2017 ANNUAL MEETING

Proxy Statement

2016 Annual Report

Fellow Calix Stockholders:

We are very pleased that 2016 was our fourth consecutive year of revenue growth, with 2016 revenues increasing 13% over 2015. Service providers increasingly deployed transformative solutions from our systems, platforms and software portfolio. We ended the year with over 1,300 customers, with over 400 of them utilizing the power of our cloud-based software, Calix Cloud, to grow their ARPU, lower their churn and lower their costs. Our AXOS operating system continues to lead the transformation of our industry and we now have over 100 customers deploying AXOS in their networks to deliver next generation services based on Software Defined Access.

Business with our largest customers continued to grow and we ended 2016 with two greater than 10% customers: CenturyLink and Windstream. Our investment in innovation accelerated as well and we increased research and development investment to over $100 million, thereby leading to broader opportunities with both existing as well as prospective customers.

In 2016, we encountered some business challenges as we invested in new service offerings, leading to higher than expected costs and lower overall profitability in the turnkey network improvement projects that we have taken on for our customers. However, we enter 2017 with a new services leader who is well on his way to transforming our services business into a set of strategically aligned offerings that complement our products and empower our customers' continuing transformation of their infrastructure and business models.

We ended 2016 with a solid, debt-free balance sheet with over $78 million in cash and marketable securities, equivalent to $1.59 per share. During the year, we generated $24.4 million in operating cash flow, invested $9.8 million in capital expenditures to support future growth and completed our previously announced $40 million stock repurchase plan, having repurchased $12.8 million of Calix shares at an average price of $7.16 per share.

Here are some notable examples of the innovation and disruption that we have brought to our industry in the past year:

- CenturyLink leveraged the Calix AXOS G.fast solution to bring gigabit capability to subscribers living in Multiple Dwelling Units in Platteville, Wisconsin using existing, in-building twisted pair and coaxial infrastructure. This is the largest G.fast deployment in North America.
- We launched the AXOS E3-2 Intelligent PON Node, a revolutionary system designed to collapse access and service edge functions into a distributed network architecture. The AXOS E3-2 disrupts the economics of building fiber deep architectures and dramatically reduces service provider operational costs.
- We launched the AXOS E9-2 Intelligent Edge System. The disruptive architecture of the AXOS E9-2 delivers a dramatic reduction in service providers' total cost of ownership by collapsing access, aggregation, and service edge functions - including routing and subscriber management - into a single system. The AXOS E9-2 was selected by Verizon for lab testing in their Innovation Lab in Waltham, MA. In an NGPON2 environment, the AXOS E9-2 allows service providers to converge mobile, business, and residential services networks into a single, cost-effective Software Defined Access network.
- We introduced Calix Cloud, our second-generation family of subscription services for network data analytics and subscriber experience assurance. Calix Cloud applies Calix's real-world experience in network and subscriber data analytics and transforms it into a family of role-based subscription services that enable service providers to discover new insights, simplify processes, and elevate their business and subscriber experience.
- Our AXOS initiatives included AXOS Sandbox, a virtual environment launched in January 2017 that dramatically improves the economics for our customers of new services introduction via eliminating the need for physical systems in their labs. By deploying virtual instances of Calix AXOS systems, service providers can speed up service delivery by reducing the time needed for lab testing, BSS and OSS integration work, and software certification.

In recognition of our innovation, in May 2016, Light Reading, a leading publication in our sector, selected Calix's Software Defined Access framework and AXOS operating system for its *"Most Innovative SDN Product Strategy (Vendor)"* award. And, in March 2017, the AXOS E9-2 was recognized by the 2017 Lightwave Innovation Reviews with a score of 4.5 out of 5 possible points as determined by a distinguished panel of third-party judges.

In March 2016, we hosted our first Investor Day since our 2010 IPO. The event included presentations to investors by key members of the Calix executive team and provided our broader leadership with an opportunity to interact with our stockholders. We look forward to hosting similar days in the future as we execute on our strategy.

We added two new members to our management team in 2016: Michael Weening, our Executive Vice President of Sales and Marketing and Gregory Billings, our Senior Vice President of Services. Michael joined us from Salesforce.com and Greg joined us from Zebra Technologies.

As always, I want to thank you – our customers, suppliers, employees, and fellow Calix stockholders – for your continued support. We have made significant investments in people, systems and platforms over the past several years. These have resulted in a number of industry-leading platform, systems and software introductions in 2016 and into 2017. We remain focused on serving our existing customer base as well as striving to win share in previously underserved large, global customers. As the power of AXOS and Calix Cloud drives greater adoption of Software Defined Access in the marketplace, we are laying the groundwork for continued strong growth.

Sincerely,

Carl Russo
President and CEO
Calix, Inc.

CALIX, INC.

1035 N. McDowell Boulevard
Petaluma, California 94954

NOTICE OF ANNUAL MEETING OF STOCKHOLDERS
TO BE HELD ON MAY 17, 2017

To the Stockholders of Calix, Inc.:

The Annual Meeting of Stockholders ("Annual Meeting") of Calix, Inc. ("Calix"), will be held virtually, via live webcast at **www.virtualshareholdermeeting.com/CALX17**, on Wednesday, May 17, 2017, at 9:00 a.m. Pacific Daylight Time. The meeting will be online only, and will be held for the following purposes:

1. To elect two directors to the Calix Board of Directors ("Board");
2. To approve the Amended and Restated Employee Stock Purchase Plan ("ESPP") to increase the number of shares of common stock issuable under the ESPP by 3,000,000;
3. To approve the 2017 Nonqualified Employee Stock Purchase Plan;
4. To approve, on a non-binding, advisory basis, the compensation of our named executive officers ("NEOs");
5. To approve, on a non-binding, advisory basis, the frequency of future advisory votes to approve the compensation of our NEOs;
6. To ratify the selection of KPMG LLP as Calix's independent registered public accounting firm for the fiscal year ending December 31, 2017; and
7. To transact such other business as may properly come before the Annual Meeting or any adjournment or postponement thereof.

The above items of business are more fully described in the Proxy Statement. Only stockholders who owned Calix common stock at the close of business on March 21, 2017 can vote at this meeting or any adjournments that take place.

We have elected to use the Internet as our primary means of providing our proxy materials to stockholders. Consequently, stockholders will not receive paper copies of our proxy materials unless they specifically request them. We will send a Notice of Internet Availability of Proxy Materials ("Notice") on or about April 4, 2017 to our stockholders of record as of the close of business on March 21, 2017. We are also providing access to our proxy materials over the Internet beginning on or about April 4, 2017. Electronic delivery of our proxy materials will significantly reduce our printing and mailing costs, and will reduce the environmental impact of the proxy materials.

The Notice contains instructions for accessing the proxy materials, including the Proxy Statement and our annual report, and provides information on how stockholders may obtain paper copies free of charge. The Notice also provides: the date and time of the virtual Annual Meeting; the matters to be acted upon at the meeting and the Board's recommendation with regard to each matter; and information on how to attend the virtual Annual Meeting and vote online.

You are cordially invited to attend the virtual Annual Meeting, but whether or not you expect to attend, to ensure that your vote is recorded, you should vote and submit your proxy over the Internet following the voting procedures described in the Notice. In addition, you can vote and submit your proxy online, or if you have requested and received paper copies of proxy materials, over the phone or by signing, dating and returning by mail the proxy card sent to you.

By Order of the Board of Directors

/s/ William J. Atkins

William J. Atkins
Executive Vice President, Chief Financial Officer

Petaluma, California
April 4, 2017

The Notice of Annual Meeting, Proxy Statement and Form of Proxy are being distributed and made available on or about April 4, 2017.

PROXY STATEMENT
FOR 2017 ANNUAL MEETING OF STOCKHOLDERS

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CALIX, INC.
1035 N. McDowell Boulevard
Petaluma, California 94954

PROXY STATEMENT FOR THE 2017 ANNUAL MEETING OF STOCKHOLDERS

IMPORTANT NOTICE REGARDING THE AVAILABILITY OF PROXY MATERIALS FOR THE STOCKHOLDER MEETING TO BE HELD ON MAY 17, 2017

The Board of Directors of Calix, Inc. is soliciting your proxy to vote at the virtual Annual Meeting of Stockholders to be held on May 17, 2017, at 9:00 a.m. Pacific Daylight Time, and any adjournment or postponement of that meeting ("Annual Meeting"). The Annual Meeting will be held via live webcast only at **www.virtualshareholdermeeting.com/CALX17**.

We have elected to provide access to our proxy materials on the Internet. Accordingly, we are sending a Notice of Internet Availability of Proxy Materials ("Notice") to our stockholders of record as of March 21, 2017 ("Record Date"), while brokers and other nominees who hold shares on behalf of beneficial owners will be sending their own similar notice. All stockholders will have the ability to access the proxy materials on the website referred to in the Notice, or to request a printed set of the proxy materials. Instructions on how to request a printed copy by mail or email may be found in the Notice and on the website referred to in the Notice, including an option to request paper copies on an ongoing basis. On or about April 4, 2017, we are making this Proxy Statement available on the Internet and are mailing the Notice to all stockholders entitled to vote at the Annual Meeting. We intend to mail or email this Proxy Statement, together with a proxy card, to those stockholders entitled to vote at the Annual Meeting who have properly requested paper copies of such materials within three business days of request.

The only voting securities of Calix, Inc. are shares of common stock, $0.025 par value per share ("common stock"), of which there were 49,624,384 shares outstanding as of the Record Date (excluding any treasury shares). We need the holders of a majority in voting power of the shares of common stock issued and outstanding and entitled to vote, present or represented by proxy, to hold the Annual Meeting.

In this Proxy Statement, we refer to Calix, Inc. as the "Company," "Calix," "we" or "us" and the Board of Directors as the "Board." When we refer to Calix's fiscal year, we mean the twelve-month period ending December 31 of the stated year.

Our Annual Report to Stockholders, which contains consolidated financial statements for fiscal year 2016, accompanies this Proxy Statement if you have requested and received a copy of the proxy materials in the mail. Stockholders that received the Notice can access this Proxy Statement and the Annual Report to Stockholders at the website referred to in the Notice. You also may obtain a copy of our Annual Report on Form 10-K for fiscal year 2016, which was filed with the Securities and Exchange Commission ("SEC"), without charge, by writing to our Investor Relations department at the above address. Our Annual Report on Form 10-K and Proxy Statement are also available under "SEC Filings" in the Investor Relations section of our website at investor-relations.calix.com and at the SEC's web site at www.sec.gov.

THE PROXY PROCESS AND STOCKHOLDER VOTING

QUESTIONS AND ANSWERS ABOUT THIS PROXY MATERIAL AND VOTING

Who can vote at the Annual Meeting?

Only stockholders of record at the close of business on March 21, 2017 will be entitled to vote online at the Annual Meeting. At the close of business on March 21, 2017, there were 49,624,384 shares of common stock issued and outstanding and entitled to vote.

Stockholder of Record: Shares Registered in Your Name

If, on March 21, 2017, your shares were registered directly in your name with Calix's transfer agent, Computershare, Inc., then you are a stockholder of record. As a stockholder of record, you may vote online at the Annual Meeting or vote by proxy. Whether or not you plan to attend the Annual Meeting, to ensure your vote is counted we urge you to vote by proxy on the Internet as instructed below, or if you request and receive a proxy card by mail or email, over the phone or by signing, dating and returning by mail the proxy card sent to you.

Beneficial Owner: Shares Registered in the Name of a Broker, Bank or Other Agent

If, on March 21, 2017, your shares were held in an account at a brokerage firm, bank, dealer or other similar organization, then you are the beneficial owner of shares held in a "street name" and these proxy materials are being forwarded to you by that organization. The organization holding your account is considered the stockholder of record for purposes of voting at the Annual Meeting. As a beneficial owner, you have the right to direct your broker or other agent on how to vote the shares in your account. You are also welcome to attend the Annual Meeting and to vote online.

What do I need in order to be able to attend the Annual Meeting online?

Calix will be hosting the Annual Meeting via live webcast only. Any stockholder can attend the Annual Meeting live online at **www.virtualshareholdermeeting.com/CALX17**. The webcast will start at 9:00 a.m. Pacific Daylight Time. Stockholders may vote and submit questions while attending the Annual Meeting online. In order to be able to participate in the online Annual Meeting, you will need the control number included on your Notice or, if you received a printed copy of the proxy materials, your proxy card if you are a stockholder of record, or included with your voting instruction card and voting instructions you received from your broker, bank or other agent if you hold your shares in a "street name." Instructions on how to participate online are also posted online at **www.virtualshareholdermeeting.com/CALX17**.

What am I being asked to vote on?

You are being asked to vote on:

- election of two Class I directors to hold office until our 2020 Annual Meeting of Stockholders (Proposal No. 1);
- approval of the Amended and Restated Employee Stock Purchase Plan ("ESPP") to increase the number of shares of common stock issuable under the ESPP by 3,000,000 (Proposal No. 2);
- approval of the 2017 Nonqualified Employee Stock Purchase Plan ("Nonqualified ESPP") (Proposal No. 3);
- approval on a non-binding, advisory basis of the compensation of our named executive officers, or NEOs, as disclosed in this Proxy Statement (Proposal No. 4);
- approval on a non-binding, advisory basis of the frequency of future advisory votes of the compensation of our NEOs, as disclosed in this Proxy Statement (Proposal No. 5); and
- ratification of the selection of KPMG LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2017 (Proposal No. 6).

In addition, you are entitled to vote on any other matters that are properly brought before the Annual Meeting.

How does the Board recommend I vote on the Proposals?

The Board recommends that you vote:

- **FOR** each of the Class I director nominees;
- **FOR** approval of our ESPP;
- **FOR** approval of our Nonqualified ESPP;
- **FOR** approval, on a non-binding, advisory basis, of the compensation of our NEOs;
- A frequency of every "**1 year**" for future advisory votes to approve the compensation of our NEOs; and
- **FOR** ratification of KPMG LLP as our independent registered public accounting firm.

How do I vote?

For election of directors, you may either vote "For" the two nominees or you may "Withhold" your vote for all or for any nominee you specify. For any other matter to be voted on, you may vote "For" or "Against" or abstain from voting. 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 any of the following manners:

- To vote during the Annual Meeting, follow the online instructions provided on the Notice of Internet Availability of Proxy Materials to login to **www.virtualshareholdermeeting.com/CALX17** to cast your vote.
- To vote over the Internet prior to the Annual Meeting, follow the instructions provided on the Notice of Internet Availability of Proxy Materials.
- To vote by phone, call the toll free number found on the proxy card you request and receive by mail or email, which you can request by following the instructions provided on the Notice of Internet Availability of Proxy Materials.
- To vote by mail, complete, sign and date the proxy card you request and receive by mail or email, and return it promptly by mail. As long as we receive your signed proxy card, or your vote by Internet or phone, by 11:59 p.m. Eastern Daylight Time on May 16, 2017, we will vote your shares as you direct.
- Whether or not you plan to attend the Annual Meeting, we urge you to vote by proxy, phone or the Internet to ensure that your vote is counted. Even if you have submitted a proxy or voted by phone or the Internet before the Annual Meeting, you may still attend the Annual Meeting and vote online. In such case, your previously submitted proxy or vote will be disregarded.

Beneficial Owner: Shares Registered in the Name of Broker, Bank or Other Agent

If you are a beneficial owner of shares registered in the name of your broker, bank or other agent, you should have received a voting instruction card and voting instructions with these proxy materials from that organization rather than from us. Complete and mail the voting instruction card to ensure that your vote is counted. Follow the instructions from your broker, bank or other agent included with these proxy materials, or contact your broker, bank or other agent to request a proxy form. You may also vote online at the Annual Meeting.

Who counts the votes?

Broadridge Financial Solutions, Inc., or Broadridge, has been engaged as our independent agent to tabulate stockholder votes. If you are a stockholder of record, and you choose to vote over the Internet (either prior to or during the Annual Meeting) or by phone, Broadridge will access and tabulate your vote electronically, and if you have requested and received proxy materials via mail or email and choose to sign and mail your proxy card, your executed proxy card is returned directly to Broadridge for tabulation. As noted above, if you hold your shares through a broker, your broker (or its agent for tabulating votes of shares held in a "street name") returns one proxy card to Broadridge on behalf of all its clients.

What is the required vote and how are votes counted?

A majority of the outstanding shares of common stock must be present or represented by proxy at the Annual Meeting in order to have a quorum. Abstentions and broker non-votes will be treated as shares present for the purpose of determining the presence of a quorum.

With respect to Proposal No. 1, the election of directors, directors will be elected by a plurality of the votes cast, which means that the two nominees receiving the highest number of "For" votes will be elected. Abstentions and broker non-votes will have no effect with regard to this proposal, because approval of a percentage of shares present or outstanding is not required for this proposal.

With respect to Proposals No. 2, 3, 4 and 6, the affirmative vote of the holders of a majority in voting power of the shares of common stock present or by proxy and entitled to vote on the proposal is required for approval. Abstentions have the same effect as a vote against these proposals.

With respect to Proposal No. 5, the applicable "**1 year**," "**2 years**" or "**3 years**" option must receive the affirmative vote of the holders of a majority in voting power of the shares of common stock which are present or represented by proxy and entitled to vote on this proposal. However, if none of the frequency alternatives receives a majority vote, we will consider the frequency that receives the highest number of votes by stockholders to be the frequency that has been selected by our stockholders. Abstentions will not have any effect on the vote on this proposal.

Because your votes on Proposal No. 4 and 5 are advisory, they will not be binding on us, our Board or our Compensation Committee. However, we value our stockholders' views on the effectiveness of our executive compensation program and our Board and Compensation Committee will consider the advisory vote of our stockholders when making future decisions about executive compensation.

Under the New York Stock Exchange ("NYSE") rules, brokers are permitted to vote their clients' proxies in their own discretion as to certain "routine" proposals. However, where a proposal is considered "non-routine," a broker who has received no instructions from its client

generally does not have discretion to vote its clients' uninstructed shares on that proposal. When a broker indicates on a proxy that it does not have discretionary authority to vote certain shares on a particular proposal, the missing votes are referred to as "broker non-votes." Those shares would be considered present for purposes of determining whether a quorum is present, but would not be counted in determining the number of votes present for the proposal. Those shares would not be taken into account in determining the outcome of the non-routine proposal.

Under NYSE rules, Proposals No. 1 through No. 5 are non-routine matters while Proposal No. 6 is a routine matter. Because brokers cannot vote uninstructed shares on behalf of their customers for non-routine matters, it is important that stockholders vote their shares.

Broadridge will separately count "For" and "Withhold" votes with respect to Proposal No. 1, "For" and "Against" votes and abstentions, with respect to Proposal Nos. 2, 3, 4 and 5, and "For" and "Against" votes, abstentions and broker non-votes with respect to Proposal No. 6.

How many votes do I have?

On each matter to be voted upon, you have one vote for each share of common stock you own as of March 21, 2017.

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

If you have properly requested and received a proxy card by mail or email, and we receive a signed and dated proxy card that does not specify how your shares are to be voted, your shares will be voted "For" the election of each of the two nominees for director, "For" Proposals No. 2, 3, 4 and 6 and a frequency of every "1 year" for Proposal No. 5. If any other matter is properly presented at the Annual Meeting, the individuals named as proxy holders on your proxy card will vote your shares in the manner recommended by the Board on all proposals presented in this Proxy Statement and as they may determine in their best judgment as to any other matters properly presented for vote at the Annual Meeting.

Who is paying for this proxy solicitation?

We will pay for the entire cost of soliciting proxies. In addition to these mailed proxy materials, our directors, officers and employees may also solicit proxies in person, by phone 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.

In addition, we have engaged MacKenzie Partners, Inc., a proxy solicitation firm, to assist in the solicitation of proxies for a fee of approximately $15,000, plus reasonable out-of-pocket expenses.

What does it mean if I receive more than one Notice of Internet Availability of Materials or set of materials?

If you receive more than one Notice of Internet Availability of Materials or more than one set of materials, your shares are registered in more than one name or are registered in different accounts. In order to vote all the shares you own, you must follow the instructions for voting on the Internet on all of the Notices of Internet Availability of Proxy Materials or proxy cards you receive via mail or email upon your request, which includes voting over the Internet, phone or by signing and returning all of the proxy cards you request and receive.

Can I change my vote after submitting my proxy or voting on the Internet or by phone?

Yes. You can revoke your proxy or prior vote at any time before the final vote at the Annual Meeting. If you are the record holder of your shares, you may revoke your proxy or prior vote in any one of three ways:

- You may submit another properly completed proxy with a later date or submit a new vote on the Internet or by phone using the same instructions followed when you submitted your prior vote.
- You may send a written notice that you are revoking your proxy to Calix's Corporate Secretary at 1035 N. McDowell Boulevard, Petaluma, California 94954.
- You may attend the Annual Meeting and vote online. Simply logging into the Annual Meeting will not, by itself, revoke your proxy or prior vote.

If your shares are held by your broker, bank or other agent, you should follow the instructions provided by them.

How will voting on any business not described in this Proxy Statement be conducted?

We are not aware of any business to be considered at the Annual Meeting other than the items described in this Proxy Statement. If any other matter is properly presented for vote at the Annual Meeting and you are not attending the meeting in person but have voted by proxy, the individuals named as proxy holder on your proxy card will vote your shares as they may determine in their best judgment.

When are stockholder proposals due for next year's Annual Meeting?

To be considered for inclusion in next year's proxy materials, your proposal must be submitted in writing by December 5, 2017, to Calix's Corporate Secretary at 1035 N. McDowell Boulevard, Petaluma, California 94954. If you wish to submit a proposal that is not to be included in next year's proxy materials under the SEC's shareholder proposal procedures or nominate a director, you must do so between January 17, 2018 and February 16, 2018; provided that if the date of the annual meeting is earlier than April 17, 2018 or later than July 16, 2018, you must give notice not later than the 90th day prior to the annual meeting date or, if later, the 10th day following the day on which public disclosure of the annual meeting date is first made. You are also advised to review our Bylaws, which contain additional requirements about advance notice of stockholder proposals and director nominations.

What is the quorum requirement?

A quorum of stockholders is necessary to hold a valid meeting. A quorum will be present if the holders of a majority in voting power of the shares of common stock issued and outstanding and entitled to vote are present or represented by proxy at the Annual Meeting. On the Record Date, there were 49,624,384 shares outstanding and entitled to vote. Accordingly, 24,812,193 shares must be represented by stockholders present at the Annual Meeting or by proxy to have a quorum.

Your shares will be counted towards the quorum if you submit a valid proxy vote or vote online at the Annual Meeting. Abstentions and broker non-votes also will be counted towards the quorum requirement. If there is no quorum, either the chairperson of the Annual Meeting or a majority in voting power of the stockholders entitled to vote at the Annual Meeting, present or represented by proxy, may adjourn the Annual Meeting to another time or place.

How can I find out the results of the voting at the Annual Meeting?

Voting results will be announced by the filing of a Current Report on Form 8-K within four business days after the Annual Meeting. If final voting results are unavailable at that time, we will file an amended Current Report on Form 8-K within four business days of the day the final results are available.

PROPOSAL NO. 1

ELECTION OF DIRECTORS

Our Amended and Restated Certificate of Incorporation provides that our Board shall be divided into three classes, with the directors in each class having a three-year term. Unless the Board determines that vacancies (including vacancies created by increases in the number of directors) shall be filled by the stockholders, and except as otherwise provided by law, vacancies on the Board may be filled only by the affirmative vote of a majority of the remaining directors. A director elected by the Board to fill a vacancy (including a vacancy created by an increase in the number of directors) shall serve for the remainder of the full term of the class of directors in which the vacancy occurred and until such director's successor is elected and qualified.

As of April 4, 2017, the date this Proxy Statement is made available, the Board consists of nine directors, divided into the three following classes:

- **Class I directors:** Kevin DeNuccio, Michael Matthews and Thomas Pardun, whose current terms will expire at the annual meeting of stockholders to be held in 2017;
- **Class II directors:** Christopher Bowick, Michael Flynn, Kevin Peters and Carl Russo, whose current terms will expire at the annual meeting of stockholders to be held in 2018; and
- **Class III directors:** Michael Everett and Don Listwin, whose current terms will expire at the annual meeting of stockholders to be held in 2019.

At a regularly scheduled meeting in March 2017, our Board of directors adopted a resolution to move Mr. Russo from the Class II directors class to the Class III directors class in order to achieve a more equal balance of members among the director classes, with such move to be effective immediately following the 2017 Annual Meeting. At each annual meeting of stockholders, the successors to directors whose terms will then expire will be elected to serve from the time of election and qualification until the third subsequent annual meeting of stockholders.

Our Nominating and Corporate Governance Committee recommended, and the Board approved, Kevin DeNuccio and Michael Matthews as nominees for election to the Board at the 2017 Annual Meeting. Each of Messrs. DeNuccio and Matthews has been nominated to serve as a Class I director, and has agreed to stand for reelection. Mr. Pardun, one of our Class I directors, notified us of his decision to retire from the Board effective following the 2017 Annual Meeting and, therefore, will not be standing for reelection at the 2017 Annual Meeting. Each director to be elected will hold office from the date of such director's election by the stockholders until the third subsequent annual meeting of stockholders or until his successor is elected and has been qualified, or until such director's earlier death, resignation or removal. Shares of common stock represented by executed proxies will be voted, if authority to do so is not withheld, for the election of the two Class I director nominees named above. In addition, our Nominating and Corporate Governance Committee has recommended, and our Board has approved, that the number of directors of our Board will automatically be reduced to eight immediately following the 2017 Annual Meeting.

The Board expects each of the nominees to be available for election to the Board at the 2017 Annual Meeting. In the event that any nominee should be unable to serve or for good cause will not serve, such shares will be voted for the election of such substitute nominee as the Board may propose. Each person nominated for election has agreed to serve if elected, and management has no reason to believe that any nominee will be unable to serve. Directors are elected by a plurality of the votes cast at the meeting.

Our Director Nominees and Board of Directors

At least annually our Nominating and Corporate Governance Committee reviews the skills and characteristics of directors and the mix of skills and experience and diversity of the Board in the context of our business strategy, growth initiatives and our customers and target market, our business and operating requirements and the long-term interests of our stockholders. In doing so, the Nominating and Corporate Governance Committee seeks a board composition that can best perpetuate the success of the business and represent stockholder interests. The Committee also considers the tenure of our directors and seeks to maintain a balance of longer tenured directors with deep institutional knowledge and newer directors who bring new perspectives to the Board. See further discussion under "*Board Committees — Nominating and Corporate Governance Committee*" below regarding the Committee's evaluation and selection of director nominees.

The Board believes that all the nominees named below are highly qualified and have the skills and experience required for effective service on the Board. Biographical information describing the qualifications and relevant experience, skills and attributes of our Class I nominees and our other current directors who will continue in office after the Annual Meeting is as of April 4, 2017.

Nominees for Election to a Three-Year Term Expiring at the 2020 Annual Meeting of Stockholders

Kevin DeNuccio

Independent director

Age: 57
Director since 2012

Calix Board committees:
None

Other current directorships:
- Violin Memory, Inc.
- GroundCntrl, Inc. (private)
- Juniper Networks, Inc.
- SevOne, Inc. (private)

Mr. DeNuccio brings to our Board over 25 years of leadership and governance experience at communications technology companies and service providers worldwide. Since February 2014 he has served as president, chief executive officer and a member of the board of directors of Violin Memory, Inc., a publicly-held data storage company, which filed a voluntary petition for Chapter 11 bankruptcy protection in December 2016 and subsequently announced an acquisition bid by a unit of Soros Fund Management LLC that has been approved by the U.S. bankruptcy court.

Mr. DeNuccio served as chief executive officer of Metaswitch Networks, a telecommunications hardware and software company, from February 2010 until June 2012. From January 2007 until the present, Mr. DeNuccio has also worked as a private equity investor, both individually and through Wild West Capital, LLC, which he co-founded in July 2012. Mr. DeNuccio served as chief executive officer of Redback Networks from August 2001 until its acquisition by Ericsson in January 2007. From 1995 to 2001, he held a number of executive positions at Cisco Systems, including senior vice president of worldwide service provider operations. Prior to joining Cisco, Mr. DeNuccio was founder, president, and chief executive officer of Bell Atlantic Network Integration, a wholly owned subsidiary of Bell Atlantic (now Verizon Communications). He has also held senior management positions at both Unisys Corporation and Wang Laboratories network integration and worldwide channel partner businesses. Mr. DeNuccio previously served on numerous public and private boards of directors, including Sandisk, Redback and JDS Uniphase Corporation, each a publicly-held company.

