automobiles) are as follows (in thousands):

Year Ending March 31,		
2020	$	16,102
2021		11,059
2022		9,804
2023		8,807
2024		8,500
Remaining years		43,997
Total minimum lease payments	$	98,269

NOTE 19 – SEGMENT AND GEOGRAPHIC INFORMATION

The Company manages its business in the following geographic areas: United States, Europe, Asia and the rest of the world. In accordance with United States export control regulations, the Company does not sell or do business with countries subject to economic sanctions and export controls.

Total revenue by geography is as follows (in thousands):

	Year Ended March 31,		
	2019	2018	2017
United States	$ 553,267	$ 581,853	$ 722,440
Europe	148,036	174,445	193,441
Asia	72,355	88,917	95,735
Rest of the world	136,260	141,572	150,496
	$ 909,918	$ 986,787	$ 1,162,112

The United States revenue includes sales to resellers in the United States. These resellers fulfill customer orders and may subsequently ship the Company’s products to international locations. Further, the Company determines the geography of its sales after considering where the contract originated. A majority of revenue attributable to locations outside of the United States is a result of export sales. Substantially all of the Company’s identifiable assets are located in the United States.

NOTE 20 - RELATED PARTY TRANSACTIONS

During the Company's fiscal year ended March 31, 2016 and the three months ended June 30, 2016, a member of the Company’s Board of Directors served as an executive officer of Danaher. As part of the split off of Danaher’s Communications Business and the Company’s subsequent acquisition of that business from Newco's shareholders, NetScout entered into multiple transactions with Danaher which include: transition services agreements, lease agreements, closing agreements, and compensation for post-combination services provisions within the separation and distribution agreement. This board member is now the founding President and CEO of Fortive Corporation (Fortive), which spun off of Danaher in July 2016. As of September 12, 2018, this person is no longer serving on the Company's Board of Directors. As part of the spin-off of Fortive, the transition services agreement was amended to, among other things, assign Danaher's rights, duties, obligations and liabilities under the transition services agreement to Fluke Corporation, a subsidiary of Fortive. The Company has disclosed the transactions with Danaher and Fortive parenthetically within the financial statements.

As disclosed parenthetically within the Company's consolidated balance sheet, the Company has receivables from related parties. The following table summarizes those balances (in thousands):

	March 31, 2019	March 31, 2018
Danaher	$ —	$ 252
Fortive	335	2,935
	$ 335	$ 3,187

As disclosed parenthetically within the Company's consolidated balance sheet, the Company has payables due to related parties. The following table summarizes those balances (in thousands):

	March 31, 2019	March 31, 2018
Fortive	$ 244	$ 369
	$ 244	$ 369

As disclosed parenthetically within the Company's consolidated statements of operations, the Company has recorded expenses from related parties. The following table summarizes those balances (in thousands):

	Year Ended March 31,		
	2019	2018	2017
Danaher:			
Cost of product revenue	$ —	$ —	$ 4,690
Cost of service revenue	—	—	485
Research and development expenses	—	—	1,720
Sales and marketing	—	2	2,273
General and administrative expenses	—	7	2,551
	$ —	$ 9	$ 11,719
Fortive:			
Cost of product revenue	$ —	$ 245	$ 2,539
Cost of service revenue	529	665	260
Research and development expenses	20	3	(96)
Sales and marketing	—	—	150
General and administrative expenses	20	1,696	1,548
Other income	—	(56)	(426)
	$ 569	$ 2,553	$ 3,975

As disclosed within the Company's consolidated statements of cash flows, the Company has cash flows from operating activities resulting from amounts due to related parties and due from related parties. The following table summarizes those cash flows from operating activities (in thousands):

	Year Ended March 31,		
	2019	2018	2017
Due from related party:			
Danaher	$ 58	$ 96	$ 17,310
Fortive	114	347	7,745
Total	$ 172	$ 443	$ 25,055
Due to related party:			
Danaher	$ 243	$ —	$ (2,954)
Fortive	(9)	(75)	162
Total	$ 234	$ (75)	$ (2,792)

As disclosed within the Company's consolidated statements of cash flows, the Company has cash flows from investing activities resulting from amounts due from related parties. The following table summarizes those cash flows from investing activities (in thousands):

	Year Ended March 31,		
	2019	2018	2017
Due from related party:			
Danaher	$ —	$ —	$ 12,864
Total	$ —	$ —	$ 12,864

The Company recognized $0, $45 thousand, and $177 thousand in revenue from Danaher during the fiscal years ended March 31, 2019, 2018, and 2017 in the ordinary course of business.

A member of the Company’s Board of Directors served as a member of the board of directors for EMC Corporation (EMC) during the fiscal years ended March 31, 2017 and 2016, and therefore, the Company considered sales to EMC to be a related party transaction. During the quarter ended September 30, 2016, EMC was acquired by Dell Technologies and EMC's board member resigned. The Company continued to report the wind down of preexisting transactions as related party transactions through the Company's fiscal year 2017. The Company recognized $167 thousand in revenue from EMC during the fiscal year ended March 31, 2017 in the ordinary course of business.

A member of the Company’s Board of Directors served as a trustee for Boston College during the fiscal years ended March 31, 2017 and 2016 and a portion of the fiscal year ended March 31, 2018 and therefore, the Company considers sales to Boston College to be a related party transaction. The Company recognized $150 thousand and $0 in revenue from Boston College during the fiscal years ended March 31, 2018 and 2017, respectively, in the ordinary course of business.