Mr. DeNuccio has a Master of Business Administration from Columbia University and a Bachelor's degree in Finance from Northeastern University, and currently serves on the board of Northeastern University.

Michael Matthews

Independent director

Age: 60
Director since 2010

Calix Board committees:
Audit

Other current directorships:
- MobileAware USA (private)
- Innovolt, Inc. (private)

Mr. Matthews is a marketing and business strategy executive with significant exposure to the telecommunications industry and to global markets. Mr. Matthews brings to our Board over 30 years of experience in the technology industry, and a strong background in telecommunications, software, technology and innovation. Mr. Matthews currently serves as an advisor to the TMForum, a global trade association with over 900 member companies including communication service providers, digital service providers and enterprises. Since January 2016, Mr. Matthews has served as chief executive officer and chairman of MobileAware USA, a privately-held technology company.

From January 2012 through September 2013, Mr. Matthews served as chief corporate development officer for the information technology company AGT International GMBH, responsible for AGT's research and development, new business ventures and marketing. From September 2008 to December 2011, Mr. Matthews served as head of strategy and business development at Nokia Siemens Networks, a telecommunications company, where he directed the company's strategic planning and investments, mergers and acquisitions program and strategic alliances and partnerships. From February 2003 to January 2008, Mr. Matthews served as chief marketing officer at Amdocs Inc. From September 1999 to March 2002 he served as the executive vice president, sales and marketing, at Groove Networks, a privately held software company which was acquired by Microsoft Corporation. Prior to this, he served in leadership positions across technology companies in the United States and Australia such as Platinum Technology, Inc. a database management software company which was acquired by Computer Associates, Inc., Sterling Software, a software company which was acquired by Computer Associates, Inc., and Digital Equipment Corporation, which was acquired by Compaq Computer Corporation.

Mr. Matthews has a degree in Civil Engineering from the University of Queensland, Australia.

THE BOARD OF DIRECTORS RECOMMENDS A VOTE "FOR" THE ELECTION OF EACH CLASS I DIRECTOR NOMINEE NAMED ABOVE.

Directors Continuing in Office until the 2018 Annual Meeting of Stockholders

Christopher Bowick

Independent director

Age: 61
Director since 2014

Calix Board committees:
Compensation

Other current directorships:
- Minerva Networks (private)
- ComSonics, Inc. (private)

Mr. Bowick brings to our Board extensive experience in advising and managing companies in the technology and telecommunications industries. Mr. Bowick is principal of The Bowick Group, LLC, where he provides technology, product, business and executive-development advice and counsel to clients in the cable television and telecommunications industries.

From 1998 until his retirement in 2009, Mr. Bowick held various positions at Cox Communications. Mr. Bowick joined Cox in 1998 as vice president, technology development, and was named senior vice president of engineering & chief technical officer in 2000. Mr. Bowick retired as chief technology officer of Cox Communications in June of 2009. At Cox, Mr. Bowick was responsible for strategic technology planning, day-to-day technical operations and the development and deployment of technology solutions for the company's video, voice, high speed data and wireless products, including the development and deployment of telecommunications services, such as circuit-switched telephone, voice over IP, high-speed data, digital video, HDTV, video-on-demand and interactive television. Mr. Bowick was also responsible for network engineering and network operations for Cox's nation-wide network infrastructure including its national backbone, Metropolitan Area Networks and HFC networks. Prior to joining Cox, Mr. Bowick served as group vice president/technology & chief technical officer for Jones Intercable, Inc., while simultaneously serving as president of Jones Futurex, a designer and manufacturer of triple DES, PC-based hardware encryption devices and provider of contract manufacturing services. Prior to Jones, Mr. Bowick served as vice president of engineering for Scientific Atlanta's Transmission Systems Business Division, and as a design engineer for Rockwell International, Collins Avionics Division.

Mr. Bowick holds a Master of Business Administration from the University of Colorado and a Bachelor of Science in Electrical Engineering from the Georgia Institute of Technology.

Michael Flynn

Compensation Committee Chair

Independent director

Age: 68
Director since 2004

Calix Board committees:
Compensation (Chair)
Nominating & Corporate Governance

Other current directorships:
- Airspan Networks, Inc.
- Atlantic Tel-Networks (member of audit and compensation committees)

Mr. Flynn brings to our Board extensive experience in advising and managing companies in the technology and telecommunications industries. He also has expertise in public company corporate governance.

From June 1994 until his retirement in April 2004, Mr. Flynn served in various capacities at Alltel Corporation, a telecommunications provider. His most recent position at Alltel Corporation was group president. Mr. Flynn is owner and president of Deli Planet Inc., a privately-held company. Mr. Flynn formerly served on the board of directors and as chairman of the compensation committee of iLinc, and on the board of directors, audit committee and compensation committee of WebEx Communications, Inc., each a publicly-held company. Mr. Flynn also formerly served on the board of directors and as chairman of the compensation committee of GENBAND Inc., a privately-held company.

Mr. Flynn holds a Bachelor of Science in Industrial Engineering from Texas A&M University.

Kevin Peters

Independent director

Age: 53
Director since 2014

Calix Board committees:
Nominating & Corporate Governance

Other current directorships:
- MobileAware USA (private)
- UniTek Global Services, Inc. (private)

Mr. Peters brings to our Board a wealth of leadership experience gained over the course of a 28-year career with AT&T, one of world's largest communications companies.

Mr. Peters formerly served as executive vice president, global customer service for AT&T, Inc., from 2012 until his retirement in 2014. Mr. Peters joined AT&T in 1986, and held various functional roles, including in IT, sales, engineering and finance until 2000. Mr. Peters then served as vice president, local network planning and project management in 2001. During his subsequent career at AT&T, Mr. Peters served in the following capacities: senior vice president, network engineering (2003-2004); senior vice president, global network technology program management, AT&T Labs (2005); senior vice president-enterprise systems and software engineering (2006); executive vice president, global network operations (2006-2009); and chief marketing officer, business (2010-2011). Since retiring, Kevin has provided advisory services to a number of companies, including Accenture and J&L Group. Mr. Peters currently volunteers and serves on the board of directors of the Crandon Lakes Country Club and the Yogi Berra Museum and Learning Center; and serves on the advisory board of each of the Howe School of Business, Stevens Institute of Technology, Cartesian and NetNumber.

Mr. Peters holds a Master of Business Administration with honors (Beta Gamma Sigma) from Columbia University, a Master of Science in Telecommunications Engineering from Stevens Institute of Technology and a Bachelor of Science in Psychology from Fairfield University, and attended the Harvard University Advanced Management Program.

Carl Russo

President & Chief Executive Officer

Director

Age: 60
Director since 1999

Calix Board committees:
None

Other current directorships:
None

Mr. Russo has served as Calix's president and chief executive officer since December 2002. As Calix's president and chief executive officer, Mr. Russo brings expertise and knowledge regarding our business and operations to Calix's board of directors. He also brings to the Board an extensive background in the telecommunications and networking technology industries.

From November 1999 to May 2002, Mr. Russo served as vice president of optical strategy and group vice president of optical networking of Cisco Systems, Inc. From April 1998 to October 1999, Mr. Russo served as president and chief executive officer of Cerent Corporation, which was acquired by Cisco. From April 1995 to April 1998, Mr. Russo served in various capacities, including as chief operating officer, at Xircom, Inc., which was acquired by Intel Corporation. Previously, Mr. Russo served as senior vice president and general manager for the hyperchannel networking group of Network Systems Corporation and as vice president and general manager of the data networking products division of AT&T Paradyne Corporation. Mr. Russo served on the board of directors of Vital Network Services, Inc., a privately-held company delivering network lifecycle services, and Xirrus, Inc., a privately-held company providing products that enable high-performance wireless networks.

Mr. Russo attended Swarthmore College and previously served on its board of managers.

Directors Continuing in Office until the 2019 Annual Meeting of Stockholders

Michael Everett

Audit Committee Chair

Independent Director

Age: 68
Director since 2007

Calix Board committees:
Audit (Chair)

Other current directorships:
None

Mr. Everett brings to our Board his background as a lawyer as well as over 30 years of experience in senior management and financial operations at communications technology companies. Mr. Everett is licensed to practice law in California and in New York and was named chief financial officer of the year by San Francisco Business Times in 2007.

From May 2007 until his retirement in December 2008, Mr. Everett served as vice president of finance at Cisco Systems, Inc. From April 2003 to May 2007, Mr. Everett was chief financial officer of WebEx Communications, Inc., a web collaboration service provider that was acquired by Cisco. From 2001 to 2003, Mr. Everett served as chief financial officer of Bivio Networks, Inc., a network appliance company. In 2001, Mr. Everett served as chief financial officer of VMware, Inc., an infrastructure software company. From February 1997 to November 2000, Mr. Everett served as executive vice president and chief financial officer of Netro Corporation. Mr. Everett served in several senior management positions at Raychem Corporation from 1987 through 1996, including senior vice president and chief financial officer from August 1988 to August 1993. Before joining Raychem Corporation, Mr. Everett served as a partner in the law firm of Heller, Ehrman, White & McAuliffe LLC. He currently serves on the board of trustees and as treasurer of the Santa Fe Chamber Music Festival, and on its endowment foundation board. Mr. Everett also formerly served on the board of directors and as chairman of the audit committee of Smart Focus, Ltd., a privately-held marketing analytics company, and on the board of directors of Broncus Technologies, Inc., a privately-held medical technology company, including as chairman of the audit committee and member of the compensation committee.

Mr. Everett holds a Juris Doctor from the University of Pennsylvania Law School and a Bachelor of Arts in History from Dartmouth College.

Don Listwin

Chairman of the Board
Nominating & Corporate Governance Committee Chair

Independent Director

Age: 58
Director since 2007

Calix Board committees:
Compensation
Nominating & Corporate Governance (Chair)

Other current directorships:
- Robin Systems, Inc. (private)
- D-Wave Systems, Inc. (private)
- Teradici Corporation (private)

Mr. Listwin has served as chairman of our Board since July 2007. Mr. Listwin brings over 30 years of experience in the networking industry to our Board.

Mr. Listwin founded BelizeKIDS.org in 2016, a non-profit organization focused on helping children in Belize, and Canary Foundation in 2004, a non-profit organization devoted to the early detection of cancer, and has served on the board of directors of both organizations since their inception. From January 2008 to January 2009, Mr. Listwin served as chief executive officer of Sana Security, Inc., a security software company, which was acquired by AVG Technologies. From September 2000 to October 2004, Mr. Listwin served as chief executive officer of Openwave Systems Inc., a leader in mobile internet infrastructure software. From August 1990 to September 2000, he served in various capacities at Cisco, most recently as executive vice president. Mr. Listwin formerly served on the board of directors of Violin Memory, Inc., Isilon Systems, Inc., Openwave Systems Inc. (now known as Unwired Planet, Inc.), TIBCO Software Inc., Redback Networks, Inc. and E-Tek Dynamics Inc., each a publicly-held company. Mr. Listwin also previously served as a member of the board of scientific advisors of the National Cancer Institute.

Mr. Listwin holds an honorary Doctorate of Law from the University of Saskatchewan and a Bachelor of Science in Electrical Engineering from the University of Saskatchewan.

There are no family relationships among any director, director nominees or executive officers of Calix.

Our Executive Officers

The following is biographical information for our executive officers who were not discussed above.

Name	Age	Position(s)
William Atkins (1)	55	Executive Vice President and Chief Financial Officer
Michael Weening	48	Executive Vice President, Sales and Marketing
Gregory Billings	49	Senior Vice President, Services

(1) On March 31, 2017, Mr. Atkins gave notice of his resignation from Calix effective May 19, 2017.

William Atkins has served as Calix's executive vice president and chief financial officer since February 10, 2014. Prior to Calix, Mr. Atkins was a senior partner at Fairfax Media Partners, LLC, a Washington D.C. area investment and advisory firm. From January 2007 until February 2009, Mr. Atkins served as chief financial officer of Rivada Networks International, LLC, a provider of mobile emergency communications equipment and services for the homeland security and public safety sectors. Previously, Mr. Atkins served as executive vice president and chief financial officer of Intelsat, Ltd., the world's largest fixed satellite telecommunications services operator. Before joining Intelsat, Mr. Atkins held various positions at Morgan Stanley, including head of European telecommunications corporate finance and head of European corporate finance execution. Prior to Morgan Stanley, he co-founded the telecommunications investment banking practice at S.G. Warburg. Mr. Atkins has a Bachelor of Arts (with distinction) and Master of Arts from Stanford University.

Michael Weening has served as Calix's executive vice president of sales and marketing since June 27, 2016. Prior to joining Calix, Mr. Weening held various executive leadership roles at Salesforce.com. From August 2014 until June 2016, Mr. Weening served as senior vice president of global customer success and services at SalesForce.com, and from May 2012 until August 2014 as senior vice president of customer and sales growth in Japan and Asia Pacific at SalesForce.com. From May 2009 until May 2012, Mr. Weening served as vice president of business sales at Bell Mobility in Canada. Prior to joining Bell Mobility, Mr. Weening also held various sales leadership roles at Microsoft Corporation in Canada and the United Kingdom. Mr. Weening holds a Bachelor of Arts in Business Administration from Brock University.

Gregory Billings has served as Calix's senior vice president of services since December 19, 2016. From October 2014 until December 2016, Mr. Billings served as vice president of global professional services and solutions at Zebra Technologies, Inc., where Mr. Billings led the post-acquisition integration and growth of the enterprise business of Motorola Solutions, Inc. From December 2011 until October 2014, Mr. Billings served as vice president of global services and solutions at Motorola Solutions. Mr. Billings has also served as vice president and general manager of the global professional services and solutions business of Avaya, Inc., division president and general manager of the customer management product business unit at Amdocs, and as a vice president at Ernst & Young's Telecom, Media & Entertainment Consulting Practice (acquired by Cap Gemini SA). Mr. Billings holds a Bachelor of Arts in Economics and Political Science from The Colorado College.

Independence of the Board

The NYSE prescribes independence standards for listed companies. These standards require a majority of the Board to be independent. They also require each member of the Audit Committee, Compensation Committee and Nominating and Corporate Governance Committee of the Board to be independent. No director qualifies as independent unless the Board determines that the director has no direct or indirect material relationship with us. On an annual basis, each director and executive officer is obligated to complete a director and officer questionnaire which requires disclosure of any transactions with us in which the director or executive officer, or any member of his or her immediate family, have a direct or indirect material interest. We also review our relationship with any entity employing a director or on which the director currently serves as a member of the board.

After review of all relevant transactions or relationships between each director, or any of his immediate family members, and Calix, its senior management and its independent registered public accounting firm, the Board has affirmatively determined that all of Calix's current directors are independent directors within the meaning of the applicable NYSE standards, except for Mr. Russo, Calix's current president and chief executive officer. All of the committees of our Board are comprised entirely of directors determined by the Board to be independent within the meaning of the NYSE standards.

PROPOSAL NO. 2

APPROVAL OF THE CALIX, INC. AMENDED AND RESTATED EMPLOYEE STOCK PURCHASE PLAN

We are asking our stockholders to approve the Calix, Inc. Amended and Restated Employee Stock Purchase Plan to increase the number of shares authorized for issuance under the Employee Stock Purchase Plan, or ESPP, by 3,000,000 shares. This would increase the total shares authorized for issuance under the ESPP from 4,300,000 shares to 7,300,000 shares. Our Board, upon recommendation of the Compensation Committee, approved the increase by 3,000,000 shares of the shares authorized for issuance effective as of March 30, 2017, subject to stockholder approval prior to any exercise of purchase rights under the ESPP as to such shares.

The purpose of the ESPP is to provide our employees with an opportunity to purchase the Company's common stock so that they may increase their proprietary interest in our success and to align employee interests to those of our stockholders. We believe that the ESPP is an important component of the benefits package that we offer to our employees, and is a key factor in attracting, recruiting and retaining talented and high caliber employees in a competitive market and to incentivize employee performance aligned with our business strategy and growth initiatives.

Under the ESPP, eligible employees purchase our common stock through accumulated payroll deductions. All eligible employees of the Company (or of any subsidiary) shall have equal rights and privileges under the ESPP. The ESPP intended to qualify as an employee stock purchase plan under Section 423 of the Internal Revenue Code of 1986, as amended (the "Code").

A copy of the proposed amended and restated ESPP is included as Appendix A to this Proxy Statement.

The current purchase periods under the ESPP, as set by the Compensation Committee of our Board, provide for six-month purchase periods commencing May 15 and November 15 of each year. If approved by our stockholders, the ESPP will go into effect for the six-month purchase period commencing May 15 with an exercise date of November 14, 2017.

Our stockholders last approved an increase in the shares authorized for issuance under the ESPP in May 2012 which increased the shares available for issuance under the ESPP to 4,300,000. As of March 21, 2017, a total of 4,180,772 shares have been purchased under the ESPP since its inception in July 2010.

Summary of the ESPP

The principal features of the ESPP are summarized below. The following summary of the ESPP is not a complete description of all the provisions of the ESPP, and is qualified in its entirety by reference to the complete text of the ESPP, which has been filed with the SEC as Appendix A to this Proxy Statement. Any stockholder who wishes to obtain a copy of the ESPP may do so by written request to the Calix's Corporate Secretary at our principal executive offices.

Administration. Our Board has appointed our Compensation Committee to serve as the administrator of the ESPP. The ESPP administrator has final authority for interpretation of any provisions of the ESPP or of any right to purchase stock granted under the ESPP. The Plan administrator may request advice or assistance or employ such other persons as are necessary for proper administration of the Plan. Interpretations and constructions of the administrator of any provision of the ESPP or of any rights under it is conclusive and binding on all persons. We bear all expenses and liabilities incurred by the ESPP administrator.

Offerings. The ESPP provides for the grant to employees of rights to purchase shares of the Company's common stock at reduced prices through payroll deductions. "Purchase Periods" are six-month periods that are set as November 15 through May 14 and May 15 through November 14 of each year, unless otherwise determined by our Compensation Committee as administrator of the ESPP. However, in no event may a Purchase Period be longer than 27 months in length.

Shares Available Under ESPP. Under the proposed Amended and Restated ESPP, the maximum number of our shares of common stock which will be authorized for sale under the ESPP is 7,300,000, an increase of 3,000,000 shares from the share reserve last approved by our stockholders in May 2012. The shares made available for sale under the ESPP may be authorized but unissued shares or reacquired shares reserved for issuance under the ESPP.

Eligibility and Enrollment. Any employee of the Company (and such present or future subsidiaries of the Company as our Board may designate) who (i) is customarily employed more than twenty hours a week; (ii) is customarily employed more than five months per calendar year and (iii) who is an employee at the commencement of a Purchase Period is eligible to participate in the ESPP. However, no employee is eligible to participate in the ESPP if, immediately after the election to participate, such employee would own stock of the Company (including stock such employee may purchase under outstanding options) representing 5% or more of the total combined voting power or value of all classes of stock of the Company or any parent or subsidiary of the Company. In addition, no employee is permitted to participate if the rights of the employee to purchase common stock of the Company under the ESPP and any other qualified employee stock purchase plans would accrue at a rate which exceeds $25,000 of the fair market value of such stock (determined at the time the right is granted) for each calendar year. Eligible employees become participants in the ESPP by executing a participation agreement and filing it with the Company's stock administrator. By enrolling in the ESPP, a participant is deemed to have elected to purchase the maximum number of whole shares of common stock that can be purchased with the compensation withheld during each Purchase Period for which the participant is enrolled. No participant will be eligible to purchase more than 2,000 shares of stock within any Purchase Period. Termination of a participant's status as an eligible employee for any reason, including death, is treated as an automatic withdrawal from the ESPP.

As of March 21, 2017, three current executive officers and approximately 840 current non-executive officer employees in the U.S. and Canada would be eligible to participate in the ESPP. Mr. Russo is not eligible to participate in the ESPP based on his total share holdings of Calix common stock. In addition, consultants and non-employee directors are not eligible to participate in the ESPP.

Payroll Deductions. The payroll deductions made for each participant may be not less than 1% nor more than 15% of a participant's base salary compensation. Compensation is defined in the ESPP. Payroll deductions commence with the first paycheck issued during the Purchase Period for which the participant is enrolled and are deducted from subsequent paychecks throughout the Purchase Period unless changed or terminated as provided in the ESPP. The Company maintains a plan account in the name of each participant and credits the amount deducted from compensation to such account. No interest accrues to the money held in the account pending purchase of shares of common stock.

Exercise Date; Purchase of Stock. The "Exercise Date" of each Purchase Period occurs on the last trading day of each Purchase Period. On the Exercise Date, each participant's accumulated payroll deductions are applied to the purchase of whole shares of common stock at a purchase price which is the lower of 85% of the fair market value per share of the common stock on the first trading day or on the last trading day of the applicable Purchase Period. The fair market value of the common stock on a given date is defined as the closing price on that day as reported by the NYSE. As of March 21, 2017, the closing price of our common stock on the New York Stock Exchange was $6.95 per share.

A participant may cancel his or her payroll deduction authorization at any time at least seven days before the last day of the Purchase Period. Upon cancellation, the participant's account balance will be refunded in cash without interest. A participant may also decrease (but not increase) his or her payroll deduction authorization once during any Purchase Period. If a participant wishes to increase or decrease the rate of payroll withholding, he or she may do so effective for the next Purchase Period by submitting a new percentage no later than five days before commencement of the Purchase Period for which such change is to be effective.

Unless a participant has previously canceled his or her participation in the ESPP in accordance with the terms of the ESPP, the participant will be deemed to have exercised his or her purchase right in full as of each Exercise Date. Upon exercise, the participant will purchase the number of whole shares that his or her accumulated payroll deductions will buy at the purchase price, subject to the participation limitations listed above.

A participant may not assign, transfer, pledge or otherwise dispose of (other than by will or the laws of descent and distribution) payroll deductions credited to a participant's account or any rights or interest, including purchase rights, under the ESPP, and during a participant's lifetime, purchase rights under the ESPP shall be exercisable only by such participant. Any such attempt at assignment, transfer, pledge or other disposition will not be given effect.

Adjustments upon Changes in Recapitalization, Dissolution, Liquidation, Merger or Asset Sale. In the event of any increase or decrease in the number of issued shares of our common stock resulting from a subdivision or consolidation of shares or any other capital adjustment, the payment of a stock dividend, or other increase or decrease in such shares affected without receipt of consideration, we will proportionately adjust the aggregate number of shares of our common stock offered under the ESPP, the number and price of shares which any participant has elected to purchase pursuant under the ESPP and the maximum number of shares which a participant may elect to purchase in any single Purchase Period.

If there is a proposal to dissolve or liquidate the Company, then the ESPP will terminate, and any amounts that a participant has paid towards the purchase of common stock under the ESPP will be refunded without interest. If the Company undergoes a merger with or into another corporation or sale of all or substantially all of our assets, each outstanding Purchase Period will be assumed or an equivalent Purchase Period substituted by the successor corporation or the parent or subsidiary of the successor corporation. If the successor corporation refuses to assume or substitute for the outstanding Purchase Period, then the outstanding Purchase Period will be shortened by setting a new Exercise Date to take place before the date of the proposed sale or merger. We will notify each participant in writing at least five days prior to any such new Exercise Date.

Amendment and Termination. Our Board may amend, suspend or terminate the ESPP at any time. The ESPP shall terminate upon the earlier of (i) such date as is determined by the Company in its sole discretion or (ii) the date on which all shares available for issuance under the ESPP shall have been sold pursuant to purchase rights exercised under the ESPP. However, the Board may not amend the ESPP without obtaining stockholder approval within 12 months before or after such amendment to the extent required by applicable laws.

Federal Income Tax Consequences

Generally, no federal income tax consequences will arise at the time an employee purchases shares of common stock under the ESPP. If an employee disposes of shares purchased under the ESPP less than one year after the shares are purchased or within two years of the enrollment date, the employee will be deemed to have received compensation taxable as ordinary income for the taxable year in which the disposition occurs in the amount of the difference between the fair market value of the shares of common stock at the time of purchase and the amount paid by the employee for the shares. The amount of such ordinary income recognized by the employee will be added to the employee's basis in the shares for purposes of determining capital gain or loss upon the disposition of the shares by the employee.

If an employee does not dispose of the shares of common stock purchased under the ESPP until at least one year after the shares are purchased and at least two years after the enrollment date, the employee will be deemed to have received compensation taxable as ordinary income for the taxable year in which the disposition occurs in an amount equal to the lesser of (a) the excess of the fair market value of the shares of common stock on the date of disposition over the purchase price paid by the employee, or (b) the excess of the fair market value of

the shares of common stock on the enrollment date over the purchase price paid by the employee. The amount of such ordinary income recognized by the employee will be added to the employee's basis in the shares for purposes of determining capital gain or loss upon the disposition of the shares by the employee.

We generally will not be entitled to a tax deduction with respect to the shares of common stock purchased by an employee under the ESPP, unless the employee disposes of the shares less than one year after the shares are transferred to the employee or less than two years after the enrollment date, in which case we will generally be entitled to a tax deduction corresponding to the amount of ordinary income recognized by the employee.

New Plan Benefits

The increase in shares authorized for issuance under the proposed amended and restated ESPP applies to future Purchase Periods under the ESPP, starting with the Purchase Period commencing May 15, 2017 and closing with an Exercise Date of November 14, 2017. The number of shares of common stock that may be purchased under the ESPP is dependent upon the stock's market value on the first and last day of each future Purchase Period, the voluntary election by each eligible employee to participate and the amount of each participant has elected to apply to a Purchase Period, and is not currently determinable. The following table states the amounts which were received by each of the named individuals and groups under our ESPP for our last completed fiscal year, and the number of shares of common stock purchased under the ESPP from its inception through March 21, 2017.

Amended and Restated ESPP

Name and Position	**Dollar Value of Shares Purchased in 2016 ($)(1)**	**Number of Shares Purchased in 2016**	**Number of Shares Purchased from Inception through March 21, 2017**
Carl Russo (2) *President and Chief Executive Officer*	—	—	—
William Atkins *Executive Vice President and Chief Financial Officer*	26,360	4,000	7,758
Michael Weening *Executive Vice President, Sales and Marketing*	—	—	—
Greg Billings (3) *Senior Vice President, Services*	—	—	—
Executive Group	26,360	4,000	7,758
Non-Executive Director Group (4)	—	—	—
Non-Executive Officer Employee Group	6,620,977	1,005,911	3,145,401

(1) Represents fair market value at date of purchase. The average purchase price of the shares was $5.60.

(2) Mr. Russo is not eligible to participate in the ESPP based on his total share holdings of Calix common stock.

(3) Mr. Billings joined Calix in December 2016 and was not eligible to participate in our ESPP for our fiscal year ended December 31, 2016.

(4) Non-executive directors are not eligible to participate in the ESPP.

To be approved, this proposal must receive a "For" vote from the holders of a majority in voting power of the shares of common stock which are present or represented by proxy and entitled to vote on the proposal. Abstentions will have the same effect as an "Against" vote for purposes of determining whether this matter has been approved. Broker non-votes will not be counted for any purpose in determining whether this matter has been approved.

THE BOARD OF DIRECTORS RECOMMENDS A VOTE "FOR" APPROVAL OF THE CALIX, INC. AMENDED AND RESTATED EMPLOYEE STOCK PURCHASE PLAN AS DISCUSSED ABOVE.

PROPOSAL NO. 3

APPROVAL OF THE CALIX, INC. 2017 NONQUALIFIED EMPLOYEE STOCK PURCHASE PLAN

We are asking our stockholders to approve the Calix, Inc. 2017 Nonqualified Employee Stock Purchase Plan or "Nonqualified ESPP." Our Board, upon recommendation of the Compensation Committee, adopted the Nonqualified ESPP on March 30, 2017, subject to stockholder approval. The Nonqualified ESPP will be effective on the date of the Annual Meeting, subject to approval by our stockholders. The Nonqualified ESPP is not intended to qualify as an "employee stock purchase plan" under Section 423 of the Code.

The purpose of the Nonqualified ESPP is to assist our employees, excluding our executive officers and members of senior management, in acquiring a stock ownership interest in the Company pursuant to a plan which is intended to help them provide for their future security and to encourage them to remain in the employment of the Company. We believe that the Nonqualified ESPP will align employee interests with that of our stockholders and will serve as a key recruiting and retention tool in a competitive market.

We have attempted, in the design of some of the terms of the Nonqualified ESPP, to balance considerations of recruiting and retention in a competitive labor market with the costs to our stockholders and the accounting expense to the Company. We obtained and reviewed an independent consultant's analyses of the potential dilution to stockholders over the term of the Nonqualified ESPP and potential expense. Based on that information, 1) we have set the number of shares contained in this proposal, 1,000,000, such that the aggregate number of shares being requested under this proposal and the Qualified ESPP proposal at the Annual Meeting is, we believe, reasonable under the standards of many institutional investors; and 2) we have also set limits on the number of shares that can be acquired in an offering period (500,000) and on the accounting expense to be incurred by the Company of $3,000,000 per offering period, or $6,000,000 per year, which will similarly serve to limit dilution to stockholders. In addition, shares acquired under the Nonqualified ESPP are required to be held for a period of one year from the Exercise Date. We seek, through the design of the Nonqualified ESPP, to offer a vehicle through which employees can continue to acquire an ownership interest in the Company on favorable terms and be aligned with stockholders by acquiring equity, while also being mindful of dilution and expense.

If approved by our stockholders, the Nonqualified ESPP will go into effect for the Offering Period commencing on July 1, 2017 and ending on December 31, 2017.

A copy of the proposed Nonqualified ESPP is included as Appendix B to this Proxy Statement.

Summary of the Nonqualified ESPP

The principal features of the Nonqualified ESPP are summarized below. The following summary of the Nonqualified ESPP is not a complete description of all the provisions of the Nonqualified ESPP and is qualified in its entirety by reference to the complete text of the Nonqualified ESPP, which has been filed with the SEC as Appendix B to this Proxy Statement. Any stockholder who wishes to obtain a copy of the Nonqualified ESPP may do so by written request to the Calix's Corporate Secretary at our principal executive offices.

Administration. The Nonqualified ESPP will be administered by our Compensation Committee, which, unless otherwise determined by the Board, will consist solely of two or more members of the Board, each of whom is intended to qualify as a "non-employee director" as defined by Rule 16b-3 of the Exchange Act and an "independent director" under the applicable exchange rules. The plan administrator has broad authority to construe the Nonqualified ESPP and to make determinations with respect to the terms and conditions of each offering period under the Nonqualified ESPP, awards, designated subsidiaries and other matters pertaining to plan administration.

Shares Available Under the Nonqualified ESPP. Under the Nonqualified ESPP, the maximum number of our shares of common stock which will be authorized for issuance is 1,000,000. The shares available for issuance under the Nonqualified ESPP may be authorized but unissued shares or reacquired shares reserved for issuance under the Nonqualified ESPP.

Offerings. Under the Nonqualified ESPP, employees have the right to acquire shares of our common stock through payroll deductions accumulated over an Offering Period. "Offering Periods" are approximately six-month periods that are set as January 1 through June 30 and July 1 through December 31 of each year, unless otherwise determined by our Compensation Committee as administrator of the Nonqualified ESPP.

Eligibility and Enrollment. Any employee of the Company (and such present or future subsidiaries of the Company as our Board may designate) who (i) is customarily employed more than twenty hours a week; (ii) is customarily employed more than five months per calendar year and (iii) who is an employee at the commencement of an Offering Period is eligible to participate in the Nonqualified ESPP. However, the following employees are ineligible to participate in the Nonqualified ESPP: our Chief Executive Officer, each employee who reports directly to our Chief Executive Officer, employees that are at the vice president level or above, and other employees that are members of senior management as identified by the Administrator.

By enrolling in the Nonqualified ESPP, a participant is deemed to have elected to (a) purchase the maximum number of whole shares of common stock that can be purchased with the compensation withheld during each Offering Period for which the participant is enrolled and (b) acquire an equal number of Restricted Shares. Restricted Shares are subject to a risk of forfeiture in the event the participant ceases to be employed prior to the first anniversary of the date the shares are acquired. If a participant ceases to be an eligible employee for any reason during an Offering Period, he or she will be deemed to have elected to withdraw from the Nonqualified ESPP and any amounts credited to the participant's account will be returned to the participant or the participant's beneficiary in the event of his or her death. If a participant ceases

to be employed during the one year period following an Offering Period, he or she will retain each purchased share but each Restricted Share will be forfeited.

As of March 21, 2017, approximately 780 employees in the U.S. and Canada would have been eligible to participate in the Nonqualified ESPP. None of our executive officers are eligible to participate in the Nonqualified ESPP. In addition, consultants and non-employee directors are not eligible to participate in the Nonqualified ESPP.

Payroll Deductions. The payroll deductions made for each participant may be not less than 1% nor more than 25% of a participant's compensation. Compensation is defined in the Nonqualified ESPP and generally includes cash remuneration that would be reported as income for federal income tax purposes (but excludes bonus payments). A participant may decrease (but not increase) his or her payroll deduction authorization once during any Offering Period. If a participant wishes to increase or decrease the rate of payroll withholding, he or she may do so effective for the next Offering Period by submitting a new election.

Exercise Date; Purchase of Stock. The "Exercise Date" of each Offering Period occurs on the last trading day of each Offering Period. On the Exercise Date, accumulated payroll deductions for each participant will be used to (i) purchase whole shares of common stock at a purchase price equal to the closing trading price of our common stock on the Exercise Date (the "Purchased Shares") and (ii) acquire an equal number of shares of our common stock that are subject to a risk of forfeiture in the event the participant terminates employment within the one year period immediately following the Exercise Date (the "Restricted Shares"). On March 21, 2017, the closing price of our common stock on the NYSE was $6.95 per share.

A participant may cancel his or her payroll deduction authorization and elect to withdraw from the Nonqualified ESPP by delivering written notice of such election to the Company. Upon cancellation, the participant may elect either to withdraw all of the funds then credited to his or her Nonqualified ESPP account and withdraw from the Nonqualified ESPP or have the balance of his or her account applied to the purchase of Purchased Shares and acquisition of Restricted Shares for the Offering Period in which his or her cancellation is effective (with any remaining Nonqualified ESPP account balance returned to the participant). A participant who ceases contributions to the Nonqualified ESPP during any Offering Period shall not be permitted resume contributions to the Nonqualified ESPP during the same Offering Period.

Unless a participant has previously canceled his or her participation in the Nonqualified ESPP in accordance with the terms of the Nonqualified ESPP, the participant will be deemed to have exercised his or her option to purchase and acquire shares in full as of each Exercise Date. Upon exercise, the participant will purchase the number of whole shares that his or her accumulated payroll deductions will buy at the purchase price and acquire an equal number of Restricted Shares, subject to the following limitations (the "Offering Period Limits"): No more than an aggregate of 500,000 shares may be purchased or acquired on any Exercise Date, and the Company shall not be required to recognize as an expense more than $3,000,000 in respect of rights granted in any offering period.

Restrictions on Transferability. A participant may not assign, transfer, pledge or otherwise dispose of (other than by will or the laws of descent and distribution) payroll deductions credited to a participant's account or any rights or interest, including purchase rights, under the Nonqualified ESPP, and during a participant's lifetime, purchase rights under the Nonqualified ESPP shall be exercisable only by such participant. Any such attempt at assignment, transfer, pledge or other disposition will not be given effect.

In addition, unless otherwise determined by the plan administrator, no shares issued pursuant to the Nonqualified ESPP may be assigned, transferred, pledged or otherwise disposed by the participant until the first anniversary of the Exercise Date upon which such shares were purchased or acquired. However, in the event a participant ceases to be an employee of the Company prior to the first anniversary of the Exercise Date upon which the shares were purchased, the Restricted Shares will be forfeited, and the transfer restrictions applicable to the Purchased Shares will lapse.

Adjustments upon Changes in Recapitalization, Dissolution, Liquidation, Merger or Asset Sale. In the event of any stock dividend, stock split, combination or reclassification of shares or any other increase or decrease in the number of shares of common stock effected without receipt of consideration, the plan administrator has broad discretion to equitably adjust the number of shares authorized for issuance and awards under the Nonqualified ESPP to prevent the dilution or enlargement of benefits under outstanding awards as a result of such transaction.

In the event of a proposed liquidation or dissolution of the Company, the Offering Period then in progress will be shortened by setting a new Exercise Date to occur prior to the consummation of the proposed liquidation or dissolution and will terminate immediately prior to such consummation.

In the event of a proposed merger or asset sale, each outstanding purchase right will be assumed or substituted by the successor corporation. In the event that the successor corporation refuses to assume or substitute the purchase rights, any Offering Periods then in progress will be shortened by setting a new Exercise Date to occur prior to the date of the proposed sale or merger.

Insufficient Shares. If the total number of shares of common stock which are to be acquired under outstanding rights on any particular date exceed the number of shares then available for issuance under the Nonqualified ESPP or if the number of shares with respect to which rights are to be exercised exceed any of the Offering Period Limits, the plan administrator will make a pro rata allocation of the available shares on a uniform and equitable basis.

Rights as Stockholders. A participant will have the rights and privileges of a stockholder of the Company when, but not until, shares have been deposited in the designated brokerage account following exercise of his or her option. However, in the event a dividend is paid in respect of shares prior to the first anniversary of the Exercise Date upon which such shares were purchased or acquired under the

Nonqualified ESPP, then no dividend will be paid on the Restricted Shares unless and until the participant continues employment through such first anniversary.

Amendment and Termination. Our Board may amend, suspend or terminate the Nonqualified ESPP at any time. The plan administrator may also modify or amend the Nonqualified ESPP to reduce or eliminate any unfavorable financial accounting consequences that may result from the ongoing operation of the Nonqualified ESPP. However, the Board may not amend the Nonqualified ESPP without obtaining stockholder approval within 12 months before or after such amendment to the extent required by applicable laws.

Federal Income Tax Consequences

The Nonqualified ESPP is not intended to qualify as an "employee stock purchase plan" under Section 423 of the Code. Accordingly, certain tax benefits available to participants in a Section 423 plan are not available under our Nonqualified ESPP.

For federal income tax purposes, a participant generally will not recognize taxable income on the grant of an option to purchase and acquire shares under the Nonqualified ESPP, nor will the Company be entitled to any deduction at that time. Upon the exercise of the option to purchase and acquires shares under the Nonqualified ESPP, a participant generally will not recognize taxable income and instead will recognize ordinary income in the amount equal to the fair market value of the Restricted Shares when the risk of forfeiture on the Restricted Shares lapses. The Company will be entitled to a corresponding deduction when the risk of forfeiture on the Restricted Shares lapses. A participant's basis in Purchased Shares, for purposes of determining the participant's gain or loss on subsequent disposition of such shares of common stock, generally, will be equal to the purchase price paid for such shares. A participant's basis in Restricted Shares, for purposes of determining the participant's gain or loss on subsequent disposition of such shares of common stock, generally, will be the fair market value of the shares of common stock on the date the risk of forfeiture on such shares lapses.

Upon the subsequent sale of the shares acquired under the Nonqualified ESPP, the participant will recognize capital gain or loss (long-term or short-term, depending on how long the shares were held following the date of purchase for Purchased Shares and the lapse of the risk of forfeiture for Restricted Shares prior to disposing of them).

The above is a general summary under current law of the material federal income tax consequences to an employee who participates in the Nonqualified ESPP. This summary deals with the general federal income tax principles that apply and is provided only for general information. Some kinds of taxes, such as state, local and foreign income taxes and federal employment taxes, are not discussed. Tax laws are complex and subject to change and may vary depending on individual circumstances and from locality to locality. The summary above does not discuss all aspects of federal income taxation that may be relevant in light of a participant's personal circumstances. Further, this summarized tax information is not tax advice and a participant in the Nonqualified ESPP should rely on the advice of his or her legal and tax advisors.

New Plan Benefits

The number of shares of common stock that may be acquired under the Nonqualified ESPP is dependent upon the stock's market value on the last day of each future Offering Period, the voluntary election by each eligible employee to participate and the amount of a participant's payroll deductions during an Offering Period. Therefore, it is not possible to determine the benefits that will be received in the future by participants in the Nonqualified ESPP or the benefits that would have been received by such participants if the Nonqualified ESPP had be in effect in the year ended December 31, 2016.

To be approved, this proposal must receive a "For" vote from the holders of a majority in voting power of the shares of common stock which are present online or represented by proxy and entitled to vote on the proposal. Abstentions will have the same effect as an "Against" vote for purposes of determining whether this matter has been approved. Broker non-votes will not be counted for any purpose in determining whether this matter has been approved.

THE BOARD OF DIRECTORS RECOMMENDS A VOTE "FOR" APPROVAL OF THE CALIX, INC. 2017 NONQUALIFIED EMPLOYEE STOCK PURCHASE PLAN AS DISCUSSED ABOVE.

PROPOSAL NO. 4

APPROVAL ON A NON-BINDING, ADVISORY BASIS OF THE

COMPENSATION OF OUR NAMED EXECUTIVE OFFICERS ("SAY-ON-PAY")

We are seeking an advisory vote from our stockholders to approve the compensation paid to our NEOs, as disclosed in this Proxy Statement under the "Compensation Discussion and Analysis" section, or CD&A, below.

Our Compensation Committee, with advice and information from its external compensation consultant, has structured our executive compensation program to stress a pay-for-performance philosophy. The compensation opportunities provided to our NEOs are significantly dependent on Calix's financial performance, the performance of Calix's stock and the NEO's individual performance, which are intended to drive creation of sustainable stockholder value. The Compensation Committee intends to continue to emphasize what it believes to be responsible compensation arrangements that attract, retain, and motivate high-caliber executive officers and motivate those officers to achieve Calix's short- and long-term business strategies and objectives.

Our Board previously determined to hold an advisory "say on pay" vote every year. In accordance with this determination and Section 14A of the Exchange Act, you have the opportunity to vote "For" or "Against" or to "Abstain" from voting on the following non-binding resolution relating to executive compensation:

"RESOLVED, that the stockholders approve, on an advisory basis, the compensation paid to Calix's NEOs as disclosed in Calix's proxy statement for the 2017 Annual Meeting of Stockholders under the compensation disclosure rules of the SEC, including the compensation discussion and analysis, compensation tables and narrative discussion of the proxy statement."

In deciding how to vote on this proposal, we encourage you to consider Calix's executive compensation philosophy and objectives, the design principles and the elements of Calix's executive compensation program described in our CD&A below. As described in the CD&A, a guiding principle of our compensation philosophy is that pay should be linked to performance and that the interests of our executives and stockholders should be aligned. Our compensation program is a mix of short- and long-term components, cash and equity elements and fixed and contingent payments in proportions we believe will provide the proper incentives, reward our NEOs, help us achieve our goals and increase stockholder value. For example:

- *Chief Executive Officer Compensation Aligned with Stockholder Interests.* A significant portion of our chief executive officer's compensation is performance-based and reflects a market-based cash compensation package. As a holder of more than 10% of our common stock, our chief executive officer is a significant stockholder and his personal wealth has consistently been, and continued to be in 2016, tied directly to sustained stock price appreciation and performance, which provides direct alignment with stockholder interests.

- *Other NEOs Compensation Substantially Tied to Performance.* Our other NEOs earn a significant portion of their total compensation based upon increases in Calix's stock price and a significant portion of their variable cash compensation is based upon Calix's financial performance along with our Compensation Committee's assessment of individual performance.

- *Change in Control and Severance Benefits Not Grossed Up.* Calix provides limited change in control and severance benefits to provide NEOs security and remain competitive. Calix does not provide for any tax gross up to any NEO in connection with any change in control or severance benefits.

To be approved, on a non-binding and advisory basis, the compensation paid to our NEOs must receive a "For" vote from the holders of a majority in voting power of the shares of common stock which are present or represented by proxy and entitled to vote on the proposal. Abstentions will have the same effect as "Against" votes for purposes of determining whether this matter has been approved. Broker non-votes will not be counted for any purpose in determining whether this matter has been approved.

While your vote on this proposal is advisory and will not be binding, we value the opinions of Calix's stockholders on executive compensation matters and will take the results of this advisory vote into consideration when making future decisions regarding Calix's executive compensation program. Unless the Board modifies its determination of the frequency of future "say on pay" advisory votes, the next "say on pay" advisory vote will be held at our 2018 annual meeting of stockholders.

THE BOARD OF DIRECTORS RECOMMENDS A VOTE "FOR" THE APPROVAL OF THE COMPENSATION PAID TO THE NAMED EXECUTIVE OFFICERS, AS DISCLOSED IN THIS PROXY STATEMENT UNDER THE COMPENSATION DISCLOSURE RULES OF THE SEC.

PROPOSAL NO. 5

APPROVAL ON A NON-BINDING, ADVISORY BASIS WHETHER SAY-ON-PAY SHOULD OCCUR EVERY ONE YEAR, EVERY TWO YEARS OR EVERY THREE YEARS

We are seeking an advisory vote from our stockholders as to whether the stockholder advisory vote on executive compensation (similar to that set forth in Proposal No. 4 described in this Proxy Statement) should occur every one year, every two years or every three years. Accordingly, you have the opportunity to choose the option of every "1 year," every "2 years," every "3 years" or to "Abstain" from voting on the following non-binding resolution relating to the frequency of the stockholder advisory vote on executive compensation:

"Resolved, that the option of every "1 year," every "2 years," every "3 years," that receives the affirmative vote of the holders of a majority in voting power of the shares of the Company's common stock entitled to vote at the meeting will be determined to be the recommended frequency for which the Company should hold a stockholder advisory vote to approve the compensation paid to the Company's NEOs as disclosed pursuant to the compensation disclosure rules of the SEC, including the compensation discussion and analysis, the compensation tables, the narrative discussion and any related material disclosed in this proxy statement, provided that if none of the options receives a majority vote, the option receiving the greatest number of votes cast will be determined to be the recommended frequency for which the Company should hold such a stockholder advisory vote."

The Board has previously determined that an advisory say-on-pay vote on the compensation of our NEOs that occurs on an **annual** basis is the most appropriate alternative for Calix. Accordingly, the Board recommends that the advisory vote on the compensation of our NEOs occur every **"1 year."** The Board believes that an annual advisory say-on-pay vote will allow our stockholders to provide timely, direct input on Calix's executive compensation philosophy, policies and practices as disclosed in the proxy statement each year.

To constitute the recommendation of the stockholders, on a non-binding and advisory basis, regarding the frequency of stockholder advisory votes on executive compensation, the applicable "1 year," "2 years" or "3 years" option must receive the affirmative vote of the holders of a majority in voting power of the shares of common stock which are present in person or by proxy and entitled to vote on this proposal. However, if none of the frequency alternatives receives a majority vote, we will consider the frequency that receives the highest number of votes by stockholders to be the frequency that has been selected by our stockholders. Abstentions and broker non-votes will be counted towards a quorum, but will otherwise not be counted for any purpose in determining whether this matter has been approved.

Although your vote on this proposal is advisory and will not be binding on us, or our Board and Compensation Committee, we value the opinions of our stockholders on executive compensation matters and we will take the results of this advisory vote into consideration when making future decisions regarding the frequency with which Calix holds a stockholder advisory vote on the compensation paid to Calix's NEOs.

This non-binding "frequency" vote is required to be submitted to our stockholders at least every six years.

THE BOARD OF DIRECTORS RECOMMENDS A VOTE FOR "1 YEAR" REGARDING THE FREQUENCY OF THE STOCKHOLDER ADVISORY VOTE ON EXECUTIVE COMPENSATION.

PROPOSAL NO. 6

RATIFICATION OF SELECTION OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Our Audit Committee has engaged KPMG LLP (“KPMG”) as our independent registered public accounting firm for the fiscal year ending December 31, 2017, and is seeking ratification of such selection by our stockholders at the Annual Meeting. KPMG has audited our financial statements since February 29, 2016, when our Audit Committee completed a competitive process to review the appointment of Ernst & Young LLP (“Ernst & Young”), our then-current independent registered public accounting firm, and determined not to re-engage Ernst & Young in that role. Representatives of KPMG are expected to be present at the Annual Meeting. They will have an opportunity to make a statement if they so desire and will be available to respond to appropriate questions.

Our Audit Committee’s decision to not re-engage Ernst & Young was made in the course of its annual review and selection of our independent registered public accounting firm, including a formal launch of a competitive bid process by the Audit Committee, pursuant to which the Audit Committee rigorously evaluated several global accounting firms. In making this decision, the Audit Committee carefully assessed the qualifications and relevant experience of each firm and each proposed engagement team in light of our size, complexity and business operations, as well as the strength and resources of the firm, including its national office and compliance functions.

The report of Ernst & Young on our consolidated financial statements as of and for the fiscal year ended December 31, 2015 did not contain an adverse opinion or disclaimer of opinion and was not qualified or modified as to uncertainty, audit scope or accounting principle.

In connection with the audit of our financial statements for the fiscal year ended December 31, 2015 and in the subsequent interim period through February 29, 2016 there were no disagreements with Ernst & Young on any matter of accounting principles or practices, financial statement disclosure or auditing scope or procedures which, if not resolved to the satisfaction of Ernst & Young, would have caused Ernst & Young to make reference to the subject matter of the disagreements in their report.

During the fiscal year ended December 31, 2015 and in the subsequent interim period through February 29, 2016 there were no “reportable events” as described in Item 304(a)(1)(v) of Regulation S-K.

During the fiscal year ended December 31, 2015 and the subsequent interim period through February 29, 2016, neither we nor anyone on our behalf consulted KPMG regarding either: (i) the application of accounting principles to a specified transaction, either completed or proposed, or the type of audit opinion that might be rendered on our financial statements, in connection with which either a written report or oral advice was provided to us that KPMG concluded was an important factor considered by us in reaching a decision as to the accounting, auditing or financial reporting issue; or (ii) any matter that was the subject of a disagreement or reportable event as defined in Regulation S-K, Item 304(a)(1)(iv) and Item 304(a)(1)(v), respectively.

We previously provided each of Ernst & Young and KPMG with a copy of our disclosures required by Item 304(a) of Regulation S-K prior to the time this proxy statement was filed.

Neither our bylaws nor other governing documents or law require stockholder ratification of the selection of KPMG as our independent registered public accounting firm. However, our Audit Committee is submitting the selection of KPMG to our stockholders for ratification as a matter of good corporate practice. If our stockholders fail to ratify the selection, the Audit Committee will reconsider whether or not to retain KPMG. Even if the selection is ratified, the Audit Committee in its discretion may direct the appointment of a different independent registered public accounting firm at any time during the year if they determine that such a change would be in the best interests of Calix and its stockholders.

To be approved, the ratification of the selection of KPMG as our independent registered public accounting firm must receive a “For” vote from the holders of a majority in voting power of the shares of common stock which are present or represented by proxy and entitled to vote on the proposal. Abstentions will have the same effect as an “Against” vote for purposes of determining whether this matter has been approved. Broker non-votes will not be counted for any purpose in determining whether this matter has been approved.

Principal Accountant Fees and Services

The following table provides information regarding the fees for the audit and other services provided by KPMG for the fiscal year ended December 31, 2016. No fees were incurred by KPMG for the fiscal year ending December 31, 2015 as KPMG did not then serve as our principal accountant. All fees described below were pre-approved by the Audit Committee.

The following table sets forth the aggregate fees billed by KPMG for services rendered for the fiscal year ended December 31, 2016 (in thousands):

	Fiscal Year Ended December 31, 2016	
Audit Fees	$ 1,328	(1)
Audit-Related Fees	—	
Tax Fees	—	
All Other Fees	—	
Total Fees	$ 1,328	

(1) Audit fees of KPMG consist of fees billed for professional services rendered for the audit of our annual consolidated financial statements for the fiscal year ended December 31, 2016, the audit of the effectiveness of our internal control over financial reporting, and the review of our consolidated financial statements included in our Form 10-Q quarterly reports for the fiscal year ended December 31, 2016. Audit fees also include services that are typically provided by the independent registered public accounting firm in connection with statutory and regulatory filings or engagements for such fiscal year.

The following table sets forth the aggregate fees billed by Ernst & Young for services rendered for the fiscal year ended December 31, 2015 (in thousands):

	Fiscal Year Ended December 31, 2015	
Audit Fees	$ 2,219	(1)
Audit-Related Fees	—	
Tax Fees	—	
All Other Fees	3	(2)
Total Fees	$ 2,222	

(1) Audit fees of Ernst & Young consisted of fees billed for professional services rendered for the audit of our annual consolidated financial statements for the fiscal year ended December 31, 2015, the audit of the effectiveness of our internal control over financial reporting, and the review of our consolidated financial statements included in our Form 10-Q quarterly reports for the fiscal year ended December 31, 2015. Audit fees also include services that are typically provided by the independent registered public accounting firm in connection with statutory and regulatory filings or engagements for such fiscal year.

(2) Other fees for 2015 include an annual subscription to Ernst & Young LLP Global Accounting & Auditing Information Tool.

Our Audit Committee pre-approves all audit and non-audit services provided by our independent registered public accounting firm. Our Audit Committee may delegate authority to one or more members of the Audit Committee to provide such pre-approvals, provided that such approvals are presented to the Audit Committee at a subsequent meeting. This policy is set forth in the charter of the Audit Committee and available under "Leadership & Governance" in the Investor Relations section of our website at investor-relations.calix.com.

Our Audit Committee considered whether the non-audit services rendered by KPMG were compatible with maintaining KPMG's independence as the independent registered public accounting firm of Calix's consolidated financial statements and concluded that they were. In 2015 and 2014, KPMG provided certain tax consulting services to our China subsidiary. Our Audit Committee has concluded that these non-audit services provided by KPMG were compatible with maintaining the independence of KPMG.

THE BOARD OF DIRECTORS RECOMMENDS A VOTE "FOR" THE RATIFICATION OF THE SELECTION OF KPMG LLP AS OUR INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM FOR THE FISCAL YEAR ENDING DECEMBER 31, 2017.

SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT

The following table presents information as to the beneficial ownership of our common stock as of March 21, 2017 for:

- each stockholder known by us to be the beneficial owner of more than 5% of our common stock;
- each of our directors;
- each NEO as set forth in the summary compensation table in this Proxy Statement; and
- all current executive officers and directors as a group.

Beneficial ownership is determined in accordance with the rules of the SEC and generally includes voting or investment power with respect to securities. Unless otherwise indicated below, to our knowledge, the persons and entities named in the table have sole voting and sole investment power with respect to all shares beneficially owned, subject to community property laws where applicable. Shares of our common stock subject to options that are currently exercisable or exercisable within 60 days of March 21, 2017 and restricted stock units ("RSUs") that vest within 60 days of March 21, 2017, are deemed to be outstanding and to be beneficially owned by the person holding the options or RSUs for the purpose of computing the percentage ownership of that person, but are not treated as outstanding for the purpose of computing the percentage ownership of any other person.

Percentage ownership of our common stock in the table is based on 49,624,384 shares of our common stock outstanding (exclusive of treasury shares) on March 21, 2017. Unless otherwise indicated, the address of each of the individuals and entities named below is c/o Calix, Inc., 1035 N. McDowell Boulevard, Petaluma, California 94954.

	Shares of Common Stock Beneficially Owned (1)					
Name of Beneficial Owner	**Common Stock**		**Options Exercisable Within 60 Days**	**RSUs Vesting Within 60 Days**	**Total Number of Shares Beneficially Owned**	**Percent**
5% Stockholder:						
The Vanguard Group 100 Vanguard Blvd. Malvern, PA 19355	3,240,156	(2)	—	—	3,240,156	6.5%
BlackRock, Inc. 55 East 52nd Street New York, NY 10055	3,153,912	(3)	—	—	3,153,912	6.4%
Ameriprise Financial, Inc. 145 Ameriprise Financial Center Minneapolis, MN 55474	3,147,206	(4)	—	—	3,147,206	6.3%
Dimensional Fund Advisors LP Dimensional Place 6300 Bee Cave Road, Building One Austin, TX 78746	3,038,526	(5)	—	—	3,038,526	6.1%
Alyeska Investment Group, L.P. 77 West Wacker Drive, 7th Floor Chicago, IL 60601	2,674,700	(6)	—	—	2,674,700	5.4%
Lapides Asset Management, LLC. 500 West Putnam Avenue, 4th Floor Greenwich, CT 06830	2,651,000	(7)	—	—	2,651,000	5.3%
Named Executive Officers:						
Carl Russo	6,127,855	(8)	397,500	—	6,525,355	13.1%
William Atkins	6,000		243,750	—	249,750	*
Michael Weening	—		—	—	—	*
John Colvin (9)	201,815		61,000	—	262,815	*
Andy Lockhart (10)	20,000		318,541	—	338,541	*
Non-Employee Directors:						
Don Listwin	718,182	(11)	7,500	17,964	743,646	1.5%
Christopher Bowick	31,526		—	17,964	49,490	*
Kevin DeNuccio	96,961		—	17,964	114,925	*
Michael Everett	89,887		10,000	17,964	117,851	*
Michael Flynn	90,063		12,500	17,964	120,527	*
Michael Matthews	60,066		12,500	17,964	90,530	*
Thomas Pardun	78,482		11,750	17,964	108,196	*
Kevin Peters	30,608		—	17,964	48,572	*
All Current Directors and Executive Officers as a Group (12 persons)	7,329,630		695,500	143,712	8,168,842	16.5%

* Represents beneficial ownership of less than one percent of the outstanding shares of common stock.