NOTE 21 – QUARTERLY RESULTS OF OPERATIONS – UNAUDITED

The following table sets forth certain unaudited quarterly results of operations of NetScout for the fiscal years ended March 31, 2019 and 2018. In the opinion of management, this information has been prepared on the same basis as the audited consolidated financial statements and all necessary adjustments, consisting only of normal recurring adjustments, have been included in the amounts stated below to present fairly the quarterly information when read in conjunction with the audited consolidated financial statements and notes thereto included elsewhere in this Annual Report on Form 10-K. The quarterly operating results are not necessarily indicative of future results of operations.

	Three Months Ended (in thousands, except per share data)							
	March 31, 2019	Dec. 31, 2018	Sept. 30, 2018	June 30, 2018	March 31, 2018	Dec. 31, 2017	Sept. 30, 2017	June 30, 2017
Revenue	$ 235,002	$ 246,008	$ 223,797	$ 205,111	$ 235,224	$ 268,944	$ 256,863	$ 225,756
Gross profit	$ 176,466	$ 176,424	$ 159,817	$ 143,084	$ 168,633	$ 204,435	$ 182,620	$ 159,194
Net income (loss)	$ 19,211	$ (3,603)	$ (26,428)	$ (62,504)	$ 16,817	$ 89,685	$ (2,468)	$ (24,222)
Diluted net income (loss) per share	$ 0.24	$ (0.05)	$ (0.34)	$ (0.78)	$ 0.20	$ 1.02	$ (0.03)	$ (0.27)

NOTE 22 – SUBSEQUENT EVENTS

On May 7, 2019, the Company repaid $50.0 million of borrowings under the Amended Credit Agreement.

NetScout Systems, Inc.
Schedule II—Valuation and Qualifying Accounts
(in thousands)

	Balance at Beginning of Year	Additions Resulting in Charges to Operations	Charges to Other Accounts	Deductions Due to Write-Offs	Balance at End of Year
Year ended March 31, 2017					
Allowance for doubtful accounts	$ 5,069	$ 6,961	$ (7,580)	$ (2,384)	$ 2,066
Deferred tax asset valuation allowance	$ 3,777	$ (338)	$ (65)	$ —	$ 3,374
Year ended March 31, 2018					
Allowance for doubtful accounts	$ 2,066	$ 695	$ (346)	$ (424)	$ 1,991
Deferred tax asset valuation allowance	$ 3,374	$ —	$ —	$ (266)	$ 3,108
Year ended March 31, 2019					
Allowance for doubtful accounts	$ 1,991	$ 826	$ (464)	$ (770)	$ 1,583
Deferred tax asset valuation allowance	$ 3,108	$ 905	$ —	$ (3,178)	$ 835

CORPORATE INFORMATION

BOARD OF DIRECTORS

ANIL K. SINGHAL
Chairman of the Board,
Co-Founder, President and Chief Executive Officer
NETSCOUT SYSTEMS, INC.

MICHAEL SZABADOS
Vice Chairman of the Board
and Chief Operating Officer
NETSCOUT SYSTEMS, INC.

ROBERT E. DONAHUE
President and Chief Executive Officer (Retired)
Authorize.net Holdings, Inc.

JOHN R. EGAN
Managing Partner
Egan-Managed Capital, L.P.

ALFRED GRASSO
President and Chief Executive Officer (Retired)
The Mitre Corporation

JOSEPH G. HADZIMA, JR.
Managing Director
Main Street Partners, LLC

VIVIAN VITALE
Principal
Vivian Vitale Consulting, LLC

CHRISTOPHER PERRETTA
Chief Information and Operations Officer (Retired)
MUFG Americas Holding Corporation

SUSAN L. SPRADLEY
Chief Executive Officer
Motion Intelligence, Inc.

EXECUTIVE OFFICERS

ANIL K. SINGHAL
Chairman of the Board,
Co-Founder, President and Chief Executive Officer

MICHAEL SZABADOS
Vice Chairman of the Board
and Chief Operating Officer

JEAN BUA
Executive Vice President,
Chief Financial Officer and Treasurer

JOHN W. DOWNING
Executive Vice President,
Worldwide Sales Operations

NETSCOUT®

CORPORATE HEADQUARTERS

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FORM 10-K

Stockholders may obtain copies of the exhibits to the Company's Annual Report on Form 10-K as filed with the Securities and Exchange Commission at the SEC's website, www.sec.gov, or by contacting NETSCOUT Investor Relations or by visiting the investor relations section of the Company's website, www.netscout.com.

INVESTOR RELATIONS

NETSCOUT SYSTEMS, INC.
310 Littleton Road
Westford, MA 01886 USA
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Email: ir@netscout.com

ANNUAL MEETING

The Annual Meeting of Stockholders of the Company will be held on Thursday, September 12, 2019 at 10:00 a.m. ET at NETSCOUT's corporate headquarters.

LEGAL COUNSEL

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Boston, MA

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PricewaterhouseCoopers LLP
Boston, MA

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COMMON STOCK

Common Stock of NETSCOUT SYSTEMS, INC. is traded on the Nasdaq Global Select Market under the symbol "NTCT"

NTCT
NASDAQ
GLOBAL SELECT

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