(1) Shares shown in the table above include shares held in the beneficial owner's name or jointly with others, or in the name of a bank, nominee or trustee for the beneficial owner's account.

(2) The information was based upon a Schedule 13G/A filed with the SEC on February 10, 2017 by The Vanguard Group. The Vanguard Group has sole voting power with respect to 50,096 of these shares, shared voting power with respect to 2,800 of these shares, sole dispositive power with respect to 3,189,760 and shared dispositive power with respect to 50,396 of these shares.

(3) The information was based upon a Schedule 13G/A filed with the SEC on January 23, 2017 by BlackRock, Inc. BlackRock, Inc. has sole voting with respect to 3,050,061 of these shares and sole dispositive power over 3,153,912 of these shares. The shares are reported as being beneficially held by BlackRock, Inc. may be held by one or more of its subsidiaries, BlackRock (Netherlands) B.V.; BlackRock Advisors, LLC; BlackRock Asset Management Canada Limited; BlackRock Asset Management Ireland Limited; Blackrock Asset Management Schweiz AG; BlackRock Financial Management, Inc.; BlackRock Fund Advisors; BlackRock Institutional Trust Company, N.A.; BlackRock International Limited; BlackRock Investment Management, LLC; or BlackRock Japan Co. Ltd.

(4) The information was based on upon a Schedule 13G filed with the SEC on February 10, 2017 by Ameriprise Financial, Inc., or AFI, Columbia Management Investment Advisers, LLC, or CMIA, and Columbia Select Smaller-Cap Value Fund, or Columbia Fund, as a group. Each of AFI and CMIA reports that it holds shared voting power with respect to 3,147,206 shares and shared dispositive power with respect to 3,147,206 shares. Columbia Fund reports sole voting power with respect to 2,629,041 shares and shared dispositive power as to 2,629,041 shares.

(5) The information was based upon a Schedule 13G filed with the SEC on February 9, 2017 by Dimensional Fund Advisors LP. Dimensional Fund Advisors LP has sole voting power with respect to 2,915,346 of these shares and sole dispositive power with respect to 3,038,526 of these shares. Dimensional Fund Advisors LP disclaims beneficial ownership of the shares.

(6) The information was based upon a Schedule 13G/A filed with the SEC on February 14, 2017 by the Alyeska Investment Group, L.P. Alyeska Investment Group, L.P., Aleyska Fund GP, LLC, Aleyska Fund 2 GP, LLC and Anand Parekh have shared voting and dispositive power over 2,674,700 shares.

(7) The information was based upon a Schedule 13G/A filed with the SEC on February 7, 2017 by Lapides Asset Management, LLC. Lapides Asset Management, LLC has sole voting with respect to 2,331,700 of these shares and dispositive power over 2,651,000 of these shares.

(8) Includes 2,239,188 shares held by The Crescentico Trust, Carl Russo, Trustee; 275,633 shares held by Equanimous Investments; and 284,653 shares held by Calgrat Partners, L.P. The managing members of Equanimous Investments are Carl Russo and Tim Pasquinelli. The managing partner of Calgrat Partners, L.P. is Tim Pasquinelli. Mr. Russo and Mr. Pasquinelli may be deemed to have shared voting and investment power over the shares held by Equanimous Investments and Calgrat Partners, L.P., as applicable. Mr. Russo and Mr. Pasquinelli each disclaim beneficial ownership of such shares, except to the extent of his pecuniary interest therein. The address of each of The Crescentico Trust, Carl Russo, Trustee; Equanimous Investments; and Calgrat Partners, L.P. is 1960 The Alameda #150, San Jose, California 95126.

(9) Mr. Colvin's employment with Calix ended effective January 6, 2017.

(10) Mr. Lockhart's employment with Calix ended effective December 29, 2016.

(11) Includes 200,000 shares held by No Mas Ninos, L.P. Mr. Listwin is a general partner of No Mas Ninos, L.P. and may be deemed to have shared voting and investment power over the shares held by the partnership.

SECTION 16(a) BENEFICIAL OWNERSHIP REPORTING COMPLIANCE

Section 16(a) of the Exchange Act requires our directors and executive officers, and persons who own more than 10% of a registered class of our equity securities, to file with the SEC initial reports of ownership and reports of changes in ownership of our common stock and other equity securities. Officers, directors and greater than 10% stockholders are required by SEC regulations to furnish us with copies of all Section 16(a) forms they file. We believe that during the fiscal year 2016, our directors and Section 16 officers complied with all Section 16 (a) filing requirements, except as to one late Form 4 for each of Messrs. Russo, Colvin and Lockhart to report the grant of certain performance-based RSUs in February 2016. In making the above statements, we have relied upon the written representations of our directors and Section 16 officers.

CORPORATE GOVERNANCE

Corporate Governance Guidelines

The Board has adopted Corporate Governance Guidelines for Calix ("Guidelines"). A copy of the Guidelines is available under "Leadership & Governance" in the Investor Relations section of our website at investor-relations.calix.com.

Code of Business Conduct and Ethics

Calix has adopted a Code of Business Conduct and Ethics, which is applicable to our directors and employees, including our principal executive officer, principal financial officer and persons performing similar functions. A copy of the Code of Business Conduct and Ethics is available under "Leadership & Governance" in the Investor Relations section of our website at investor-relations.calix.com. Calix will also post on this section of its website any amendment to the Code of Business Conduct and Ethics, as well as any waivers of the Code of Business Conduct and Ethics, which are required to be disclosed by the rules of the Securities and Exchange Commission ("SEC") or The New York Stock Exchange ("NYSE").

Leadership Structure of the Board

Under Calix's bylaws, the Board appoints Calix's officers, including the chief executive officer. The Board does not have a policy on whether the role of the chairman and chief executive officer should be separate and, if it is to be separate, whether the chairman should be selected from the non-employee directors or be an employee and if it is to be combined, whether a lead independent director should be selected. Currently, Calix separates the roles of chief executive officer and chairman in recognition of the differences between the two roles. The chief executive officer is responsible for setting the strategic direction for and the day-to-day leadership and performance of Calix, while the chairman provides guidance to the chief executive officer and management, sets the agenda for Board meetings and presides over meetings of the full Board. Mr. Russo is an employee of Calix and is therefore not "independent" under the rules of the NYSE. Mr. Listwin, Calix's chairman, is an independent director, as defined under the rules of the NYSE. The Board believes that the current board leadership structure is best for Calix and its stockholders at this time.

The Board is committed to good corporate governance practices and values independent board oversight as an essential component of strong corporate performance. In 2016 all of our directors except for Mr. Russo, our chief executive officer, qualified as independent according to the rules and regulations of the NYSE. On at least an annual basis, the Board undertakes a review of the independence of each director and considers whether any director has a material relationship with Calix that could compromise such director's ability to exercise independent judgment in carrying out such director's responsibilities. As a result of this review, the Board determined on February 2, 2017 that each of Messrs. Bowick, DeNuccio, Everett, Flynn, Listwin, Matthews, Pardun and Peters, representing eight of Calix's nine current directors, are independent directors as defined under the listing requirements of the NYSE, constituting at least a majority of independent directors of the Board as required by the NYSE rules. In addition, Calix's corporate governance guidelines require that the directors meet in executive session without management directors or management present on a regularly scheduled basis, but not less than two times a year. Calix's Nominating and Corporate Governance Committee periodically reviews and recommends to the Board the leadership structure of the Board.

Oversight of Risk Management

The Board has an active role, as a whole and also at the committee level, in overseeing management of Calix's risks. The Board is responsible for general oversight of risks and regularly reviews information regarding Calix's risks, including credit risks, liquidity risks and operational risks. The Board has established three committees of the Board, an Audit Committee, a Compensation Committee and a Nominating and Corporate Governance Committee. The Audit Committee is responsible for overseeing management of Calix's risks relating to accounting matters, financial reporting and legal and regulatory compliance. The Compensation Committee is responsible for overseeing the management of risks relating to Calix's executive compensation plans and arrangements. The Nominating and Corporate Governance Committee is responsible for overseeing management of Calix's risks associated with the independence of the Board and potential conflicts of interest. While each committee is responsible for evaluating certain risks and overseeing the management of such risks, the entire Board is regularly informed through committee reports about such risks.

Board Committees

The composition and responsibilities of the Audit Committee, Compensation Committee and Nominating and Corporate Governance Committee are described below.

Audit Committee

Currently, Calix's Audit Committee comprises Messrs. Everett, Matthews and Pardun, each of whom is a non-employee member of the Board. Mr. Everett is the Audit Committee chairman and is the audit committee financial expert, as currently defined under the SEC rules. The Board has determined that each director serving on the Audit Committee is independent within the meaning of the NYSE listing standards.

Our Audit Committee has been established in accordance with Section 3(a)(58)(A) of the Exchange Act. Our Audit Committee oversees our corporate accounting and financial reporting process. Among other matters, the Audit Committee evaluates the independent

registered public accounting firm's qualifications, independence and performance; determines the engagement of the independent registered public accounting firm; reviews and approves the scope of the annual audit and the audit fee; discusses with management and the independent registered public accounting firm the results of the annual audit and the review of Calix's quarterly consolidated financial statements; approves the retention of the independent registered public accounting firm to perform any proposed permissible non-audit services; monitors the rotation of partners of the independent registered public accounting firm on Calix's engagement team as required by law; reviews Calix's critical accounting policies and estimates; oversees the internal audit function and annually reviews the Audit Committee charter and the committee's performance. The Audit Committee operates under a written charter that satisfies the applicable standards of the SEC and the NYSE. A copy of the Audit Committee charter is available under "Leadership & Governance" in the Investor Relations section of our website at investor-relations.calix.com.

Compensation Committee

Currently the members of Calix's Compensation Committee are Messrs. Flynn, Bowick and Listwin, each of whom is a non-employee member of the Board. Mr. Flynn is the Compensation Committee chairman. The Board has determined that each director serving on the Compensation Committee is independent within the meaning of the NYSE listing standards.

Calix's Compensation Committee reviews and recommends policies relating to compensation and benefits of Calix executive officers and employees. The Compensation Committee reviews and approves corporate goals and objectives relevant to compensation of the chief executive officer and other executive officers, evaluates the performance of these officers in light of those goals and objectives, and sets the compensation of these officers based on such evaluations. The Compensation Committee also administers the issuance of stock options and other awards under Calix stock plans. The Compensation Committee reviews and evaluates, at least annually, the performance of the Compensation Committee and its members, including compliance of the Compensation Committee with its charter. In fulfilling its responsibilities, the Compensation Committee may delegate any or all of its responsibilities to a subcommittee of the Compensation Committee, but only to the extent consistent with Calix's certificate of incorporation and bylaws, Section 162(m) of the Internal Revenue Code of 1986 (to the extent applicable), NYSE rules and other applicable law. The Compensation Committee operates under a written charter that satisfies the applicable standards of the SEC and the NYSE. A copy of the Compensation Committee charter is available under "Leadership & Governance" in the Investor Relations section of our website at investor-relations.calix.com.

Nominating and Corporate Governance Committee

Calix's Nominating and Corporate Governance Committee currently consists of Messrs. Listwin, Peters and Flynn, each of whom is a non-employee member of the Board. Mr. Listwin is the chairman of the Nominating and Corporate Governance Committee. The Board has determined that each of the directors serving on the Nominating and Corporate Governance Committee is independent within the meaning of the NYSE listing standards.

The Nominating and Corporate Governance Committee is responsible for making recommendations regarding candidates for directorships and the size and composition of the Board. In addition, the Nominating and Corporate Governance Committee is responsible for overseeing Calix's Corporate Governance Guidelines and reporting and making recommendations concerning governance matters. The Nominating and Corporate Governance Committee operates under a written charter that satisfies the applicable standards of the SEC and the NYSE. A copy of the Nominating and Corporate Governance Committee charter is available under "Leadership & Governance" in the Investor Relations section of our website at investor-relations.calix.com.

Calix's Nominating and Corporate Governance Committee is responsible for reviewing with the Board, on an annual basis, the appropriate characteristics, skills and experience required for the Board as a whole and its individual members. Calix does not have a formal diversity policy, but does consider diversity to be a relevant consideration in the process of evaluating and identifying director candidates. To that end, in evaluating the suitability of individual candidates (both new candidates and current board members), the Nominating and Corporate Governance Committee, in recommending candidates for election, and the Board, in approving (and, in the case of vacancies, appointing) such candidates, takes into account the following factors, among others: diversity of personal background, perspective and experience, including diversity of gender, age and ethnicity; personal and professional integrity, ethics and values; experience in corporate management, operations or finance, such as serving as an officer or former officer of a publicly-held company; experience in Calix's industry and with relevant social policy concerns; experience as a board member of another publicly-held company; academic expertise in an area of Calix's operations; diversity of business or career experience relevant to the success of Calix; and practical and mature business judgment. The Board evaluates each individual in the context of the Board as a whole, with the objective of assembling a group that can best perpetuate the success of the business and represent stockholder interests through the exercise of sound judgment using its diversity of experience in these various areas.

The policy of the Nominating and Corporate Governance Committee is to consider properly submitted director candidates recommended by stockholders. For a stockholder to make any nomination for election to the Board at an annual meeting, the stockholder must provide notice to Calix, which must be received at Calix's principal executive offices not less than 90 days and not more than 120 days prior to the one-year anniversary of the preceding year's annual meeting; provided, that if the date of the annual meeting is more than 30 days before or more than 60 days after such anniversary date, the stockholder's notice must be delivered not later than 90 days prior to the date of the annual meeting or, if later, the 10th day following the date on which public disclosure of the date of such annual meeting is made. Further updates and supplements to such notice may be required at the times and in the forms required under our bylaws. As set forth in our bylaws, submissions must include the name and address of the proposed nominee, information regarding the proposed nominee that is required to be disclosed in a proxy statement or other filings in a contested election under Section 14(a) of the Exchange Act, information regarding the proposed nominee's indirect and direct interests in shares of Calix's common stock, and a completed and signed questionnaire, representation

and agreement of the proposed nominee. Our bylaws also specify further requirements as to the form and content of a stockholder's notice. We recommend that any stockholder wishing to make a nomination for director review a copy of our bylaws, as amended and restated to date, which is available, without charge, from our Corporate Secretary, at 1035 N. McDowell Boulevard, Petaluma, California 94954. The presiding officer at the applicable annual meeting may, if the facts warrant, determine that a nomination was not properly made in accordance with the foregoing, in which case the defective nomination may be disregarded.

Each of our nominees standing for election at this 2017 Annual Meeting was recommended to the Board by the Nominating and Corporate Governance Committee based on the committee's evaluation as set forth above.

Meetings of the Board, Board and Committee Member Attendance and Annual Meeting Attendance

Our Board met six times during fiscal year 2016. The Audit Committee met seven times, the Compensation Committee met seven times and the Nominating and Corporate Governance Committee met four times during fiscal year 2016. During 2016, each continuing Board member and nominee attended 75% or more of the aggregate of the meetings of the Board and of the committees on which he served, except for Mr. DeNuccio who missed two Board meetings due to unplanned obligations elsewhere and, as a result, attended 67% of the meetings of the Board. Mr. DeNuccio did not serve on any committees of the Board in fiscal year 2016.

We encourage our directors to attend our annual meetings of stockholders. Each of Messrs. Listwin, Bowick, DeNuccio, Everett, Matthews, Pardun, Peters and Russo attended our 2016 annual meeting of stockholders on May 18, 2016.

Compensation Committee Interlocks and Insider Participation

Each of Messrs. Flynn, Bowick and Listwin served on Calix's Compensation Committee for the entirety of 2016. None of the members of Calix's Compensation Committee is or was at any time during 2016 an officer or employee of Calix, was formerly an officer of Calix or has engaged in certain related transactions with Calix, as required to be disclosed by SEC regulations. None of Calix's executive officers currently serves or in the past year has served as a member of the board of directors or compensation committee of any other entity that has one or more executive officers serving on Calix's Board or Compensation Committee.

Risk Assessment and Compensation Practices

Calix's management assessed, with input from outside consultants, and discussed with the Compensation Committee Calix's compensation policies and practices for its employees as they relate to risk management. Based upon this assessment, Calix believes that any risks arising from such policies and practices are not reasonably likely to have a material adverse effect on Calix in the future.

Calix's employees' base salaries are fixed in amount and thus Calix does not believe that they encourage excessive risk-taking. While performance-based cash incentives and sales-based incentives focus on achievement of short-term or annual goals, Calix believes that its performance-based cash incentives and sales-based incentives appropriately balance risk and the desire to focus employees on specific short-term goals important to our long-term success. Calix believes these programs also do not encourage unnecessary or excessive risk taking as the potential payout is limited, with payouts on performance-based cash incentives limited to 100% of target and payouts of greater than target under sales-based incentives limited to incremental achievement above 100% of target. Further, such programs represent only one portion of the total compensation opportunities available to most employees and Calix believes that its internal policies and controls help mitigate this risk.

A significant portion of the compensation provided to Calix employees is in the form of long-term equity-based incentives that are important to help further align Calix's employees' interests with those of its stockholders. Calix does not believe that these equity-based incentives encourage unnecessary or excessive risk taking because their ultimate value is tied to Calix's stock price.

The statements regarding the risks arising from Calix's compensation policies and practices contain forward-looking statements that involve substantial risks and uncertainties. Calix has based these forward-looking statements largely on its current expectations and projections about future events and financial trends that Calix believes may affect its financial condition, results of operations, business strategy and financial needs.

Communications with the Board

All interested parties may communicate with the Board or any specified individual directors. Such correspondence should be sent to the attention of Calix's Corporate Secretary, at 1035 N. McDowell Boulevard, Petaluma, California 94954. Calix's Corporate Secretary will forward the communication to the Board members.

DIRECTOR COMPENSATION

Cash Compensation

Members of the Board who are employees of Calix do not receive any additional compensation for their services as directors. Under Calix's Non-Employee Director Cash Compensation Policy, directors who were not employed by Calix or one of our affiliates received the following cash retainers for their service on the Board (including service on committees of the Board) during 2016:

	Amount
Base Retainer	$ 40,000
Board and Committee Chair Service Premiums (in addition to Base Retainer)	
Board Chair	40,000
Audit Committee Chair	35,000
Compensation Committee Chair	20,000
Nominating & Corporate Governance Committee Chair	10,000
Non-Chair Committee Service Premiums (in addition to Base Retainer)	
Audit Committee	10,000
Compensation Committee	7,500
Nominating & Corporate Governance Committee	5,000

Equity Compensation

Under our Non-Employee Director Equity Compensation Policy, as last amended in April 2016, non-employee directors will automatically be granted RSUs valued at $200,000 (based on the per share closing price of our common stock on the date such director commences service) upon their election or appointment to the Board. The initial grants will be prorated based on the non-employee director's start date through the applicable vesting date, and will vest with respect to 100% of the RSUs on the earlier of the one-year anniversary of the date of grant or the day immediately preceding the date of the next annual meeting of stockholders following the year of grant.

Each director who is a non-employee director immediately following each annual meeting of stockholders (provided that such director has served as a director for at least six months prior to such date) will also automatically be granted RSUs valued at $120,000 (based on the per share closing price of our common stock on the date of such annual meeting of stockholders). The annual grants vest as to 100% of the RSUs on the day immediately prior to the date of the next annual meeting of stockholders following the date of grant, subject to continued service to Calix through the applicable vesting date.

Members of the Board who are Calix employees and who subsequently terminate employment with Calix and remain on the Board are not eligible for initial grants of RSUs but are eligible, after termination of employment with Calix, for annual grants of RSUs.

All options, RSUs and other equity awards held by a non-employee director, regardless of when granted, automatically accelerate in the event of a change in control of Calix.

Director Stock Ownership

Under our director stock ownership guidelines, each director is expected to acquire and maintain ownership of Calix common stock having a value of no less than four (4) times the annual Board cash retainer, which achievement of the requisite stock ownership expected on or before the later to occur of: January 1, 2018; or the date five years after the initial appointment date of such director. If a director fails to meet these guidelines, shares from such director's annual equity grants will be held until the guidelines are met. Each of our directors are currently in compliance with our director stock ownership guidelines.

Other Arrangements

We reimburse non-employee directors for travel, lodging and other expenses incurred in connection with their attendance at Board and committee meetings.

Director Compensation Table

The following table sets forth information regarding compensation earned by our non-employee directors during the year ended December 31, 2016.

Name	Fees Earned or Paid in Cash ($)	Stock Awards ($) (1)	All Other Compensation ($)	Total ($)
Don Listwin	$ 97,500	$ 120,000	$ —	$ 217,500
Christopher Bowick	47,500	120,000	—	167,500
Kevin DeNuccio	40,000	120,000	—	160,000
Michael Everett	75,000	120,000	—	195,000
Michael Flynn	65,000	120,000	—	185,000
Adam Grosser (2)	15,714	—	—	15,714
Michael Matthews	50,000	120,000	—	170,000
Thomas Pardun	50,000	120,000	—	170,000
Kevin Peters	45,000	120,000	97,244 (3)	262,244

(1) Amounts reflect the grant date fair value of RSUs granted in 2016 calculated in accordance with ASC Topic 718 for share-based payment transactions and exclude the impact of estimated forfeitures related to service-based vesting conditions. For a discussion of the assumptions used in the valuations of the RSUs, see Note 8 of the Notes to Consolidated Financial Statements included in our Annual Report on Form 10-K for the year ended December 31, 2016. We value RSUs at the closing market price of our common stock on the date of grant.

(2) Mr. Grosser did not stand for re-election at the Annual Meeting on May 18, 2016.

(3) Amount represents $90,000 of consulting services fees and $7,244 in travel and business expense reimbursements paid to Mr. Peters under a short-term Consulting Agreement dated July 29, 2016, as amended. We engaged Mr. Peters to provide us consulting and advisory services based on his business and industry experience relevant to certain of our projects. Mr. Peters provided services under the Consulting Agreement from August 1, 2016 through September 30, 2016, following which the engagement ended.

As of December 31, 2016, outstanding options and RSUs held by our current non-employee directors were as follows:

Name	Stock Options Outstanding (#)	Restricted Stock Units That Have Not Vested (#)
Don Listwin	7,500	17,964
Christopher Bowick	—	26,025
Kevin DeNuccio	—	17,964
Michael Everett	10,000	17,964
Michael Flynn	12,500	17,964
Michael Matthews	12,500	17,964
Thomas Pardun	11,750	17,964
Kevin Peters	—	25,565

EXECUTIVE COMPENSATION

Compensation Discussion and Analysis

Executive Summary

Our compensation and benefits programs reflect our philosophy of paying all of our employees, including our named executive officers ("NEOs"), in ways that support two primary objectives:

- attract, reward and retain exceptional talent in the markets in which we operate
- identify and reward outstanding performance that reflects Calix principles and values and aligns with long-term stockholder value creation

To help us achieve these objectives, a significant portion of our NEOs' compensation is at risk with significant upside potential for strong performance, as well as downside exposure for underperformance. NEOs with greater responsibilities and the ability to directly impact our company's goals and long-term results bear a greater proportion of the risk if these goals and results are not achieved.

The following discussion describes and analyzes our compensation objectives and policies, as well as the material components of our compensation program for our NEOs during 2016. Our NEOs for 2016 were:

- Carl Russo, President and Chief Executive Officer
- William Atkins, Executive Vice President and Chief Financial Officer
- Michael Weening, Executive Vice President, Sales and Marketing
- John Colvin, Former Senior Vice President, North American Sales
- Andy Lockhart, Former Senior Vice President, International Sales

Mr. Lockhart's employment with Calix terminated effective December 29, 2016 and Mr. Colvin's employment with Calix terminated effective January 6, 2017. On March 31, 2017, Mr. Atkins gave notice of his resignation from Calix effective May 19, 2017. The terms of separation with each executive are described below under "Separation Agreements."

Compensation Philosophy and Process

We strive to find the best talent, resources and infrastructure to serve our customers and strategically expand our product portfolio. Our goal is to attract and retain highly qualified executives to manage and oversee each of our business functions. We seek out individuals who we believe will be able to contribute to our business and our vision of future success, culture, principles and values, and who will promote the long-term interests and growth of our company. Our compensation philosophy is intended to promote a team-oriented approach to performance as a portion of each NEO's incentive compensation is based on achievement against the same performance objectives as our broad-based incentive plan. In 2016, all employees were provided with the same health, welfare and retirement benefits as our executives.

Our compensation programs aim to achieve the following:

- enable us to attract, retain and drive a world-class, talented leadership team to execute on our business strategy
- foster a goal-oriented leadership team with a clear understanding of long-term business objectives and shared corporate principles and values
- ensure that the elements of compensation provided to our employees and executives are balanced, individually and in combination, and do not encourage excessive risk-taking
- reflect the competitive environment of our industry and our changing business needs
- allocate our resources effectively and efficiently in the development and selling of market-leading technology and products
- maintain pay parity and fair compensation practices across our organization

In furtherance of these goals, our compensation programs are designed to:

- be market competitive by targeting compensation at approximately the 50th percentile of our peer group
- emphasize pay for performance
- share risks and rewards with our stockholders
- align the interests of our employees and executives with those of our stockholders
- reflect our principles and values

Our compensation program in 2016 consisted of the following components:

- base salary
- incentive-based cash compensation, including sales-based incentive compensation for sales executives
- grants of equity awards including grants that vest based solely on continued service and grants that vest based on corporate performance and continued service
- health, welfare and retirement benefits

In July 2016, our Compensation Committee conducted its annual review of our executive compensation program with its independent compensation consultant, Radford Consulting, or Radford, including a review of our pay philosophy, compensation mix, short and long-term incentive plan structures, equity plan risk assessment and severance policy, and concluded that our executive compensation program was consistent with market practice. In reaching this conclusion, the Compensation Committee, in consultation with Radford, also reviewed governance and pay-for-performance guidelines and peer company practices issued by proxy advisory firms.

Stockholder Advisory Vote on Executive Compensation

We hold an advisory, non-binding stockholder vote on executive compensation every year. At our 2016 Annual Meeting of Stockholders, our stockholders voted to approve the compensation of our NEOs, with approval of over 98.4% of the votes cast. The Compensation Committee reviewed these voting results along with the results in the last two years, noting the strong level of our stockholders' support for our NEO's compensation. The Compensation Committee also reviewed our compensation programs with Radford and management, including consideration of governance and pay-for-performance guidelines issued by proxy advisory firms. The Compensation Committee regularly reviews executive compensation programs, in conjunction with Radford, and makes changes it determines are appropriate, including its determination in February 2016 to grant performance-based equity incentive awards that also included a time-vest component that requires continuous employment for three years after grant to fully earn the award as discussed in the Equity-Based Incentives section below. The Compensation Committee intends to continue to take into consideration the outcome of our stockholders' future advisory "say on pay" votes when making future compensation decisions for the NEOs.

Role of Our Compensation Committee

Our Compensation Committee approves and interprets our executive compensation and benefit plans and policies. The Compensation Committee is appointed by the Board and consists entirely of directors who are outside directors for purposes of Section 162(m) of the Internal Revenue Code and non-employee directors for purposes of Rule 16b-3 of the Exchange Act. In 2016, our Compensation Committee determined the compensation for all of our NEOs. Except for our chief executive officer's compensation and performance, each NEO's individual performance and contributions to our Company for each fiscal year is assessed by our chief executive officer who reports his recommendations regarding each element of the NEOs' compensation to the Compensation Committee. Our chief executive officer does not participate in any formal discussion with the Compensation Committee regarding decisions on his own compensation and he recuses himself from meetings when his compensation is being discussed.

Competitive Market Review

The market for experienced executive leaders is highly competitive in our industry. We strive to attract and retain highly qualified executives to effectively lead each of our business functions. In doing so, we draw upon a pool of talent that is highly sought after by both large and established technology and telecommunications companies in our geographic area and by other competitive companies in development or growth phases. Established organizations in our industry seek to recruit top talent from emerging companies in the sector just as smaller organizations look to attract and retain the best talent from the industry as a whole. We also compete for key talent on the basis of: our vision of future success; our culture and values; the cohesiveness and productivity of our teams; and the excellence of our technical and leadership teams. The competition for technical and non-technical skills is aggressive across the sector and we expect it to remain high for the foreseeable future.

Our Compensation Committee determines compensation for our NEOs, in large part based upon our financial resources, as well as competitive market data. In setting executive compensation for 2016, our Compensation Committee conducted a review of our NEOs' compensation, as well as the mix of elements used to compensate our NEOs, and compared that information with data provided by Radford, as discussed below.

Our 2016 peer group criteria consist of companies within the telecommunications industry with revenues between $200 million and $1 billion and market capitalizations between $200 million and $2 billion that we believe compete with us for executive talent. Our 2016 peer group was set by the Compensation Committee based on recommendations from Radford, consideration of ISS and Glass Lewis peer group criteria, and discussion with management. Although Brocade is above the criteria for revenue and market capitalization, the Committee determined to retain this company in our 2016 peer group because it is a local talent competitor. Although Infinera and Ubiquiti Networks are above $2 billion in market capitalization, the Compensation Committee determined to retain these companies in our 2016 peer group because their revenue remains within range for our peer group. Our 2016 peer group consisted of the following companies:

• ADTRAN, Inc.	• InterDigital, Inc.
• Barracuda Networks, Inc.	• Ixia
• Broadsoft, Inc.	• NetScout Systems, Inc.
• Brocade Communications Systems, Inc.	• Oclaro
• CalAmp Corp.	• QLogic Corporation
• Comtech Telecommunications Corp.	• Ruckus Wireless, Inc.
• Digi International Inc.	• ShoreTel, Inc.
• Extreme Networks, Inc.	• Silver Springs Networks, Inc.
• Harmonic Inc.	• Sonus Networks, Inc.
• Infinera Corporation	• Ubiquiti Networks, Inc.
• Infoblox Inc.	

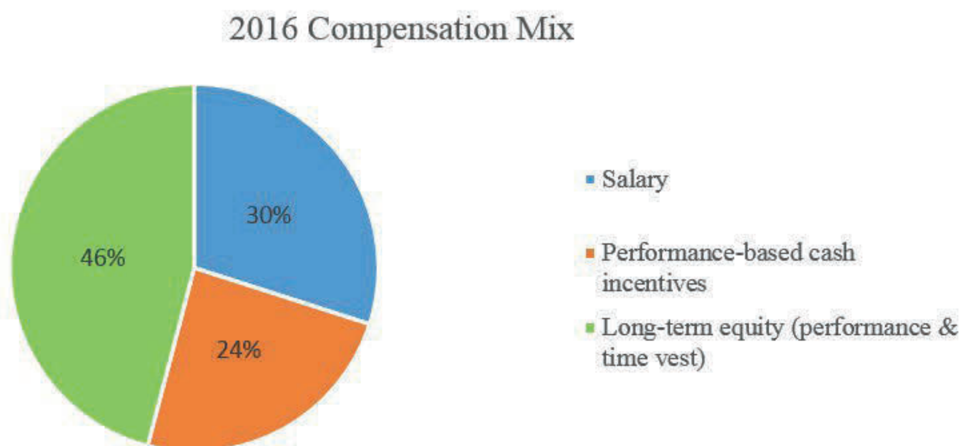
Our revenue was between the 50th and 60th percentile and our market cap was between the 10th and 20th percentiles of our 2016 peer group. We determine our approximate position relative to the appropriate market benchmark by comparing our practices and levels: by target annual cash compensation, which includes base salary, target annual incentive opportunity; and by total direct compensation, which includes target cash compensation and equity compensation.

During 2016, the Compensation Committee continued to engage Radford as its independent executive compensation consultant. Radford was hired directly by our Compensation Committee and works with management only at our Compensation Committee's direction to interpret results, make recommendations and assist in setting compensation levels for our executive officers. After review and consultation with Radford, the Compensation Committee determined that Radford is independent and that there is no conflict of interest resulting from retaining Radford currently or during 2016.

Weighting of Elements in our Compensation Program

The use and weight of each compensation element is based on a subjective determination by the Compensation Committee of the importance of each element in meeting our overall corporate objectives for each year as well as our long-term business strategy. We also take into consideration assessments of our compensation program, including an assessment of compensation program risk, conducted by Radford for the Committee. We put a significant amount of each NEO's total potential compensation, including compensation derived from long-term equity incentive awards, "at risk" based on our achievements of corporate financial targets aligned with our business strategy.

The 2016 weighting of compensation elements provided to our NEOs as a group is as follows:



Chief Executive Officer Compensation

In January of 2012, the compensation committee determined to adjust Mr. Russo's cash compensation to reflect market practices, our internal compensation practices for other NEOs and to be competitive relative to our peer group companies. In 2012, Mr. Russo's base salary was increased to $500,000 per year and he was given a performance bonus target equal to 100% of his annual base salary. For 2016, Mr. Russo's base salary and performance bonus target remained as set in 2012. Mr. Russo was not granted any equity awards during 2016, but continues to be a significant stockholder (with stock ownership of approximately 13% of common stock outstanding) with his personal wealth tied directly to sustained stock price appreciation and performance, which provides direct alignment with stockholder interests. Mr. Russo's 2016 total target direct compensation is below the 25th percentile of our peer group of companies.

Compensation Arrangements with New Executives

Michael Weening

In June 2016, Mr. Weening was appointed as our executive vice president of global sales. In recruiting new executive talent, our Compensation Committee aims to structure a competitive compensation package based upon, among other factors, competitiveness of the offer compared to the executive candidate's then-current compensation (including the value of bonus opportunities, incentive compensation opportunities and equity awards), competing offers available to the candidate, and market and peer group practices. Similarly, our Compensation Committee takes into account these factors, along with competitive position benchmark data provided by its compensation consultant, in setting the initial base salary and initial equity award for a new executive. Following such assessment and considering Mr. Weening's strong individual leadership experience and potential, our Compensation Committee approved an initial compensation package that provides for an annual base salary of $320,000, a $50,000 sign-on bonus and an initial equity award of an option to purchase 380,000 shares of our common stock with a grant date fair value of $1,249,098 that vests over four years, with 25% of the common stock subject to the award vesting on the one-year anniversary of the grant date and 12 substantially equal quarterly installments thereafter, subject to Mr. Weening's continued employment with Calix through the applicable vesting dates. In addition, Mr. Weening participates in our cash incentive plan and sales-based incentive plan on the same terms as our other executives.

Base Salary

Base salary reflects the experience, skills, knowledge and responsibilities of each NEO, as well as competitive market conditions. Base salary is one component of total cash compensation. We generally seek to target total cash compensation at approximately 50th percentile of our peer companies.

The table below sets forth the annual base salary for each NEO as set by our compensation committee for 2016.

Name of Executive Officer	Annual Base Salary
Carl Russo	$ 500,000
William Atkins (1)	345,000
Michael Weening (2)	320,000
John Colvin (3)	280,908
Andy Lockhart (4)	253,941

(1) On March 31, 2017, Mr. Atkins gave notice of his resignation from Calix effective May 19, 2017. Prior to January 4, 2016, Mr. Atkins's annual base salary was $313,500.

(2) Mr. Weening joined Calix on June 27, 2016.

(3) Mr. Colvin's employment with Calix ended effective January 6, 2017.

(4) Mr. Lockhart's employment with Calix ended effective December 29, 2016. Mr. Lockhart's salary was set in British pounds. Annual base salary amounts disclosed for Mr. Lockhart were converted to US dollars using an average exchange rate for 2016 of £1 to US$ 1.356.

The annual base salaries of our NEOs are reviewed at least once a year, and our compensation committee intends to make adjustments to reflect performance-based factors as well as competitive conditions.

Cash Incentive Compensation

Our cash incentive compensation for our NEOs consist of an executive cash incentive plan and, for our sales executives, additional cash incentive awards under a sales-based incentive compensation plan for our sales organization.

Cash Incentive Plan

During 2016, we maintained a cash incentive plan in which our NEOs participated. Total target cash compensation for our NEOs was at the 50th percentile of our 2016 peer group, when looking at the group in the aggregate. The executive cash incentive plan consists of quarterly financial target components and an annual component. Eighty percent (80%) of the target cash incentive plan opportunity is based upon achievement against quarterly corporate financial targets while twenty percent (20%) is an annual component awarded based on the executive's individual performance during the year. The cash incentive plan does not provide for any guaranteed payments. Our chief executive officer recommends, and the Compensation Committee determines, the achievement as to individual performance of each NEO, except for himself. Our chief executive officer's performance is evaluated and determined solely by the Compensation Committee.

We seek to align the performance targets of our cash incentive plan to our business strategy and long-term stockholder interests. For 2016, our cash incentive plan target focused on our strategic growth initiatives. The cash incentive plan provides for a cash incentive compensation pool to be funded based upon the achievement of both revenue and non-GAAP operating income (loss) targets on a consecutive quarterly basis. Both goals must be met or exceeded in consecutive quarters in order for the executive cash incentive compensation plan to fund, although the Compensation Committee retains discretion over whether or not the plan is funded quarter over quarter. Non-GAAP operating income (loss), for the purposes of the cash incentive plan, is calculated as operating income (loss) on a GAAP basis less certain items that are not considered indicative of our normal operating performance, consisting of: non-cash stock-based compensation, amortization of certain intangible assets and litigation expenses related to our defense in the class action litigation in connection with our 2011 acquisition of Occam Networks.

Our Compensation Committee establishes targets for our quarterly corporate goals based on the annual operating plan, or AOP, approved by our Board at the beginning of the year based on information prepared by management. In general, in order for the cash incentive compensation pool to be funded, both the revenue and non-GAAP net income (loss) targets need to be achieved for both that particular quarter and the following quarter.

These performance metrics were selected because the Compensation Committee sought to incentivize revenue growth and operational efficiencies as key measures of our operational performance at this stage of our development. The non-GAAP operating income (loss) component is a measure that is required in addition to the revenue target to mitigate risks of revenue generation activities at the expense of achieving profitability goals. The Compensation Committee believes that the use of these targets incentivizes long-term stockholder value.

Even though the Compensation Committee has established target cash incentive opportunities for each of the NEOs, once our corporate performance goals are achieved and the cash incentive compensation pool is funded, the Compensation Committee retains

discretion to adjust cash incentive compensation paid to each individual up or down based upon assessment of individual performance by the committee, including upon consultation with Mr. Russo (except as to Mr. Russo's compensation).

Sales-Based Incentive Compensation Plan

Given their roles leading our sales organization, Messrs. Weening, Colvin and Lockhart each additionally participate in the sales-based incentive compensation program for our sales organization. The sales-based incentive compensation program provides incentive cash payments in the form of sales commissions and similar incentive payments based on sales targets aligned with our growth strategy. As with our cash incentive plan, our sales-based incentive plan seeks to incentivize performance against our growth initiatives. The sales-based incentive plan does not provide for any guaranteed payments and, on an annual basis, our Compensation Committee evaluates the structure of the sales-based incentive plan to ensure its consistency with market practices. In setting the incentive targets, our Compensation Committee sought to incentivize revenue growth at levels that would be challenging and require above average effort to achieve. The incentive targets for 2016, consisting of quarterly and annual bookings quota and revenue targets for a sales executive's sales region, are set based on alignment to our AOP as approved by the Board at the beginning of the year. In addition, the sales-based incentive plan also provides for accelerators for certain specified achievement above targets. Performance is measured quarterly and annually with accelerators applying to incremental achievement of bookings targets above 100%, provided revenue targets are also met. For 2016, each of Messrs. Weening, Colvin and Lockhart were eligible for accelerators to the base commission rate for achievement of bookings targets above 100% as follows: at 1.15 times for actual achievement above 100% of bookings target within a quarter; at 1.30 times for actual achievement above 100% of target for the quarter if the immediate prior consecutive quarter targets were also met; 1.50 times for actual achievement above 100% for the annual target; and 2.00 times for actual achievement above 100% for all annual and quarterly targets.

A summary of the total cash incentive compensation set by our Compensation Committee for our NEOs for 2016 is as follows:

Total Target Cash Incentive Opportunity

Named Executive Officer	Target Cash Incentive Plan Opportunity	Target Cash Incentive Plan Opportunity as a Percentage of Base Salary	Target Sales-Based Incentive Plan Opportunity (1)	Total Target Incentive-Based Cash Compensation Opportunity
Carl Russo	$ 500,000	100%	$ —	$ 500,000
William Atkins (2)	172,500	50%	—	172,500
Michael Weening (3)	64,000	40%	64,000	128,000
John Colvin (4)	112,363	40%	117,637	230,000
Andy Lockhart (5)	88,140	34.7%	122,040	210,180

(1) Target sales-based incentive plan opportunity amounts listed represent the base sales commissions opportunities at target levels. It does not include additional accelerator amounts for which the executive may qualify if he exceeds his quarterly and/or annual sales targets.
(2) On March 31, 2017, Mr. Atkins gave notice of his resignation from Calix effective May 19, 2017.
(3) Since Mr. Weening commenced employment on June 27, 2016, his targets for his cash incentive plan and sales-based incentive plan opportunities have been pro-rated for our third and fourth fiscal quarters of the fiscal year. His annual target cash incentive plan and target sales-based incentive plan opportunities were each set at 40% of his annual base salary.
(4) Mr. Colvin's employment with Calix ended effective January 6, 2017. Target sales-based incentive for Mr. Colvin was approximately 41.9% of his annual base salary, which aligned his total cash compensation opportunity at approximately the 75th percentile of our peer group of companies for similar executives.
(5) Mr. Lockhart's employment with Calix ended effective December 29, 2016. Mr. Lockhart's target cash incentive and target sales-based incentive opportunities were set in British pounds. The amounts disclosed for Mr. Lockhart were converted to US dollars using an average exchange rate for 2016 of £1 to US$ 1.356. Mr. Lockhart's total cash compensation opportunity was set at approximately the 75th percentile of our peer group of companies for similar executives.

Achievement of Quarterly Financial Targets

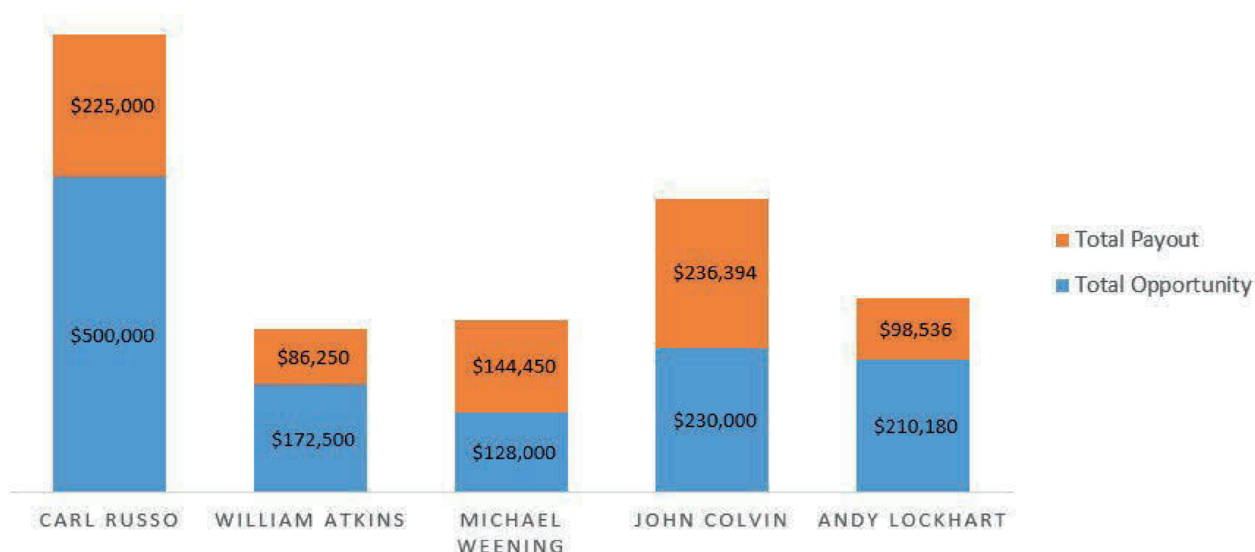
The table below sets forth the quarterly financial targets under our cash incentive plan and our achievement for each fiscal quarter of 2016 (in thousands, except for percentages).

	Target		Achievement		
Fiscal Quarter	Revenue	Non-GAAP Operating Income (Loss) (1)	Revenue	Non-GAAP Operating Income (Loss) (1)	Percent Achievement of Quarterly Financial Target (2)
First quarter	$ 97,000	$ (4,000)	$ 98,375	$ (1,005)	100%
Second quarter	107,000	(2,800)	107,425	762	100%
Third quarter	119,000	300	121,187	6,147	100%
Fourth quarter	131,000	(2,400)	131,800	(7,502)	—%

(1) Reconciliation of these non-GAAP amounts to GAAP is provided in Appendix C.
(2) Payment of our executive cash incentive plan requires achievement of quarterly revenue and non-GAAP operating income (loss) targets in two consecutive quarters. The executive cash incentive plan amount was paid in the first and second fiscal quarters of 2016 because we achieved both revenue and non-GAAP operating income (loss) targets in the first three fiscal quarters of 2016. Although we achieved our revenue and non-GAAP operating income (loss) targets for the third fiscal quarter of 2016, the executive cash incentive plan amount was forfeited because we did not meet our non-GAAP operating income (loss) target in the fourth fiscal quarter of 2016. Similarly, no executive cash incentive plan amount was paid in the fourth fiscal quarter of 2016 because we did not meet our non-GAAP operating income (loss) target that quarter.

Summary of Payouts of Cash Incentive Compensation

The chart and table below summarize each NEO's awards for achievements against targets under the cash incentive plan and each sales executive's achievements against target for the sales-based incentive plan.



Named Executive Officer	Target Opportunity Under Cash Incentive Plan: Quarterly Financial Targets	Target Opportunity Under Cash Incentive Plan: Annual Component - Personal Objectives	Awards Under Cash Incentive Plan: Quarterly Financial Targets	Awards Under Cash Incentive Plan: Annual Component - Personal Objectives	Target Sales-Based Incentive Plan Opportunity	Awards Under Sales-Based Incentive Plan	Total Cash Awards Under Incentive-Based Plans
Carl Russo	$ 400,000	$ 100,000	$ 200,000	$ 25,000	$ —	$ —	$ 225,000
William Atkins (1)	138,000	34,500	69,000	17,250	—	—	86,250
Michael Weening (2)	51,200	12,800	—	16,000	64,000	128,450	144,450
John Colvin (3)	89,890	22,473	44,945	—	117,637	191,449	236,394
Andy Lockhart (4)	70,512	17,628	35,256	—	122,040	63,280	98,536

(1) On March 31, 2017, Mr. Atkins gave notice of his resignation from Calix effective May 19, 2017.
(2) Mr. Weening commenced employment on June 27, 2016. Accordingly, he was eligible only for the third and fourth quarters of the quarterly financial component under the cash incentive plan and under the sales-based cash incentive plan. Mr. Weening is responsible for global sales and his sales-based incentive were based on targets set for the whole sales organization. The amount paid to Mr. Weening under the sales-based incentive plan constitutes payments of $73,020 for sales-based incentive payments at target and $55,430 for additional quarterly and annual accelerators, representing achievement of all revenue targets and achievement above 100% of each of his third and fourth quarter and annual bookings targets (at an aggregate achievement of 114.1%).
(3) Mr. Colvin's employment with Calix ended effective January 6, 2017. During 2016, Mr. Colvin was responsible for North America sales and his sales-based incentive targets were based on targets for the North America region. The amount paid to Mr. Colvin under the sales-based incentive plan constitutes payments of $133,842 for sales-based incentive payments at target and $57,605 for additional quarterly and annual accelerators, representing achievement of all revenue targets and achievement above 100% of each of his quarterly and annual bookings targets (at an aggregate achievement of 113.8%).

(4) Mr. Lockhart's employment with Calix ended effective December 29, 2016. During 2016, Mr. Lockhart was responsible for international sales and his sales-based incentive targets were based on targets for our International region. The amount paid to Mr. Lockhart under the sales-based incentive plan constitutes payments of £46,563 for sales-based incentive payments at target and £104 for an additional accelerator for the first quarter, representing achievement at 100.5% for the first quarter and below target for the second and third quarters. Amounts for Mr. Lockhart are set in British pounds and were converted to US dollars using an average exchange rate for 2016 of £1 to US$ 1.356.

Discretionary Bonuses

Our Compensation Committee may also choose to award discretionary bonuses from time to time. No discretionary bonuses were awarded to any NEO in 2016.

Equity-Based Incentives

Our equity incentive plans have been established to provide our key employees, including our NEOs, with stock-based incentives to align their interests with the interests of our stockholders.

We believe that award of stock-based compensation to our key employees and executives encourage strong long-term financial and operational performance and provide them the opportunity to participate in the long-term appreciation of our stock value. Our Compensation Committee also reviews the equity burn rate annually to ensure it is aligned with peer/industry practices.

We generally provide annual grants of stock-based awards to our NEOs under our 2010 Equity Incentive Award Plan. Currently, most key employees, including our NEOs, receive a new hire RSU or stock option grant subject to a four-year vesting period. RSU grants generally vest as to 25% after the first twelve months of service and in equal quarterly installments thereafter with a full vest in four years, subject to continued service through each vesting date; and beginning June 2016, stock option grants generally vest as to 25% after the first twelve months of the grant date and in equal quarterly installments thereafter with a full vest in four years, subject to continued service through each vesting date. Subsequent RSU or stock option grants may be granted at the discretion of the Compensation Committee, in recognition of a promotion or extraordinary performance, or as refresh grants to continue to incentivize future performance.

The size and terms of the initial option or RSU grant made to each new NEO upon joining Calix is primarily based on competitive conditions applicable to the NEO's specific position and the value of unvested equity the executive is leaving at his or her prior company. In addition, we consider the number of shares of our common stock underlying options and RSUs granted to other executives in comparable positions within our company.

For our NEOs, equity awards generally include a threshold performance criteria which is intended to reduce or eliminate the economic benefit of such awards in the event we do not perform well. We believe that our equity awards provide an important retention tool for our NEOs, as they are typically subject to vesting over a longer period of time, generally four years.

Performance Stock Units — Market Based Performance Targets

From 2012 to 2014, we granted performance stock units that vested based on our total stockholder return, or TSR, relative to the TSR of our financial peer group.

The performance stock units granted under this program will not vest if Calix's TSR is below the 30th percentile of our financial peer group for two-year and three-year measurement periods and may vest at up to 200% of the target shares if Calix's TSR is above the 90th percentile of our financial peer group. Where Calix's TSR is negative, the maximum payout of under this program is limited to 100% of target, even if Calix's TSR is above that of our financial peer group. We believe these criteria align our equity awards with long-term stockholder interests. The size of awards under our TSR program was determined in consultation with Radford and targeted at the values provided by our peer group companies for similarly situated executives.

The performance share units granted in January 2014 under our TSR program vest based on the relative TSR of our common stock over a three-year performance period beginning January 1, 2014 and ending December 31, 2016, with the first tranche consisting of two-thirds of the target shares vesting based on a measurement period of January 1, 2014 through December 31, 2015 and the second tranche consisting of one-third of the target shares vesting based on a measurement period of January 1, 2014 through December 31, 2016. Our relative TSR during the applicable measurement period for the first and second tranches of the 2014 grant was below the 30th percentile and, in accordance with the terms of our TSR program, none of the target shares were achieved or released, and the associated performance stock units were canceled in February 2016 and February 2017, respectively, upon certification of performance by our Compensation Committee.

Performance-Based RSUs

In February 2016, we granted 50,000 performance-based RSUs to each of Messrs. Atkins, Lockhart and Colvin. Vesting of these performance-based RSUs is contingent upon our achievement of a fiscal year 2016 target revenue goal of $450.0 million, representing a 10% year-over-year growth in gross revenue from 2015 to 2016. Our Compensation Committee selected the target revenue goal in order to align our executive compensation to our business strategy and long-term growth initiatives. Further, these grants were determined to provide an appropriate blend of performance-based incentive and executive-retention impact over the three-year period consistent with equity award programs among our peer group companies. We believe that award size, performance target and vest terms are such that a significant portion of each NEO's total compensation would be attained only if we achieved performance aligned with our growth initiatives and long-term stockholder value.

If, at the end of the one-year performance measurement period, the performance goal is met, 50% of the equity award shall vest upon certification by the Compensation Committee of achievement of the performance goal, with the remaining 50% vesting in equal annual installments for the next two years, subject to the executive's continuous employment with the Company. If the performance target is not met, the entire equity award would be forfeited. In February 2017, the Compensation Committee determined that the financial goal for these performance-based RSUs was met based on 2016 gross revenue of $458.8 million and, accordingly, 25,000 of the performance-based RSUs held by Mr. Atkins vested. The remaining 25,000 performance-based RSUs held by Mr. Atkins will vest in equal installments on February 7, 2018 and 2019, subject to his continued service through the vesting dates. In connection with Mr. Lockhart's termination of employment, 25,000 of the performance-based RSUs held by Mr. Lockhart also vested in February 2017, based on the Compensation Committee's certification of performance. The remainder of Mr. Lockhart's performance-based RSUs were forfeited. The vesting of all of Mr. Colvin's performance-based RSUs was accelerated in January 2017 in connection with his termination of employment. The terms of separation with each Mr. Lockhart and Mr. Colvin are described below under "*Separation Agreements*."

Change in Control and Severance Benefits

We provide our NEOs with certain change in control and severance benefits under our Executive Change in Control and Severance Plan, or CICSP, as adopted by our Compensation Committee. Our Compensation Committee provides change in control and severance benefits to our senior executives to, among other things, provide security to our NEOs including in the event of a change in control of our company.

Under the CICSP, in the event an eligible NEO's employment with us is terminated by us without cause or by the NEO for good cause, he or she is eligible to receive (i) cash severance payments of twelve months' base salary and target bonus (in the case of Messrs. Russo, Atkins and Weening) or six months' base salary and target bonus (in the case of Messrs. Lockhart and Colvin), to be paid in a cash lump sum, and (ii) the continuation of health benefits, paid by Calix, for twelve months (in the case of Messrs. Russo, Atkins and Weening) or six months (in the case of Messrs. Lockhart and Colvin) following termination. In addition, upon such a termination, any equity awards held by our NEOs would be accelerated with respect to that number of shares that otherwise would have vested had the NEO's employment continued for a twelve-month period (in the case of Messrs. Russo, Atkins and Weening) or a six-month period (in the case of Messrs. Lockhart and Colvin) following termination.

In the event the applicable termination or resignation takes place within 60 days prior to or twelve months after a change in control, then, in addition to the foregoing benefits, (i) the vesting of all equity awards held by the NEO would be fully accelerated and (ii) each NEO would receive a cash payment equal to his or her annual cash bonus for the year of termination, pro-rated through the date of termination, subject to the achievement of applicable performance goals.

Our NEOs must execute, and not revoke during any applicable revocation period, a general release of claims against us in order to be eligible for any severance benefits. We do not provide for any tax gross-up payments under our CICSP or otherwise in connection with executive severance benefits.

Benefits

We provide the following benefits, as applicable to all employees, including our NEOs:

- medical, dental and vision insurance
- life insurance, accidental death and dismemberment and business travel and accident insurance
- employee assistance program
- health and dependent care flexible spending accounts
- transportation flexible spending accounts
- employee stock purchase plan (ESPP)
- short- and long-term disability
- 401(k) plan
- pension plan for employees in the United Kingdom, Canada and certain other countries outside of the US, including for Messrs. Lockhart and Weening
- health club membership reimbursement

Perquisites

Our NEOs participate in the same benefit programs as other employees and do not receive any other perquisites.

Policy Prohibiting Speculative Transactions and Pledging

In accordance with our insider trading policy, we do not permit any officer, director or employee, and their respective family members, to directly or indirectly participate in certain trading activities related to our common stock that are considered aggressive or speculative in nature, including the purchase of put or call options, or the writing of such options. In addition, we do not permit officers and directors to pledge our common stock as collateral.

Tax and Accounting Considerations

Section 162(m) of the Internal Revenue Code

Section 162(m) of the Internal Revenue Code generally disallows a tax deduction for compensation in excess of $1 million paid to our chief executive officer and the three other most highly compensated NEOs (excluding our chief financial officer) employed at the end of the year. While the Board and our Compensation Committee generally consider the financial accounting and tax implications of their executive compensation decisions, neither element has been a material consideration in the compensation awarded to our NEOs historically. To maintain flexibility in compensating executive officers in a manner designed to promote corporate goals, the Compensation Committee will not limit amounts paid to those that qualify for tax deductibility.

Section 280G of the Internal Revenue Code

Section 280G of the Internal Revenue Code disallows a tax deduction for “excess parachute payments” and Section 4999 of the Code imposes a 20% excise tax on any person who receives excess parachute payments. Our NEOs are not eligible to receive any tax gross-up payments in the event any payments made or that may be made to them become subject to this excise tax. The Compensation Committee will take into account the implications of Section 280G in determining potential payments to be made to our executives in connection with a change in control. Nevertheless, to the extent that certain payments upon a change in control are classified as excess parachute payments, such payments may not be deductible under Section 280G.

Section 409A of the Internal Revenue Code

Section 409A of the Internal Revenue Code, which governs the form and timing of payment of deferred compensation, imposes a 20% tax and an interest penalty on the recipient of deferred compensation that is subject to but does not comply with Section 409A. As a general matter, it is our intention to design and administer our compensation and benefits plans and arrangements for all of our employees and other service providers, including our NEOs, so that they are either exempt from, or satisfy the requirements of, Section 409A of the Code. The Compensation Committee will take into account the implications of Section 409A in determining the form and timing of compensation awarded to our executives and will strive to structure any nonqualified deferred compensation plans or arrangements to be exempt from or to comply with the requirements of Section 409A.

Accounting for Stock-Based Compensation

We follow Financial Accounting Standards Board Accounting Standards Codification Topic 718, or ASC Topic 718, for our stock-based compensation awards. ASC Topic 718 requires companies to calculate the grant date “fair value” of their stock-based awards using a variety of assumptions. ASC Topic 718 also requires companies to recognize the compensation cost of their stock-based awards in their income statements over the period that an employee is required to render service in exchange for the award. Grants of stock options, restricted stock, RSUs and other stock-based awards under our equity incentive award plans will be accounted for under ASC Topic 718. Our Compensation Committee will regularly consider the accounting implications of significant compensation decisions, especially in connection with decisions that relate to our equity incentive award plans and programs. As accounting standards change, we may revise certain programs to appropriately align accounting expenses of our equity awards with our overall executive compensation philosophy and objectives.

Summary Compensation Table

The following table sets forth all of the compensation awarded to, earned by or paid to our NEOs during 2016, 2015, and 2014.

Name and Principal Position	Year	Salary ($)	Bonus ($) (1)	Stock Awards ($) (2)	Option Awards ($) (3)	Non-Equity Incentive Plan Compen-sation ($) (4)	All Other Compen-sation ($) (5)	Total ($)
Carl Russo	2016	500,000	—	—	—	225,000	—	725,000
President and Chief Executive Officer	2015	500,000	—	—	—	250,000	—	750,000
	2014	500,000	—	543,774	516,648	288,033	1,250	1,849,705
William Atkins (6)	2016	344,394	—	371,000	—	86,250	5,531	807,175
Executive Vice President and Chief Financial Officer	2015	310,125	—	—	—	78,375	29,989	418,489
	2014	253,846	20,000	—	1,877,260	67,038	140,078	2,358,222
Michael Weening (7)	2016	166,154	50,000	—	1,249,098	144,450	2,066	1,611,768
Executive Vice President, Sales and Marketing								
John Colvin (8)	2016	280,908	—	371,000	—	236,392	—	888,300
Former Senior Vice President, North American Sales	2015	279,531	—	—	—	212,836	—	492,367
	2014	273,842	—	65,274	586,803	167,906	4,104	1,097,929
Andy Lockhart (9)	2016	189,805	—	185,500	—	98,536	264,252	738,093
Former Senior Vice President, International Sales	2015	284,851	105,889	—	—	180,371	53,777	624,888
	2014	301,017	—	39,984	560,804	140,256	37,832	1,079,893

(1) Amount reported for Mr. Weening represents a one-time sign-on bonus provided as part of our offer of employment to Mr. Weening.

(2) Amounts reported represent the aggregate grant date fair value, calculated in accordance with ASC Topic 718 for share-based payment transactions and exclude the impact of estimated forfeitures related to service-based vesting conditions. We value RSUs that vest based solely upon continued service at the closing market price of our common stock on the date of grant. Grant date fair value of performance-based RSUs were calculated assuming 100% performance and are not adjusted for subsequent changes in our stock performance or the level of ultimate vesting as our performance-based RSUs are market condition based only. For a discussion of the assumptions used in the valuations of the performance-based RSUs, see Note 8 of the Notes to Consolidated Financial Statements included in our Annual Report on Form 10-K for the year ended December 31, 2016. The Stock Award value reported for Mr. Lockhart includes the acceleration of vesting for equity awards under our CICSP in connection with Mr. Lockhart's termination of employment on December 29, 2016. In accordance with the terms of our CICSP, Mr. Lockhart was granted accelerated vesting of his outstanding equity awards for a six-month period, through June 29, 2017, with any performance-based RSUs subject to the performance target being achieved. This resulted in accelerated vesting of 25,000 shares under the performance-based RSUs granted in February 2016 with a grant date value of $185,500 due to our achievement of the performance target. See additional disclosures related to the performance-based RSUs award under "Equity-Based Incentives" above.

(3) Amounts reported represent the aggregate grant date fair value for stock options, calculated in accordance with ASC Topic 718 and exclude the impact of estimated forfeitures related to service-based vesting conditions. The grant date fair value of performance-based options was calculated assuming 100% performance and are not adjusted for subsequent changes in our stock performance or the level of ultimate vesting. For a discussion of the assumptions used in the valuations of the stock options, see Note 8 of the Notes to Consolidated Financial Statements included in our Annual Report on Form 10-K for the year ended December 31, 2016.

(4) For Messrs. Russo and Atkins, amounts reported for 2016 represent awards earned under our executive cash incentive plan and is based on company and individual performance criteria as described above under "*Cash Incentive Compensation.*" For Messrs. Weening, Colvin and Lockhart, amounts reported for 2016 represent awards earned under our executive cash incentive plan and amounts earned for sales-based compensation under our sales-based incentive plan for our sales organization. Amounts for Mr. Weening consist of $16,000 in cash incentive plan payments and $128,450 in sales-based incentive plan payments earned in 2016. Amounts for Mr. Colvin consist of $44,945 in cash incentive plan payments and $191,449 in sales-based incentive plan payments earned during 2016. Amounts for Mr. Lockhart consist of $35,256 in cash incentive plan payments and $63,280 in sales-based incentive plan payments earned in 2016.

(5) Amounts reported in 2016 represent (i) employer contributions of $5,531 we made for Mr. Atkins pursuant to our U.S. 401(k) Plan, (ii) employer contributions of $2,066 we made for Mr. Weening to the Canadian Pension Plan, which is a tax-qualified defined contribution plan in which Calix employees in Canada (other than Quebec) participate, (iii) employer contributions of $15,998 we made for Mr. Lockhart to the Scottish Widows Pension Plan, which is a tax-qualified defined contribution plan in which Calix employees in the United Kingdom participate, (iv) Mr. Lockhart's car allowance of $20,298 and (v) severance payments in the amount of $227,956 pursuant to Mr. Lockhart's separation agreement, which is further described under "Separation Agreements" below.

(6) Mr. Atkins's annual base salary was adjusted from $313,500 to $345,000 effective January 4, 2016. On March 31, 2017, Mr. Atkins gave notice of his resignation from Calix effective May 19, 2017.

(7) Mr. Weening's employment with Calix and appointment as an executive officer commenced June 27, 2016.

(8) Mr. Colvin's employment with Calix ended effective January 6, 2017.

(9) Mr. Lockhart's employment with Calix ended effective December 29, 2016. All amounts shown for Mr. Lockhart's salary and non-equity incentive plan compensation were set and paid in British pounds and were converted to US dollars using the average exchange rate of £1 to US$1.356 for 2016, £1 to US$1.529 for 2015, and £1 to US$1.648 for 2014.

Grants of Plan-Based Awards in 2016

The following table lists grants of plan-based awards to our NEOs in 2016 and their related fair value as of the respective grant date.

		Estimated Possible Payouts Under Non-Equity Incentive Plan Awards	Estimated Possible Payouts Under Equity Incentive Plan Awards (3)		All Other Option Awards: Number of Securities Underlying Options	Exercise or Base Price of Option Awards	Grant Date Fair Value of Option and Stock Awards
Name	**Grant Date**	**Target ($)**	**Target (#)**	**Maximum (#)**	**(#)**	**($/Sh)**	**($) (4)**
Carl Russo	—	500,000 (1)	—	—	—	—	—
William Atkins	—	172,500 (1)	—	—	—	—	—
	2/2/2016	—	50,000	50,000	—	—	371,000
Michael Weening (8)	—	64,000 (1)	—	—	—	—	—
	—	64,000 (2)	—	—	—	—	—
	6/27/2016	—	—	—	380,000 (5)	6.38	1,249,098
John Colvin	—	112,363 (1)	—	—	—	—	—
	—	117,637 (2)	—	—	—	—	—
	2/2/2016	—	50,000	50,000	—	—	371,000
Andy Lockhart (7)	—	88,140 (1)	—	—	—	—	—
	—	122,040 (2)	—	—	—	—	—
	2/2/2016	—	50,000	50,000	—	—	371,000

(1) These amounts represent possible payouts if the incentive plan performance goals are achieved at target level under our cash incentive plan for 2016, which does not provide for threshold or maximum levels. Actual payouts for these plan-based awards are disclosed above in the Summary Compensation Table and under "*Cash Incentive Compensation*."

(2) These amounts represent possible payouts under our sales-based incentive plan at target levels. Our sales-based incentive plan does not provide for threshold or maximum levels.

(3) Performance-based RSUs that vest based on the attainment of revenue of $458.8 million in 2016, with 50% vesting on the date the Compensation Committee certifies achievement of the performance goal and 25% vesting on each of the next two anniversaries of the certification of performance.

(4) Amounts reported represent the aggregate grant date fair value, calculated in accordance with ASC Topic 718 for share-based payment transactions and exclude the impact of estimated forfeitures related to service-based vesting conditions. Grant date fair value of performance-based RSUs were calculated assuming 100% performance.

(5) This amount represents Mr. Weening's initial stock option award grant upon joining Calix in June 2017. This stock option grant vests over four years, with 25% of the common stock subject to the award vesting on the one-year anniversary of the grant date and 12 substantially equal quarterly installments thereafter, subject to Mr. Weening's continued employment with the Company through the applicable vesting dates.

(6) Mr. Weening commenced employment on June 27, 2016. Accordingly, the target amounts for the cash incentive plan and sales-based incentive plan opportunities for Mr. Weening have been pro-rated for the third and fourth quarters of the fiscal year. Mr. Weening's target cash incentive plan and target sales-based incentive plan opportunities are each $128,000 on an annual basis, each representing 40% of his base salary.

(7) Amounts shown for non-equity incentive plan awards for Mr. Lockhart were set in British pounds and were converted to US dollars using the average exchange rate of £1 to US$1.356.

Outstanding Equity Awards at December 31, 2016

The following table lists all outstanding equity awards held by our NEOs as of December 31, 2016.

	Option Awards					Stock Awards			
Name	Grant Date	Number of Securities Underlying Unexercised Options Exercisable (#)	Number of Securities Underlying Unexercised Options Unexercisable (#)	Option Exercise Price ($)	Option Expiration Date	Number of Shares or Units of Stock That Have Not Vested (#)	Market Value of Shares or Units of Stock that Have Not Vested as of December 31, 2016 ($) (6)	Equity Incentive Plan Awards: Number of Unearned Shares, Units or Other Rights That Have Not Vested (#)	Equity Incentive Plan Awards: Market Value of Unearned Shares, Units or Other Rights That Have Not Vested ($) (6)
Carl Russo	1/28/2014	87,500	32,500 (1)	8.18	1/28/2024				
	2/21/2013	191,666	8,334 (1)	8.41	2/21/2023				
	2/24/2011	100,000	— (1)	19.75	2/24/2021				
	1/28/2014							22,667 (4)	174,536
William Atkins	2/2/2016							50,000 (5)	385,000
	3/25/2014	212,500	87,500 (2)	8.61	3/25/2024				
Michael Weening	6/27/2016	—	380,000 (3)	6.38	6/27/2026				
John Colvin	2/2/2016							50,000 (5)	385,000
	7/22/2014	3,625	2,375 (1)	8.43	7/22/2024				
	1/28/2014	7,291	2,709 (1)	8.18	1/28/2024				
	7/23/2013	4,270	730 (1)	11.98	7/23/2023				
	2/21/2013	19,166	834 (1)	8.41	2/21/2023				
	2/23/2012	20,000	— (1)	10.71	2/23/2022				
	1/28/2014							1,667 (4)	12,836
	7/22/2014					1,500 (5)	11,500		
	7/23/2013					1,250 (5)	9,625		
Andy Lockhart	2/2/2016							25,000 (5)	192,500
	1/28/2014	8,541	— (1)	8.18	1/28/2024				
	2/21/2013	20,000	— (1)	8.41	2/21/2023				
	2/23/2012	40,000	— (1)	10.71	2/23/2022				
	5/16/2011	250,000	—	21.99	5/16/2021				
	1/28/2014							1,667 (4)	12,836

(1) This option grant vests on a monthly basis over a four-year period from the grant date, subject to the executive's continued service through the applicable vesting date.

(2) This option grant vests over four years, with 25% of the options subject to the award vesting on the one-year anniversary of the grant date and 36 substantially equal monthly installments thereafter, subject to the executive's continued service through the applicable vesting date.

(3) This option grant vests over four years, with 25% of the common stock subject to the award vesting on the one-year anniversary of the grant date and 12 substantially equal quarterly installments thereafter, subject to Mr. Weening's continued employment with the Company through the applicable vesting dates.

(4) Represents grants of performance stock units under our TSR program with a three-year measurement period from January 1, 2014 to December 31, 2016 as described above under "*Equity-Based Incentives.*" Attainment of the performance metrics was not achieved, and the performance stock units were canceled in February 2017 upon certification of non-performance by our Compensation Committee.

(5) Represents grants of performance-based RSUs that vest based on the achievement of a certain 2016 revenue target as described above under "*Equity-Based Incentives,*" with 50% of the grant to vest upon certification by the Compensation Committee of such achievement, and the balance to vest over the subsequent two years in two equal annual installments, subject to the executive's continued service through the applicable vesting date. Attainment of the performance metrics was determined and certified by the Compensation Committee of the Company's Board of Directors on February 7, 2017.

(6) Amounts calculated using a per share fair market value as of December 31, 2016 of $7.70, which was the closing market price of our common stock on that date.

Option Exercises and Stock Vested in 2016

The following table shows information regarding the vesting of RSU awards for each of the NEOs during the year ended December 31, 2016. None of our NEOs exercised stock options during 2016.

	Stock Awards	
Name	Number of Shares Acquired on Vesting (#)	Value Realized on Vesting ($) (1)
Carl Russo	24,999	153,994
William Atkins	—	—
Michael Weening	—	—
John Colvin	4,499	31,214
Andy Lockhart	2,499	15,394

(1) Based on the closing trading price of the vested shares on the vesting date.

Potential Payments Upon Termination or Change of Control

Each of our NEOs is entitled to severance upon a termination without cause or a resignation for good reason under our CICSP. See the section above entitled "Change in Control and Severance Benefits" for more information regarding the benefits provided under our CICSP.

The table below sets forth the estimated payments and benefits that would be provided to each of our NEOs, other than Mr. Lockhart, upon a termination of employment without cause or resignation for good reason apart from or in connection with a change in control if our NEO's employment had terminated on December 31, 2016 or a change in control was consummated on December 31, 2016, as applicable, taking into account the named executive's compensation as of that date.

For information with respect to the separation compensation and benefits pursuant to the separation agreements entered into with each of Messrs. Colvin, Lockhart and Atkins, please see "*Separation Agreements*" below.

	Involuntary Termination for Reasons Other Than Cause, Death or Disability, or Voluntary Termination for Good Reason	
Executive Benefits and Payments upon Termination	**60 Days Prior to or 12 Months Following a Change in Control ($)**	**Not in Connection With a Change in Control ($)**
Carl Russo		
Cash severance - 12 months of base salary	$ 500,000	$ 500,000
Cash severance - 12 months of target bonus	500,000	500,000
Prorated cash bonus	500,000	—
Value of accelerated vesting of equity awards (1)	—	—
Company-paid health care premiums - 12 months	16,709	16,709
Total	$ 1,516,709	$ 1,016,709
William Atkins		
Cash severance - 12 months of base salary	$ 345,000	$ 345,000
Cash severance - 12 months of target bonus	172,500	172,500
Prorated cash bonus	172,000	—
Value of accelerated vesting of equity awards (1)	385,000	192,500
Company-paid health care premiums - 12 months	24,979	24,979
Total	$ 1,099,479	$ 734,979
Michael Weening		
Cash severance - 12 months of base salary	$ 320,000	$ 320,000
Cash severance - 12 months of target bonus	128,000	128,000
Prorated cash bonus	128,000	—
Value of accelerated vesting of equity awards (1)	501,600	188,100
Company-paid health care premiums - 12 months (2)	3,710	3,710
Total	$ 1,081,310	$ 639,810
John Colvin		
Cash severance - 6 months of base salary	$ 140,454	$ 140,454
Cash severance - 6 months of target bonus	56,182	56,182
Prorated cash bonus	112,363	—
Value of accelerated vesting of equity awards (1)	406,175	192,500
Company-paid health care premiums - 6 months	9,176	9,176
Total	$ 724,350	$ 398,312

(1) Value of accelerated vesting of equity awards amounts were calculated based on a closing market price of $7.70 per share at December 31, 2016. Value associated with stock option grants for which the strike price is higher than the closing market price of $7.70 per share is reflected as zero.

(2) Reflects value of employer payments with respect to a Canadian Pension Plan that is a tax-qualified defined contribution plan in which Calix employees in Canada (other than Quebec) participate. Payments under the Canadian Pension Plan are set in Canadian dollars and were converted to US dollars using an average exchange rate of CAD1.00 to US$0.760.

Separation Agreements

William Atkins

On March 31, 2017, Mr. Atkins gave notice of his resignation from Calix effective May 19, 2017. Mr. Atkins joined Calix in February 2014 as executive vice president and chief financial officer. In connection with Mr. Atkins' resignation, we entered into a separation agreement with Mr. Atkins pursuant to which Mr. Atkins will receive the following severance benefits: (i) a lump sum cash payment of $345,000 representing 12 months of current base salary, (ii) a lump sum cash payment of $207,000 equal to Mr. Atkins' current cash incentive plan opportunity at target, (iii) reimbursement of up to 12 months of health insurance premiums under COBRA (estimated total value of $24,979) and (iv) acceleration of vesting as to such equity awards as would have otherwise vested if Mr. Atkins remained employed for a period of 24 months following his employment termination date and agreed to customary covenants regarding confidential information, non-disparagement and a general release in favor of Calix. Under the separation agreement, Mr. Atkins will continue in his role as executive vice president and chief financial officer, and as Calix's principal financial officer, and will provide transition services from March 31, 2017 through May 19, 2017. During this transition period, Mr. Atkins will continue to be paid his current annual base salary and accrued bonus for the fiscal quarter ended April 1, 2017, accrue paid vacation and be eligible for employee benefits plans.

John Colvin

Mr. Colvin's employment with Calix ended effective January 6, 2017. Mr. Colvin joined Calix in March 2004 and served in various sales leadership roles, most recently as senior vice president of North American sales. In connection with Mr. Colvin's departure, we entered into a separation agreement with Mr. Colvin pursuant to which Mr. Colvin received the following severance benefits: (i) a lump sum cash payment of $280,908 equal to 12 months of base salary, (ii) a lump sum cash payment of $56,182 equal to six months of Mr. Colvin's cash incentive plan opportunity at target, (iii) a lump sum cash payment of $58,818 equal to six months of Mr. Colvin's sales-based incentive plan opportunity at target, (iv) acceleration of vesting as to all of Mr. Colvin's outstanding equity awards as of his employment termination date (estimated total value of $382,438 based on the closing share price on January 6, 2017), provided that vesting of any performance-based equity awards remain contingent upon the achievement of such performance criteria, and (v) reimbursement of up to six months of health insurance premiums under COBRA (estimated total value of $9,176), and agreed to other customary terms including execution of a release in our favor and compliance with confidentiality and restrictive covenants.

Andrew Lockhart

Mr. Lockhart's employment with Calix ended effective December 29, 2016. Mr. Lockhart joined Calix in April 2011 as senior vice president of international sales, with overall responsibility for the development of Calix's international business. In connection with Mr. Lockhart's departure, we entered into a separation agreement with Mr. Lockhart pursuant to which Mr. Lockhart received the following severance benefits: (i) lump sum cash payments totaling $126,970 equal to six months of base salary (inclusive of three months of garden leave), (ii) a lump sum cash payment of $44,070 equal to six months of Mr. Lockhart's cash incentive plan opportunity at target, (iii) a lump sum cash payment of $26,567 associated with certain statutory and customary payments under British labor laws, (iv) a lump sum cash payment of $21,162 in exchange for limited non-compete restrictions, (v) acceleration of vesting as to such equity awards as would have otherwise vested if Mr. Lockhart remained employed for a period of six months following his employment termination date, provided that vesting of any performance-based equity awards remain contingent upon the achievement of such performance criteria, (vi) continuation of healthcare coverage on the same basis as just prior to Mr. Lockhart's employment termination date for a six month period (representing approximately $7,153 of value), and (vii) reimbursement of up to $2,034 in legal fees for legal representation related to the separation agreement, and agreed to certain customary terms including execution of a release in our favor, a limited non-compete, and compliance with confidentiality other restrictive covenants. The terms of Mr. Lockhart's separation agreement are set in British pounds and converted to US dollars using an average exchange rate of £1 to US$1.356.

Limitation of Liability and Indemnification

Calix's amended and restated certificate of incorporation contains provisions that limit the liability of Calix's directors for monetary damages to the fullest extent permitted by Delaware law. Consequently, Calix's directors will not be personally liable to Calix or Calix's stockholders for monetary damages for any breach of fiduciary duties as directors, except liability for:

- any breach of the director's duty of loyalty to Calix or Calix's stockholders;
- any act or omission not in good faith or that involves intentional misconduct or a knowing violation of law;
- unlawful payments of dividends or unlawful stock repurchases or redemptions as provided in Section 174 of the Delaware General Corporation Law; or
- any transaction from which the director derived an improper personal benefit.

Calix's amended and restated certificate of incorporation and amended and restated bylaws provide that Calix is required to indemnify Calix's directors and officers, in each case to the fullest extent permitted by Delaware law. Calix's amended and restated bylaws also provide that Calix is obligated to advance expenses incurred by a director or officer in advance of the final disposition of any action or proceeding, and permit Calix to secure insurance on behalf of any officer, director, employee or other agent for any liability arising out of his or her actions in that capacity regardless of whether Calix would otherwise be permitted to indemnify him or her under the provisions of Delaware law. Calix has entered into and expects to continue to enter into agreements to indemnify Calix's directors, executive officers and other employees as determined by the Board. With specified exceptions, these agreements provide for indemnification for related expenses including, among other things, attorneys' fees, judgments, fines and settlement amounts incurred by any of these individuals in any action or

proceeding. Calix believes that these bylaw provisions and indemnification agreements are necessary to attract and retain qualified persons as directors and officers. Calix also maintains directors' and officers' liability insurance.

The limitation of liability and indemnification provisions in Calix's amended and restated certificate of incorporation and amended and restated bylaws may discourage stockholders from bringing a lawsuit against Calix's directors and officers for breach of their fiduciary duty. They may also reduce the likelihood of derivative litigation against Calix's directors and officers, even though an action, if successful, might benefit Calix and other stockholders. Further, a stockholder's investment may be adversely affected to the extent that Calix pays the costs of settlement and damage awards against directors and officers as required by these indemnification provisions. Insofar as indemnification for liabilities arising under the Securities Act may be permitted to Calix's directors, officers and controlling persons under the above provisions, or otherwise, Calix has been advised that, in the opinion of the SEC, such indemnification is against public policy as expressed in the Securities Act, and is, therefore, unenforceable. At present, there is no pending litigation or proceeding involving any of Calix's directors, officers or employees for which indemnification is sought, and Calix is not aware of any threatened litigation that may result in claims for indemnification.

EQUITY COMPENSATION PLAN INFORMATION

The following table provides certain information as of December 31, 2016, with respect to all of our equity compensation plans in effect on that date.

Plan Category	Number of Securities to be Issued Upon Exercise of Outstanding Options and Restricted Stock Units (a)	Weighted-Average Exercise Price of Outstanding Options (b)	Number of Securities Remaining Available for Future Issuance Under Equity Compensation Plans (Excluding Securities Reflected in Column(a)) (c)
Equity Compensation Plans Approved by Stockholders (1)	6,371,498 (2)	$ 10.15 (3)	1,967,589 (4)
Equity Compensation Plans Not Approved by Stockholders	—	—	—
Total	6,371,498	$ 10.15	1,967,589

(1) Includes our Amended and Restated 2002 Stock Plan, 2010 Equity Incentive Award Plan, and Amended and Restated Employee Stock Purchase Plan. Also includes 47,536 stock options assumed through our acquisitions of Optical Solutions, Inc. in 2006 and Occam Networks in 2011.

(2) Includes 2,598,164 shares of common stock subject to RSUs that will entitle each holder the issuance of one share of common stock for each unit, 564,669 shares of common stock subject to performance restricted stock units, and 3,208,665 shares of common stock subject to stock options.

(3) The weighted-average exercise price of outstanding options excludes RSUs and performance shares, which do not have an exercise price.

(4) Includes 119,228 shares available for future issuance under the Amended and Restated Employee Stock Purchase Plan. The 2010 Equity Incentive Award Plan contains an "evergreen" provision under which the number of shares of common stock reserved for issuance under the plan will be increased on the first day of each fiscal year through 2020, equal to the least of (A) 666,666 shares, (B) 2% of the shares of stock outstanding (on an as converted basis) on the last day of the immediately preceding fiscal year and (C) such smaller number of shares of stock as determined by our board of directors.

COMPENSATION COMMITTEE REPORT

The information contained in this report shall not be deemed to be "soliciting material," to be "filed" with the SEC or be subject to Regulation 14A or Regulation 14C (other than as provided in Item 407 of Regulation S-K) or to the liabilities of Section 18 of the Securities Exchange Act of 1934, and shall not be deemed to be incorporated by reference in future filings with the SEC except to the extent that Calix specifically incorporates it by reference into a document filed under the Securities Act of 1933 or the Securities Exchange Act of 1934.

The Compensation Committee of the Board has reviewed and discussed the Compensation Discussion and Analysis required by Item 402(b) of Regulation S-K with management and, based on such review and discussions, the Compensation Committee of the Board recommended to the Board that the Compensation Discussion and Analysis be included in this Proxy Statement.

Compensation Committee
Michael Flynn, Chair
Christopher Bowick
Don Listwin

AUDIT COMMITTEE REPORT

The information contained in this report shall not be deemed to be "soliciting material," to be "filed" with the SEC or be subject to Regulation 14A or Regulation 14C (other than as provided in Item 407 of Regulation S-K) or to the liabilities of Section 18 of the Securities Exchange Act of 1934, and shall not be deemed to be incorporated by reference in future filings with the SEC except to the extent that Calix specifically incorporates it by reference into a document filed under the Securities Act of 1933 or the Securities Exchange Act of 1934.

The Audit Committee has reviewed and discussed with Calix management and KPMG LLP the audited consolidated financial statements of Calix contained in the Calix Annual Report on Form 10-K for the year ended December 31, 2016. The Audit Committee has also discussed with KPMG LLP the matters required to be discussed by AS No. 1301, as amended, as adopted by the Public Company Accounting Oversight Board in Rule 3200T.

The Audit Committee has received the written disclosures and the letter from KPMG LLP required by the Public Company Accounting Oversight Board regarding the independent accountant's communications with the Audit Committee concerning independence, and has discussed with KPMG LLP its independence.

Based on the review and discussions referred to above, the Audit Committee recommended to the Board of Directors that the audited consolidated financial statements be included in Calix's Annual Report on Form 10-K for its year ended December 31, 2016 for filing with the Securities and Exchange Commission.

Audit Committee
Michael Everett, Chair
Michael Matthews
Thomas Pardun

CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS

Calix's Board and Audit Committee have adopted a written related person transaction policy that sets forth the policies and procedures for the review and approval or ratification of related person transactions that may be deemed "related person transactions" under the rules of the SEC. This policy covers any transaction, arrangement or relationship, or any series of similar transactions, arrangements or relationships, in which Calix was or is to be a participant, the amount involved exceeds $120,000 and a related person had or will have a direct or indirect material interest, including, without limitation, purchases of goods or services by or from the related person or entities in which the related person has a material interest, indebtedness, guarantees of indebtedness or employment by Calix of a related person. For purposes of the policy, a "related person" is a director, officer or greater than 5% beneficial owner of Calix's stock and their immediate family members.

Calix recognizes that related person transactions can present potential or actual conflicts of interest or create the appearance of a conflict of interest. Management presents to the Audit Committee each proposed related person transaction, including all relevant facts and circumstances, and the Audit Committee reviews the relevant facts and circumstances of each related person transaction, including if the transaction is on terms comparable to those that could be obtained in arm's length dealings with an unrelated third party and the extent of the related person's interest in the transaction, takes into account the conflicts of interest and corporate opportunity provisions of Calix's code of business conduct and ethics, and either approves or disapproves the related person transaction. Any related person transaction may be consummated and shall continue only if the Audit Committee has approved or ratified such transaction in accordance with the guidelines set forth in the policy. No director may participate in approval of a related person transaction for which he or she is a related person. As required under rules issued by the SEC, transactions that are determined to be directly or indirectly material to a related person are or will be disclosed in Calix's proxy statements.

During fiscal year 2016, Calix has not participated in any transactions, nor are there any currently proposed transactions in which Calix will participate, where the amount involved exceeds, or would exceed, $120,000, and in which any related person had or will have a direct or indirect material interest.

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, proxy statements and annual reports with respect to two or more stockholders sharing the same address by delivering a single Notice of Internet Availability of Proxy Materials, or proxy statement and annual report, as applicable, addressed to those stockholders. This process, which is commonly referred to as "householding," potentially means extra convenience for stockholders and cost savings for companies.

This year, a number of brokers with account holders who are Calix stockholders will be "householding" our proxy materials. A single Notice of Internet Availability of Proxy Materials may be delivered to multiple stockholders sharing an address unless contrary instructions have been received from the affected stockholders. Once you have received notice from your broker that it will be "householding" communications to your address, "householding" will continue until you are notified otherwise or until you notify your broker or Calix that you no longer wish to participate in "householding."

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, you may (1) notify your broker, (2) direct your written request to: Investor Relations, Calix, Inc., 1035 N. McDowell Boulevard, Petaluma, California 94954 or (3) contact our Investor Relations department by telephone at (415) 445-3232. Stockholders who currently receive multiple copies of the Notice of Internet Availability of Proxy Materials at their address and would like to request "householding" of their communications should contact their broker. In addition, Calix 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 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 Annual Meeting, it is the intention of the persons named in the proxy card to vote on such matters in accordance with their best judgment.

ANNUAL REPORTS

The fiscal year 2016 Annual Report to Stockholders, including our 2016 Annual Report on Form 10-K (which is not a part of our proxy soliciting materials), will be mailed with this Proxy Statement to those stockholders that request and receive a copy of the proxy materials in the mail. Stockholders that received the Notice of Internet Availability of Proxy Materials can access this Proxy Statement and our fiscal year 2016 Annual Report at www.proxyvote.com.

We have filed our Annual Report on Form 10-K for the fiscal year ended December 31, 2016 with the SEC. It is available free of charge in the "SEC Filings" section of our website at investor-relations.calix.com or at the SEC's website at www.sec.gov. Upon written request by a Calix stockholder, we will mail without charge a copy of our Annual Report on Form 10-K, including the financial statements and financial statement schedules, but excluding exhibits to the Annual Report on Form 10-K. Exhibits to the Annual Report on Form 10-K are available upon payment of a reasonable fee, which is limited to our expenses in furnishing the requested exhibit. All requests should be directed to Investor Relations, Calix, Inc., 1035 N. McDowell Boulevard, Petaluma, California 94954.

By Order of the Board of Directors

/s/ William J. Atkins

William J. Atkins
Executive Vice President, Chief Financial Officer

April 4, 2017

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CALIX, INC.

AMENDED AND RESTATED EMPLOYEE STOCK PURCHASE PLAN

(EFFECTIVE AS OF [   ], 2017)

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CALIX, INC.

AMENDED AND RESTATED EMPLOYEE STOCK PURCHASE PLAN

(Effective as of [____], 2017)

Section 1. Establishment of the Plan.

The Calix, Inc. Amended and Restated Employee Stock Purchase Plan, as may be amended from time to time (the "Plan"), which amends and restates in its entirety the Calix, Inc. Amended and Restated Employee Stock Purchase Plan effective as of May 23, 2012, as amended, provides Eligible Employees with an opportunity to purchase the Company's common stock so that they may increase their proprietary interest in the success of the Company. The Plan, which provides for the purchase of stock through payroll withholding, is intended to qualify under Section 423 of the Code.

Section 2. Definitions.

(a) "Board of Directors" or "Board" means the Board of Directors of the Company.

(b) "Code" means the Internal Revenue Code of 1986, as amended.

(c) "Company" means Calix, Inc., a Delaware corporation.

(d) "Company Affiliate" means any company which is either the parent corporation of the Company (as determined in accordance with Section 424 of the Code) or a Subsidiary.

(e) "Compensation" means the cash remuneration paid to a Participant during a Purchase Period that is reported on Form W-2 for federal income tax purposes (including salary deferrals to the Company's 401(k) retirement savings plan and contributions to any Code Section 125 plan adopted by the Company). Compensation shall include incentive compensation, commissions, profit sharing payments and bonuses. Notwithstanding the foregoing, Compensation shall exclude overtime and shift differential payments and any special payments (e.g., moving or auto allowances, educational reimbursements, welfare benefits, amounts realized from the exercise, sale exchange or other disposition of any stock option and premiums for life and disability insurance).

(f) "Date of Exercise" means the last trading day of each Purchase Period.

(g) "Eligible Employee" means any Employee of a Participating Company (i) who is customarily employed for at least twenty (20) hours per week, (ii) who is customarily employed for more than five (5) months per calendar year, and (iii) who is an Employee at the commencement of a Purchase Period.

In the event an Eligible Employee fails to remain in the continuous employ of a Participating Company customarily for at least twenty (20) hours per week during a Purchase Period, he or she will be deemed to have elected to withdraw from the Plan and the payroll deductions credited to his or her account will be returned to him or her; provided that a Participant who goes on an unpaid leave of absence shall be permitted to remain in the Plan during such leave of absence. Notwithstanding the preceding sentence, if such Participant is not guaranteed reemployment by contract or statute and the leave of absence extends beyond ninety (90) days, such Participant shall be deemed to have terminated employment for purposes of the Plan on the ninety-first (91st) day of such leave of absence. Payroll deductions for a Participant who has been on an unpaid leave of absence will resume at the same rate as in effect prior to such leave upon return to work unless changed by such Participant.

(h) "Employee" means any person who renders services to a Participating Company in the status of an employee within the meaning of Code Section 3401(c). "Employee" shall not include any Board member of a Participating Company who does not render services to the Participating Company in the status of an employee within the meaning of Code Section 3401(c).

(i) "Fair Market Value" shall mean, as of any given date, the value of a share of Stock determined as follows:

(A) If the Stock is listed on any established stock exchange (such as the New York Stock Exchange, the NASDAQ Global Market and the NASDAQ Global Select Market) or national market system, its Fair Market Value shall be the closing sales price for a share of Stock as quoted on such exchange or system for such date or, if there is no closing sales price for a share of Stock on the date in question,

the closing sales price for a share of Stock on the last preceding date for which such quotation exists, as reported in The Wall Street Journal or such other source as the Plan Administrator deems reliable;

(B) If the Stock is not listed on an established stock exchange or national market system, but the Stock is regularly quoted by recognized securities dealer, its Fair Market Value shall be the mean of the high bid and low asked prices for such date or, if there are no high bid and low asked prices for a share of Stock on such date, the high bid and low asked prices for a share of Stock on the last preceding date for which such information exists, as reported in The Wall Street Journal or such other source as the Plan Administrator deems reliable; or

(C) If the Stock is neither listed on an established stock exchange or a national market system nor regularly quoted by a recognized securities dealer, its Fair Market Value shall be established by the Plan Administrator in good faith.

(j) "Participant" means an Eligible Employee who elects to participate in the Plan, as provided in Section 5 hereof.

(k) "Participating Company" means the Company and such present or future Subsidiaries of the Company as the Board of Directors shall from time to time designate.

(l) "Plan Account" means the account established for each Participant pursuant to Section 8(a).

(m) "Plan Administrator" means the committee appointed by the Board to administer the Plan pursuant to Section 4.

(n) "Purchase Period" shall mean the period commencing on May 15, 2017 and ending on November 14, 2017 and the six month periods commencing on each May 15 and November 15 thereafter. The duration and timing of Purchase Periods may be changed by the Plan Administrator, in its sole discretion. In no event may a Purchase Period exceed twenty-seven (27) months in length.

(o) "Purchase Price" means the price at which Participants may purchase Stock under Section 8 of the Plan, as determined pursuant to Section 6.

(p) "Stock" means the common stock, par value $0.025, of the Company.

(q) "Stock Administrator" means the Company's Stock Administration Department or such other person(s) as may be retained by the Company to perform or otherwise be delegated some or all of the duties of the Stock Administrator under this Plan.

(r) "Subsidiary" means a subsidiary corporation as defined in Section 424(f) of the Code.

Section 3. Shares Authorized.

The maximum aggregate number of shares which may be issued under the Plan shall be 7,300,000 shares of Stock (subject to adjustment as provided in Section 12 hereof), which may be either authorized but unissued Stock or reacquired Stock, including shares of Stock purchased on the open market.

Section 4. Administration.

(a) Except as otherwise provided herein, the Plan shall be administered by the Board or by a committee (the "Plan Administrator") appointed by the Board of Directors which shall consist of not less than two members of the Board. References in this Plan to the "Plan Administrator" shall mean the Board if no Plan Administrator has been appointed. The interpretation and construction by the Plan Administrator of any provision of the Plan or of any right to purchase stock qualified hereunder shall be conclusive and binding on all persons.

(b) No member of the Board or the Plan Administrator shall be liable for any action or determination made in good faith with respect to the Plan or the right to purchase Stock hereunder. The Plan Administrator shall be indemnified by the Company against the reasonable expenses, including attorney's fees actually and necessarily incurred in connection with the defense of any action, suit or proceeding, or in connection with any appeal therein, to which it may be a party by reason of any action taken or failure to act under or in connection with the Plan or any stock purchased thereunder, and against all amounts paid by it in settlement thereof (provided such settlement is approved by independent legal counsel selected by the Company) or paid by it in satisfaction of a judgment in any such action, suit or proceeding, except in relation to matters as to which it shall be adjudged in such action, suit or proceeding that the Plan Administrator is liable

for negligence or misconduct in the performance of its duties; provided that within sixty (60) days after institution of any such action, suit or proceeding, the Plan Administrator shall in writing offer the Company the opportunity, at its own expense, to handle and defend the same.

(c) All costs and expenses incurred in administering the Plan shall be paid by the Company. The Board or the Plan Administrator may request advice for assistance or employ such other persons as are necessary for proper administration of the Plan.

(d) At the discretion of the Plan Administrator, the Stock Administrator or such persons providing advice or assistance pursuant to Section 4(c), any elections, submission or filings made under the Plan by Eligible Employees and/or any statements or notices provided under the Plan to Eligible Employees in each case may be made electronically or through such "paperless" means as the Plan Administrator, the Stock Administrator or such persons may determine appropriate.

Section 5. Eligibility and Participation.

(a) Any person who qualifies or will qualify as an Eligible Employee on the first day of a Purchase Period may elect to participate in the Plan for such Purchase Period. An Eligible Employee may elect to participate by submitting the prescribed enrollment form. The enrollment form shall be filed with the Stock Administrator no later than the filing deadline imposed and communicated to Eligible Employees with respect to the Purchase Period for which such enrollment form is intended to be effective by the Stock Administrator, and if none is so imposed and/or communicated, then no later than five (5) days before the Purchase Period for which such enrollment form is intended to be effective. The Eligible Employee shall designate on the enrollment form the percentage of his or her Compensation which he or she elects to have withheld for the purchase of Stock, which may be any whole percentage from 1 to 15% of the Participant's compensation.

(b) By enrolling in the Plan, a Participant shall be deemed to have been granted an option on the first day of each Purchase Period for which he or she is enrolled to purchase the maximum number of whole shares of Stock which can be purchased with the amount of the Participant's Compensation which is withheld during the Purchase Period for which the Participation is enrolled. However, with respect to any Purchase Period, no Participant shall be eligible to purchase more than two thousand (2,000) shares of Stock provided that such amount shall not result in the limitations set forth in Section 13 being exceeded. Notwithstanding the foregoing, the Plan Administrator, or a committee appointed by the Plan Administrator, which committee may be comprised solely of employees of the Company, shall have the right to amend the limit set forth in this Section 5(b); provided, however, that in no event shall the limit exceed two thousand (2,000) shares of Stock per Purchase Period or the limitations set forth in Section 13.

(c) Once enrolled, a Participant will continue to participate in the Plan for each succeeding Purchase Period until he or she terminates participation or ceases to qualify as an Eligible Employee. A Participant who withdraws from the Plan in accordance with Section 9 may again become a Participant in a subsequent Purchase Period, if he or she then is an Eligible Employee, by following the procedure described in Section 5(a).

Section 6. Purchase Price.

The Purchase Price for each share of Stock shall be the lesser of (a) eighty-five percent (85%) of the Fair Market Value of such share on the first trading day of an applicable Purchase Period or (b) eighty-five percent (85%) of the Fair Market Value of such share on the Date of Exercise for an applicable Purchase Period.

Section 7. Employee Contributions.

A Participant may purchase shares of Stock solely by means of payroll deductions. Payroll deductions, as designated by the Participant pursuant to Section 5(a), shall commence with the first paycheck issued during the Purchase Period and shall be deducted from each subsequent paycheck throughout the Purchase Period; provided, however, that, with respect to a Participant, the Company shall be entitled to discontinue payroll deductions for such Participant during a Purchase Period to the extent that the Company determines that the payroll deductions for such Participant during such Purchase Period will cause the Participant to exceed the limitations set forth in Sections 5 or 13; provided, further, that the Company will recommence payroll deductions for such Participant on the first day of the next Purchase Period to the extent the limitation set forth in Section 13 has not been exceeded. If a Participant desires to decrease the rate of payroll withholding during a Purchase Period, he or she may do so one time during a Purchase Period by submitting the prescribed percentage change form with the Stock Administrator. Such decrease will be effective no later than the first day of the second payroll period which begins following the receipt of the new percentage change form. If a Participant desires to increase or decrease the rate of payroll withholding, he or she may do so effective for the next Purchase Period by submitting a new percentage change form with the Stock Administrator on or before the date imposed and communicated to Eligible Employees by the Stock Administrator, and if none is so imposed and/or communicated, then no later than five (5) days before the Purchase Period for which such change is to be effective.

Section 8. Plan Accounts; Purchase of Shares.

(a) The Company will maintain a Plan Account on its books in the name of each Participant. At the close of each pay period, the amount deducted from the Participant's Compensation will be credited to the Participant's Plan Account.

(b) As of each Date of Exercise, the amount then in the Participant's Plan Account will be divided by the Purchase Price, and the number of whole shares which results (subject to the limitations described in Sections 5(b), 8(c) and 13) shall be purchased from the Company with the funds in the Participant's Plan Account. The number of shares of Stock so purchased shall be delivered to a brokerage account designated by the Plan Administrator and kept in such account pursuant to the enrollment form (which shall be uniform) between each Participant and the Company and subject to the conditions described therein (which may include, without limitation, restrictions on transferability of the shares of Stock so purchased).

(c) In the event that the aggregate number of shares which all Participants elect to purchase during a Purchase Period shall exceed the number of shares remaining available for issuance under the Plan, then the number of shares to which each Participant shall become entitled shall be determined by multiplying the number of shares available for issuance by a fraction the numerator of which is the sum of the number of shares the Participant has elected to purchase pursuant to Section 5, and the denominator of which is the sum of the number of shares which all employees have elected to purchase pursuant to Section 5. Any cash amount remaining in the Participant's Plan Account under these circumstances shall be refunded to the Participant.

(d) Any amount remaining in the Participant's Plan Account caused by a surplus due to fractional shares after deducting the amount of the Purchase Price for the number of whole shares issued to the Participant shall be carried over in the Participant's Plan Account for the succeeding Purchase Period, without interest. Any amount remaining in the Participant's Plan Account caused by anything other than a surplus due to fractional shares shall be refunded to the Participant in cash, without interest.

(e) Unless otherwise determined by the Plan Administrator, As soon as practicable following the end of each Purchase Period, the Company shall deliver to each Participant a Plan Account statement setting forth the amount of payroll deductions, the Purchase Price, the number of shares purchased and the remaining cash balance, if any.

Section 9. Withdrawal from the Plan.

A Participant may elect to withdraw from participation under the Plan at any time up to seven (7) days prior to the last day of a Purchase Period by submitting the prescribed withdrawal form with the Stock Administrator. As soon as practicable after a withdrawal, payroll deductions shall cease and all amounts credited to the Participant's Plan Account will be refunded in cash, without interest. A Participant who has withdrawn from the Plan shall not be a Participant in future Purchase Periods, unless he or she again enrolls in accordance with the provisions of Section 5.

Section 10. Effect of Termination of Employment or Death.

(a) Termination of employment as an Eligible Employee for any reason, including death, shall be treated as an automatic withdrawal from the Plan under Section 9. A transfer from one Participating Company to another shall not be treated as a termination of employment.

(b) A Participant may file a written designation of a beneficiary who is to receive any shares and cash, if any, from the Participant's Account under the Plan in the event of such Participant's death subsequent to the purchase of shares but prior to delivery to him or her of such shares and cash. In addition, a Participant may file a written designation of a beneficiary who is to receive any cash from the Participant's Account under the Plan in the event of such Participant's death prior to the last day of a Purchase Period.

(c) Such designation of beneficiary may be changed by the Participant at any time by submitting the prescribed designation of beneficiary change form with the Stock Administrator. In the event of the death of a Participant in the absence of a valid designation of a beneficiary who is living at the time of such Participant's death, the Company shall deliver such shares and/or cash to the executor or administrator of the estate of the Participant; or if no such executor or administrator has been appointed (to the knowledge of the Company), the Company, in its discretion, may deliver such shares and/or cash to the spouse or to any one or more dependents or relatives of the Participant; or if no spouse, dependent or relative is known to the Company, then to such other person as the Company may designate.

Section 11. Rights Not Transferable.

The rights or interests of any Participant in the Plan, or in any Stock or moneys to which he or she may be entitled under the Plan, shall not be transferable by voluntary or involuntary assignment or by operation of law, or by any other manner other than as permitted by will or the laws of descent and distribution, and during the Participant's lifetime, purchase rights in the Plan shall be exercisable only by the Participant. If a Participant in any manner attempts to transfer, assign or otherwise encumber his or her rights or interest under the Plan, other than as permitted by will or the laws of descent and distribution, such act shall be treated as an automatic withdrawal under Section 9.

Section 12. Recapitalization, Etc.

(a) The aggregate number of shares of Stock offered under the Plan, the number and price of shares which any Participant has elected to purchase pursuant to Section 5 and the maximum number of shares which a Participant may elect to purchase under the Plan in any Purchase Period shall be proportionately adjusted for any increase or decrease in the number of issued shares of Stock resulting from a subdivision or consolidation of shares or any other capital adjustment, the payment of a stock dividend, or other increase or decrease in such shares affected without receipt of consideration by the Company.

(b) In the event of a dissolution or liquidation of the Company, this Plan shall terminate, and all amounts which each Participant has paid towards the Purchase Price of Stock hereunder shall be refunded, without interest.

(c) In the event of a sale of all or substantially all of the assets of the Company, an acquisition of the Company or the merger of the Company with or into another corporation, each outstanding Purchase Period shall be assumed or an equivalent Purchase Period substituted by the successor corporation or acquiror or a Parent or Subsidiary of the successor corporation or acquiror. In the event that the successor corporation or acquirer refuses to assume or substitute for the Purchase Period, the Purchase Period shall be shortened by setting a new Date of Exercise (the "New Exercise Date"). The New Exercise Date shall be before the date of the applicable transaction. The Company shall notify each Participant in writing at least five (5) days prior to the New Exercise Date, that the Date of Exercise for the Purchase Period has been changed to the New Exercise Date and that the purchase shall automatically occur on the New Exercise Date, unless prior to such date the Participant has withdrawn from the Purchase Period pursuant to Section 9.

(d) The Plan shall in no event be construed to restrict in any way the Company's right to undertake a dissolution, liquidation, merger, consolidation, reorganization or other corporate transaction.

Section 13. Limitation on Stock Ownership.

Notwithstanding any provision herein to the contrary, no Participant shall be permitted to elect to participate in the Plan (i) if such Participant, immediately after his or her election to participate, would own stock possessing five percent (5%) or more of the total combined voting power or value of all classes of stock of the Company or any Company Affiliate, or (ii) if under the terms of the Plan the rights of the Employee to purchase Stock under this Plan and all other qualified employee stock purchase plans of the Company or its Company Affiliates would accrue at a rate which exceeds twenty-five thousand dollars ($25,000) of Fair Market Value of such Stock (determined at the time such right is granted) for each calendar year for which such right is outstanding at any time. For purposes of this Section, ownership of stock shall be determined by the attribution rules of Section 424(d) of the Code, and Participants shall be considered to own any stock which they have a right to purchase under this or any other stock plan.

Section 14. No Rights as an Employee.

Nothing in the Plan shall be construed to give any person the right to remain in the employ of a Participating Company. Each Participating Company reserves the right to terminate the employment of any person at any time and for any reason.

Section 15. Rights as a Stockholder.

A Participant shall have no rights as a stockholder with respect to any shares he or she may have a right to purchase under the Plan until the date of issuance to the brokerage account designated by the Plan Administrator the shares of Stock issued pursuant to the Plan.

Section 16. Use of Funds.

All payroll deductions received or held by the Company under the Plan may be used by the Company for any corporate purpose, and the Company shall not be obligated to segregate such payroll deductions in separate accounts.

Section 17. Amendment or Termination of the Plan.

Except as otherwise provided herein, the Board of Directors shall have the right to amend, modify or terminate the Plan at any time without notice. An amendment of the Plan shall be subject to stockholder approval only to the extent required by applicable laws, regulations or rules. The Plan shall terminate upon the earlier of (i) such date as is determined by the Company in its sole discretion or (ii) the date on which all shares available for issuance under the Plan shall have been sold pursuant to purchase rights exercised under the Plan.

Section 18. Governing Law.

The Plan shall be governed by, and construed and interpreted in accordance with, the laws of the State of Delaware.

Section 19. Stockholder Approval.

No purchase rights granted under the Plan shall be exercised, and no shares of Stock shall be issued hereunder, until such time as (i) the Plan shall have been approved by the stockholders of the Company; and (ii) the Company shall have complied with all applicable requirements of the Securities Act of 1933, as amended (including the registration of the shares of Stock issuable under the Plan on a Form S-8 registration statement filed with the Securities and Exchange Commission), all applicable listing requirements of any securities exchange on which the Stock is listed for trading and all other applicable requirements established by law or regulation. Such stockholder approval shall be prior to the earlier to occur of: (a) the first Date of Exercise of the Plan and (b) the twelve (12) month anniversary of the adoption of the Plan, provided, however, that such approval may not occur prior to twelve (12) months before the adoption of the Plan. In the event the Plan shall not have been approved by the stockholders of the Company prior to the first Date of Exercise of the Plan, the Plan shall terminate and all purchase rights granted under the Plan shall be canceled and become null and void.

Section 20. Equal Rights and Privileges.

All Eligible Employees of the Company (or of any Subsidiary) will have equal rights and privileges under this Plan so that this Plan qualifies as an "employee stock purchase plan" within the meaning of Section 423 of the Code or applicable Treasury regulations thereunder. Any provision of this Plan that is inconsistent with Section 423 and the Treasury regulations and other guidance promulgated thereunder will, without further act or amendment by the Company, the Board or the Plan Administrator, be reformed to comply with the equal rights and privileges requirement of Section 423 or such Treasury regulations or guidance.

*****

To record the adoption of this Plan, the Company has caused its authorized officer to execute the same this ____ day of __________, 2017.

Calix, Inc.

By:
Its: ___________________________________

CALIX, INC.

2017 NONQUALIFIED EMPLOYEE STOCK PURCHASE PLAN

(EFFECTIVE AS OF [ ], 2017)

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CALIX, INC.
2017 NONQUALIFIED EMPLOYEE STOCK PURCHASE PLAN

ARTICLE I.
PURPOSE, SCOPE AND ADMINISTRATION OF THE PLAN

1.1 Purpose and Scope. The purpose of the Calix, Inc. 2017 Nonqualified Employee Stock Purchase Plan (as amended from time to time, the "Plan") is to assist employees of Calix, Inc., a Delaware corporation (the "Company") and its Participating Subsidiaries in acquiring a stock ownership interest in the Company pursuant to a plan which is intended to help such employees provide for their future security and to encourage them to remain in the employment of the Company and its Subsidiaries. The Plan is not intended to qualify as an "employee stock purchase plan" under Section 423 of the Code.

ARTICLE II.
DEFINITIONS

2.1 "Agent" means the brokerage firm, bank or other financial institution, entity or person(s), if any, engaged, retained, appointed or authorized to act as the agent of the Company or an Employee with regard to the Plan.

2.2 "Administrator" shall mean the Committee, or such individuals to which authority to administer the Plan has been delegated under Section 7.1 hereof.

2.3 "Affiliate" shall mean the Company and any Parent or Subsidiary.

2.4 "Code" shall mean the Internal Revenue Code of 1986, as amended.

2.5 "Committee" shall mean the Compensation Committee of the Board, or another committee or subcommittee of the Board or the Compensation Committee described in Article 7 hereof.

2.6 "Common Stock" shall mean common stock, par value $0.025, of the Company.

2.7 "Compensation" of an Employee shall mean the regular straight-time earnings, base salary, commissions, vacation pay, holiday pay, jury duty pay, funeral leave pay or military pay paid to the Employee from the Company or any Participating Subsidiary or any Affiliate on each Payday as compensation for services to the Company or any Participating Subsidiary or any Affiliate before deduction for any salary deferral contributions made by the Employee to any tax-qualified or nonqualified deferred compensation plan of the Company, any Participating Subsidiary or any Affiliate, but excluding overtime, shift differential payments, bonuses (e.g., quarterly or annual bonuses or other corporate bonuses), one-time bonuses (e.g., retention or sign-on bonuses), fringe benefits (including, without limitation, employer gifts), education or tuition reimbursements, imputed income arising under any Company, Participating Subsidiary or Affiliate group insurance or benefit program, travel expenses, business and moving reimbursements, income received in connection with any stock options, stock appreciation rights, restricted stock, restricted stock units or other compensatory equity awards and all contributions made by the Company, any Participating Subsidiary or any Affiliate for the Employee's benefit under any employee benefit plan now or hereafter established. Such Compensation shall be calculated before deduction of any income or employment tax withholdings, but shall be withheld from the Employee's net income.

2.8 "Effective Date" shall mean the date on which the Plan is initially approved by the Company's stockholders.

2.9 "Eligible Employee" means an Employee of the Company or any Participating Subsidiary (i) who is customarily employed for at least twenty (20) hours per week and (ii) who is customarily employed for more than five (5) months per calendar year; but excluding (a) the Company's Chief Executive Officer, (b) each Employee who reports directly to the Company's Chief Executive Officer, (c) each Employee at the Vice President level and above, and (d) each other senior management Employee as identified in writing by the Administrator as being ineligible for the Plan.

2.10 "Employee" shall mean any person who renders services to the Company or a Participating Subsidiary in the status of an employee within the meaning of Section 3401(c) of the Code. "Employee" shall not include any director of the Company or a Participating Subsidiary who does not render services to the Company or a Participating Subsidiary in the status of an employee within the meaning of Section 3401(c) of the Code.

2.11 "Enrollment Date" shall mean the first date of each Offering Period.

2.12 "Exercise Date" shall mean the last trading day of each Offering Period, except as provided in Section 5.2 hereof.

2.13 "Exchange Act" shall mean the Securities Exchange Act of 1934, as amended.

2.14 "Fair Market Value" shall mean, as of any date, the value of a Share determined as follows:

(a) If the Common Stock is (i) listed on any established securities exchange (such as the New York Stock Exchange, the NASDAQ Global Market and the NASDAQ Global Select Market), (ii) listed on any national market system or (iii) listed, quoted or traded on any automated quotation system, its Fair Market Value shall be the closing sales price for a Share as quoted on such exchange or system for such date or, if there is no closing sales price for a Share on the date in question, the closing sales price for a Share on the last preceding date for which such quotation exists, as reported in *The Wall Street Journal* or such other source as the Administrator deems reliable;

(b) If the Common Stock is not listed on an established securities exchange, national market system or automated quotation system, but the Common Stock is regularly quoted by a recognized securities dealer, its Fair Market Value shall be the mean of the high bid and low asked prices for such date or, if there are no high bid and low asked prices for a Share on such date, the high bid and low asked prices for a Share on the last preceding date for which such information exists, as reported in *The Wall Street Journal* or such other source as the Administrator deems reliable; or

(c) If the Common Stock is neither listed on an established securities exchange, national market system or automated quotation system nor regularly quoted by a recognized securities dealer, its Fair Market Value shall be established by the Administrator in good faith.

2.15 "New Exercise Date" shall have such meaning as set forth in Section 5.2(b) hereof.

2.16 "Offering Period" shall mean, unless otherwise determined by the Administrator, each approximately six (6)-month period during the term of the Plan (i) commencing on January 1 and ending on June 30 and (ii) commencing on July 1 and ending on December 31.

2.17 "Option" shall mean the right to purchase Shares pursuant to the Plan during each Offering Period.

2.18 "Parent" shall mean any entity (other than the Company), whether domestic or foreign, in an unbroken chain of entities ending with the Company if each of the entities other than the Company beneficially owns, at the time of the determination, securities or interests representing more than fifty percent (50%) of the total combined voting power of all classes of securities or interests in one of the other entities in such chain.

2.19 "Participant" shall mean any Eligible Employee who elects to participate in the Plan.

2.20 "Participating Subsidiary" shall mean each Subsidiary that has been designated by the Board or Committee from time to time in its sole discretion as eligible to participate in the Plan in accordance with Section 7.2 hereof, in each case, including any Subsidiary in existence on the Effective Date and any Subsidiary formed or acquired following the Effective Date.

2.21 "Payday" shall mean the regular and recurring established day for payment of Compensation to an Employee of the Company or any Participating Subsidiary.

2.22 "Plan Account" shall mean a bookkeeping account established and maintained by the Company in the name of each Participant.

2.23 "Share" shall mean a share of Common Stock.

2.24 "Subsidiary" shall mean (a) a corporation, association or other business entity of which fifty percent (50%) or more of the total combined voting power of all classes of capital stock is owned, directly or indirectly, by the Company and/or by one or more Subsidiaries, (b) any partnership or limited liability company of which fifty percent (50%) or more of the equity interests are owned, directly or indirectly, by the Company and/or by one or more Subsidiaries, and (c) any other entity not described in clauses (a) or (b) above of which fifty percent (50%) or more of the ownership and the power (whether voting interests or otherwise), pursuant to a written contract or agreement, to direct the policies and management or the financial and the other affairs thereof, are owned or controlled by the Company and/or by one or more Subsidiaries.

2.25 "Withdrawal Election" shall have such meaning as set forth in Section 6.1(a) hereof.

ARTICLE III.
PARTICIPATION

3.1 Eligibility. Any Eligible Employee who shall be employed by the Company or a Participating Subsidiary on a given Enrollment Date for an Offering Period shall be eligible to participate in the Plan during such Offering Period, subject to the requirements of Articles IV and V hereof.

3.2 Election to Participate; Payroll Deductions

(a) Except as provided in Section 3.3 hereof, an Eligible Employee may become a Participant in the Plan only by means of payroll deduction. Each individual who is an Eligible Employee as of the Enrollment Date of the applicable Offering Period may elect

to participate in such Offering Period and the Plan by delivering to the Company an enrollment form for the Plan designating payroll deduction authorization by such date specified by the Company.

(b) Payroll deductions with respect to an Offering Period (i) shall be equal to at least one percent (1%) of the Participant's Compensation as of each Payday during the applicable Offering Period, but not more than twenty-five percent (25%) of the Participant's Compensation as of each Payday during the applicable Offering Period and (ii) may be expressed either as (A) a whole number percentage or (B) a fixed dollar amount (as determined by the Administrator). Amounts deducted from a Participant's Compensation with respect to an Offering Period pursuant to this Section 3.2 shall be deducted each Payday through payroll deduction and credited to the Participant's Plan Account.

(c) Following at least one (1) payroll deduction, a Participant may decrease (to as low as 0%) the amount deducted from such Participant's Compensation only once during an Offering Period upon ten (10) calendar days' prior written or electronic notice to the Company. A Participant may not increase the amount deducted from such Participant's Compensation during an Offering Period.

(d) Notwithstanding the foregoing, upon the completion of an Offering Period, each Participant in such Offering Period shall automatically participate in the Offering Period that commences immediately following the completion of such Offering Period at the same payroll deduction percentage or fixed amount as in effect at the completion of the prior Offering Period, unless such Participant delivers to the Company a different election with respect to the successive Offering Period in accordance with Section 3.1 hereof, or unless such Participant becomes ineligible for participation in the Plan.

3.3 Leave of Absence. During leaves of absence approved by the Company meeting the requirements of Treasury Regulation Section 1.421-1(h)(2) under the Code, an individual shall be treated as an Employee of the Company or Participating Subsidiary that employs such individual immediately prior to such leave.

ARTICLE IV.
PURCHASE OF SHARES

4.1 Grant of Option; Automatic Exercise. Each Participant shall be granted an Option with respect to an Offering Period on the applicable Grant Date. On the Exercise Date for such Offering Period, the Option will be automatically exercised to (a) purchase that number of Shares calculated by dividing (i) such Participant's payroll deductions accumulated on or prior to such Exercise Date and retained in the Participant's Plan Account on such Exercise Date by (ii) the Fair Market Value of a Share on such Exercise Date (the "Purchased Shares") and (b) acquire a number of Shares equal to the Purchased Shares that are subject to a risk of forfeiture (the "Restricted Shares"). The balance, if any, remaining in the Participant's Plan Account (after exercise of such Participant's Option) as of such Exercise Date shall be carried forward to the next Offering Period, unless the Participant has elected to withdraw from the Plan pursuant to Section 6.1 hereof or, pursuant to Section 6.2 hereof, such Participant has ceased to be an Eligible Employee.

4.2 Restricted Shares. The risk of forfeiture on the Restricted Shares shall automatically lapse on the first anniversary of the Exercise Date, subject to the Participant continuing to be an Employee through such date.

4.3 Share Issuance. As soon as practicable following the applicable Exercise Date (but in no event more than thirty (30) days thereafter), the Purchased Shares and Restricted Shares shall be delivered (either in share certificate or book entry form), in the Company's sole discretion, to either (i) the Participant or (ii) an account established in the Participant's name at a stock brokerage or other financial services firm designated by the Company. If the Company is required to obtain from any commission or agency authority to issue any such Shares, the Company shall seek to obtain such authority. Inability of the Company to obtain from any such commission or agency authority which counsel for the Company deems necessary for the lawful issuance of any such shares shall relieve the Company from liability to any Participant except to refund to the Participant such Participant's Plan Account balance, without interest thereon.

4.4 Transferability.

(a) An Option granted under the Plan shall not be transferable, other than by will or the applicable laws of descent and distribution, and shall be exercisable during the Participant's lifetime only by the Participant. No Option or interest or right to the Option shall be available to pay off any debts, contracts or engagements of the Participant or his or her successors in interest or shall be subject to disposition by pledge, encumbrance, assignment or any other means whether such disposition be voluntary or involuntary or by operation of law by judgment, levy, attachment, garnishment or any other legal or equitable proceedings (including bankruptcy), and any attempt at disposition of the Option shall have no effect.

(b) Unless otherwise determined by the Administrator, no Shares issued upon exercise of an Option under the Plan may be assigned, transferred, pledged or otherwise disposed of in any way by the Participant until the first anniversary of the Exercise Date upon which such Shares were purchased. Notwithstanding the foregoing, in the event a Participant ceases to be an Employee prior to the first anniversary of the Exercise Date upon which Shares were purchased, the Restricted Shares acquired on such Exercise Date shall be forfeited for no consideration, and the transfer restrictions applicable to the Purchased Shares purchased on such Exercise Date shall immediately lapse.

4.5 Limitations on the Purchase of Shares. Notwithstanding any provision in the Plan to the contrary, no more than an aggregate of five hundred thousand (500,000) Shares (the "Offering Period Share Limit") shall be purchased by one or more Participants on any Exercise Date. In addition, the Company shall not be required to recognize as an expense more than an aggregate of three million dollars ($3,000,000)

in respect of the Options granted in any Offering Period (together with the Offering Period Share Limit, the "Offering Period Limits"). Prior to the commencement of an Offering Period, the Administrator may provide for a limit on individual contributions or a maximum number of Shares a Participant may acquire in such Offering Period and any such limit or maximum shall be deemed to constitute an Offering Period Limit hereunder. In the event the Company determines that, on a given Exercise Date, the number of Shares with respect to which Options are to be exercised may exceed one or both of the Offering Period Limits, the Administrator shall make a pro rata allocation of the Shares available for issuance on such Exercise Date in as uniform a manner as shall be practicable and as it shall determine in its sole discretion to be equitable among all Participants exercising Options to purchase Shares on such Exercise Date. For the avoidance of doubt, any such pro rata allocation shall be applied to an equal extent between Purchased Shares and Restricted Shares.

ARTICLE V.
PROVISIONS RELATING TO COMMON STOCK

5.1 Common Stock Reserved. Subject to adjustment as provided in Section 5.2 hereof, the maximum number of Shares that shall be made available for sale under the Plan shall be one million (1,000,000) Shares. Shares made available for sale under the Plan may be authorized but unissued shares or reacquired shares reserved for issuance under the Plan.

5.2 Adjustments Upon Changes in Capitalization, Dissolution, Liquidation, Merger or Asset Sale.

(a) Changes in Capitalization. Subject to any required action by the stockholders of the Company, the number of Shares which have been authorized for issuance under the Plan but not yet placed under an Option, as well as the price per share and the number of Shares covered by each Option under the Plan which has not yet been exercised shall be proportionately adjusted for any increase or decrease in the number of issued Shares resulting from a stock split, reverse stock split, stock dividend, combination or reclassification of the Common Stock or any other increase or decrease in the number of Shares effected without receipt of consideration by the Company; provided, however, that conversion of any convertible securities of the Company shall not be deemed to have been "effected without receipt of consideration." Such adjustment shall be made by the Administrator, whose determination in that respect shall be final, binding and conclusive. Except as expressly provided herein, no issuance by the Company of shares of stock of any class, or securities convertible into shares of stock of any class, shall affect, and no adjustment by reason thereof shall be made with respect to, the number or price of Shares subject to an Option.

(b) Dissolution or Liquidation. In the event of the proposed dissolution or liquidation of the Company, the Offering Period then in progress shall be shortened by setting a new Exercise Date (the "New Exercise Date"), and such Offering Period shall terminate immediately prior to the consummation of such proposed dissolution or liquidation, unless provided otherwise by the Administrator. The New Exercise Date shall be before the date of the Company's proposed dissolution or liquidation. The Administrator shall notify each Participant in writing, at least ten (10) business days prior to the New Exercise Date, that the next Exercise Date for the Participant's Option has been changed to the New Exercise Date and that the Participant's Option shall be exercised automatically on the New Exercise Date, unless prior to such date the Participant has withdrawn from the Offering Period as provided in Section 6.1(a)(i) hereof or the Participant has ceased to be an Eligible Employee as provided in Section 6.2 hereof.

(c) Merger or Asset Sale. In the event of a proposed sale of all or substantially all of the assets of the Company, or the merger of the Company with or into another corporation, each outstanding Option shall be assumed or an equivalent Option substituted by the successor corporation or a Parent or Subsidiary of the successor corporation. In the event that the Option is not assumed or substituted, any Offering Periods then in progress shall be shortened by setting a New Exercise Date and any Offering Periods then in progress shall end on the New Exercise Date. The New Exercise Date shall be before the date of the Company's proposed sale or merger. The Administrator shall notify each Participant in writing, at least ten (10) business days prior to the New Exercise Date, that the next Exercise Date for the Participant's Option has been changed to the New Exercise Date and that the Participant's Option shall be exercised automatically on the New Exercise Date, unless prior to such date the Participant has withdrawn from the Offering Periods as provided in Section 6.1(a)(i) hereof or the Participant has ceased to be an Eligible Employee as provided in Section 6.2 hereof.

5.3 Insufficient Shares. If the Administrator determines that, on a given Exercise Date, the number of Shares with respect to which Options are to be exercised may exceed the number of Shares remaining available for sale under the Plan on such Exercise Date, the Administrator shall make a pro rata allocation of the Shares available for issuance on such Exercise Date in as uniform a manner as shall be practicable and as it shall determine in its sole discretion to be equitable among all Participants exercising Options to purchase Shares on such Exercise Date, and unless additional shares are authorized for issuance under the Plan, no further Offering Periods shall take place and the Plan shall terminate pursuant to Section 7.5 hereof. If an Offering Period is so terminated, then the balance of the amount credited to the Participant's Plan Account which has not been applied to the purchase of Shares shall be paid to such Participant in one (1) lump sum in cash within thirty (30) days after such Exercise Date, without any interest thereon.

5.4 Rights as Stockholders. With respect to Shares subject to an Option, a Participant shall not be deemed to be a stockholder of the Company and shall not have any of the rights or privileges of a stockholder. A Participant shall have the rights and privileges of a stockholder of the Company when, but not until, Shares have been deposited in the designated brokerage account following exercise of his or her Option. Notwithstanding the foregoing, in the event a dividend is paid in respect of Restricted Shares, such dividend shall not be paid to the Participant holding such Restricted Shares unless and until the risk of forfeiture thereon lapses.

ARTICLE VI.
TERMINATION OF PARTICIPATION

6.1 Cessation of Contributions; Voluntary Withdrawal.

(a) A Participant may cease payroll deductions during an Offering Period and elect to withdraw from the Plan by delivering written or electronic notice of such election (a "Withdrawal Election") to the Company in such form and at such time prior to the Exercise Date for such Offering Period as may be established by the Administrator. A Participant electing to withdraw from the Plan may elect to either (i) withdraw all of the funds then credited to the Participant's Plan Account as of the date on which the Withdrawal Election is received by the Company, in which case amounts credited to such Plan Account shall be returned to the Participant in one (1) lump-sum payment in cash within thirty (30) days after such election is received by the Company, without any interest thereon, and the Participant shall cease to participate in the Plan and the Participant's Option for such Offering Period shall terminate; or (ii) subject to Section 6.2 below, exercise the Option for the maximum number of whole Shares on the applicable Exercise Date with any remaining Plan Account balance returned to the Participant in one (1) lump-sum payment in cash within thirty (30) days after such Exercise Date, without any interest thereon, and after such exercise cease to participate in the Plan. As soon as practicable following the Company's receipt of a Withdrawal Election, the Participant's payroll deduction authorization and his or her Option to purchase Shares under the Plan shall terminate.

(b) A Participant's withdrawal from the Plan shall not have any effect upon his or her eligibility to participate in any similar plan which may hereafter be adopted by the Company or in succeeding Offering Periods which commence after the termination of the Offering Period from which the Participant withdraws.

(c) A Participant who ceases contributions to the Plan during any Offering Period shall not be permitted to resume contributions to the Plan during such Offering Period.

6.2 Termination of Eligibility. Upon a Participant's ceasing to be an Eligible Employee for any reason, such Participant's Option for the applicable Offering Period shall automatically terminate, he or she shall be deemed to have elected to withdraw from the Plan, and such Participant's Plan Account shall be paid to such Participant or, in the case of his or her death, to the person or persons entitled thereto as set forth in an applicable beneficiary designation form (or, if there is no such applicable form, pursuant to applicable law), within thirty (30) days after such cessation of being an Eligible Employee, without any interest thereon.

ARTICLE VII.
GENERAL PROVISIONS

7.1 Administration.

(a) The Plan shall be administered by the Committee (or another committee or a subcommittee of the Board assuming the functions of the Committee under the Plan), which, unless otherwise determined by the Board, shall consist solely of two or more members of the Board, each of whom is intended to qualify as a "non-employee director" as defined by Rule 16b-3 of the Exchange Act and an "independent director" under the rules of any securities exchange or automated quotation system on which the Shares are listed, quoted or traded, in each case, to the extent required under such provision. The Committee may delegate administrative tasks under the Plan to the services of an Agent and/or Employees to assist in the administration of the Plan, including establishing and maintaining an individual securities account under the Plan for each Participant.

(b) It shall be the duty of the Administrator to conduct the general administration of the Plan in accordance with the provisions of the Plan. The Administrator shall have the power, subject to, and within the limitations of, the express provisions of the Plan:

i. To establish and terminate Offering Periods;

ii. To determine when and how Options shall be granted and the provisions and terms of each Offering Period (which need not be identical);

iii. To select Participating Subsidiaries in accordance with Section 7.2 hereof; and

iv. To construe and interpret the Plan, the terms of any Offering Period and the terms of the Options and to adopt such rules for the administration, interpretation, and application of the Plan as are consistent therewith and to interpret, amend or revoke any such rules. The Administrator, in the exercise of this power, may correct any defect, omission or inconsistency in the Plan, any Offering Period or any Option, in a manner and to the extent it shall deem necessary or expedient to make the Plan fully effective.

(c) The Administrator may adopt rules or procedures relating to the operation and administration of the Plan to accommodate the specific requirements of local laws and procedures. Without limiting the generality of the foregoing, the Administrator is specifically authorized to adopt rules and procedures regarding handling of participation elections, payroll deductions, payment of interest, conversion of local currency, payroll tax, withholding procedures and handling of stock certificates which vary with local requirements. In its absolute discretion, the Board may at any time and from time to time exercise any and all rights and duties of the Administrator under the Plan.

(d) The Administrator may adopt sub-plans applicable to particular Participating Subsidiaries or locations. The rules of such sub-plans may take precedence over other provisions of this Plan, with the exception of Section 5.1 hereof, but unless otherwise superseded by the terms of such sub-plan, the provisions of this Plan shall govern the operation of such sub-plan.

(e) All expenses and liabilities incurred by the Administrator in connection with the administration of the Plan shall be borne by the Company. The Administrator may, with the approval of the Committee, employ attorneys, consultants, accountants, appraisers, brokers or other persons. The Administrator, the Company and its officers and directors shall be entitled to rely upon the advice, opinions or valuations of any such persons. All actions taken and all interpretations and determinations made by the Administrator in good faith shall be final and binding upon all Participants, the Company and all other interested persons. No member of the Board or Administrator shall be personally liable for any action, determination or interpretation made in good faith with respect to the Plan or the options, and all members of the Board or Administrator shall be fully protected by the Company in respect to any such action, determination or interpretation.

7.2 Designation of Participating Subsidiaries. The Board or Committee shall designate from among the Subsidiaries, as determined from time to time, the Subsidiary or Subsidiaries that shall constitute Participating Subsidiaries. The Board or Committee may designate a Subsidiary, or terminate the designation of a Subsidiary, without the approval of the stockholders of the Company.

7.3 Accounts. Individual accounts shall be maintained for each Participant in the Plan.

7.4 No Right to Employment. Nothing in the Plan shall be construed to give any person (including any Participant) the right to remain in the employ of the Company, a Parent or a Subsidiary or to affect the right of the Company, any Parent or any Subsidiary to terminate the employment of any person (including any Participant) at any time, with or without cause, which right is expressly reserved.

7.5 Amendment, Suspension and Termination of the Plan

(a) Subject to Section 7.5(b), the Board may, in its sole discretion, amend, suspend or terminate the Plan at any time and from time to time; provided, however, that without approval of the Company's stockholders given within twelve (12) months before or after action by the Board, the Plan may not be amended to increase the maximum number of Shares subject to the Plan or in any other manner that requires the approval of the Company's stockholders under applicable law or applicable stock exchange rules or regulations. No Option may be granted during any period of suspension of the Plan or after termination of the Plan. For the avoidance of doubt, without the approval of the Company's stockholders and without regard to whether any Participant rights may be considered to have been "adversely affected," the Board or the Committee, as applicable, shall be entitled to change the terms of an Offering Period, limit the frequency and/or number of changes in the amount withheld during an Offering Period, permit payroll withholding in excess of the amount designated by a Participant in order to adjust for delays or mistakes in the Company's processing of properly completed withholding elections, establish reasonable waiting and adjustment periods and/or accounting and crediting procedures to ensure that amounts applied toward the purchase of Shares for each Participant properly correspond with amounts withheld from the Participant's Compensation, and establish such other limitations or procedures as the Board or the Committee, as applicable, determines in its sole discretion advisable which are consistent with the Plan.

(b) No Option granted under the Plan shall be exercised, and no Shares shall be issued hereunder, until such time as (i) the Plan shall have been approved by the stockholders of the Company; and (ii) the Company shall have complied with all applicable requirements of the Securities Act of 1933, as amended (including the registration of the Shares issuable under the Plan on a Form S-8 registration statement filed with the Securities and Exchange Commission), all applicable listing requirements of any securities exchange on which the Shares are listed for trading and all other applicable requirements established by law or regulation. Such stockholder approval shall be prior to the earlier to occur of: (a) the first Exercise Date of the Plan and (b) the twelve (12) month anniversary of the adoption of the Plan by the Board, provided, however, that such approval may not occur prior to twelve (12) months before the adoption of the Plan by the Board. In the event the Plan shall not have been approved by the stockholders of the Company prior to the first Exercise Date of the Plan, the Plan shall terminate and all Options granted under the Plan shall be canceled and become null and void.

(c) In the event the Administrator determines that the ongoing operation of the Plan may result in unfavorable financial accounting consequences, the Administrator may, in its discretion and, to the extent necessary or desirable, modify or amend the Plan to reduce or eliminate such accounting consequence including, but not limited to:

i. shortening any Offering Period so that the Offering Period ends on a new Exercise Date, including an Offering Period underway at the time of the Administrator action; and

ii. allocating Shares.

Such modifications or amendments shall not require stockholder approval or the consent of any Participant.

(d) Upon termination of the Plan, the balance in each Participant's Plan Account shall be refunded as soon as practicable after such termination, without any interest thereon.

7.6 Use of Funds; No Interest Paid. All funds received by the Company by reason of purchase of Shares under the Plan shall be included in the general funds of the Company free of any trust or other restriction and may be used for any corporate purpose. No interest shall be paid to any Participant or credited under the Plan.

7.7 Effect Upon Other Plans. The adoption of the Plan shall not affect any other compensation or incentive plans in effect for the Company, any Parent or any Subsidiary. Nothing in the Plan shall be construed to limit the right of the Company, any Parent or any Subsidiary (a) to establish any other forms of incentives or compensation for Employees of the Company or any Parent or any Subsidiary or (b) to grant or assume Options otherwise than under the Plan in connection with any proper corporate purpose, including, but not by way of limitation, the grant or assumption of options in connection with the acquisition, by purchase, lease, merger, consolidation or otherwise, of the business, stock or assets of any corporation, firm or association.

7.8 Conformity to Securities Laws. Notwithstanding any other provision of the Plan, the Plan and the participation in the Plan by any individual who is then subject to Section 16 of the Exchange Act shall be subject to any additional limitations set forth in any applicable exemption rule under Section 16 of the Exchange Act (including any amendment to Rule 16b-3 of the Exchange Act) that are requirements for the application of such exemptive rule. To the extent permitted by applicable law, the Plan shall be deemed amended to the extent necessary to conform to such applicable exemptive rule.

7.9 Tax Withholding. The Company or any Participating Subsidiary shall have the authority and the right to deduct or withhold, or require a Participant to remit to the Company, an amount sufficient to satisfy federal, state, local and foreign taxes (including the Participant's FICA or employment tax obligation) required by law to be withheld with respect to any taxable event concerning a Participant arising as a result of the Plan. The Administrator may in its sole discretion and in satisfaction of the foregoing requirement withhold or have surrendered, or allow a Participant to elect to have the Company withhold or surrender, Restricted Shares for which the risk of forfeiture has lapsed. Unless determined otherwise by the Administrator, the number of Shares which may be so withheld or surrendered shall be limited to the number of shares which have a Fair Market Value on the date of withholding or surrender no greater than the aggregate amount of such liabilities based on the maximum statutory withholding rates for federal, state, local and foreign income tax and payroll tax purposes that are applicable to such supplemental taxable income. The Administrator shall also have the authority and right to initiate, or permit a Participant to initiate, a broker-assisted sell-to-cover transaction whereby Shares are sold by such broker and the proceeds of such sale are remitted to the Company to satisfy tax withholding obligations.

7.10 Governing Law. The Plan and all rights and obligations thereunder shall be construed and enforced in accordance with the laws of the State of Delaware.

7.11 Notices. All notices or other communications by a Participant to the Company under or in connection with the Plan shall be deemed to have been duly given when received in the form specified by the Company at the location, or by the person, designated by the Company for the receipt thereof (including without limitation the Company's stock plan administrator).

7.12 Conditions To Issuance of Shares.

(a) Notwithstanding anything herein to the contrary, the Company shall not be required to issue or deliver any certificates or make any book entries evidencing Shares pursuant to the exercise of an Option by a Participant, unless and until the Board or the Committee has determined, with advice of counsel, that the issuance of such Shares is in compliance with all applicable laws, regulations of governmental authorities and, if applicable, the requirements of any securities exchange or automated quotation system on which the Shares are listed or traded, and the Shares are covered by an effective registration statement or applicable exemption from registration. In addition to the terms and conditions provided herein, the Board or the Committee may require that a Participant make such reasonable covenants, agreements, and representations as the Board or the Committee, in its discretion, deems advisable in order to comply with any such laws, regulations or requirements.

(b) All certificates for Shares delivered pursuant to the Plan and all Shares issued pursuant to book entry procedures are subject to any stop-transfer orders and other restrictions as the Committee deems necessary or advisable to comply with federal, state or foreign securities or other laws, rules and regulations and the rules of any securities exchange or automated quotation system on which the Shares are listed, quoted or traded. The Committee may place legends on any certificate or book entry evidencing Shares to reference restrictions applicable to the Shares.

(c) The Committee shall have the right to require any Participant to comply with any timing or other restrictions with respect to the settlement, distribution or exercise of any Option, including a window-period limitation, as may be imposed in the sole discretion of the Committee.

(d) Notwithstanding any other provision of the Plan, unless otherwise determined by the Committee or required by any applicable law, rule or regulation, the Company may, in lieu of delivering to any Participant certificates evidencing Shares issued in connection with any Option, record the issuance of Shares in the books of the Company (or, as applicable, its transfer agent or stock plan administrator).

7.13 Section 409A. Neither the Plan nor any Option granted hereunder is intended to constitute or provide for "nonqualified deferred compensation" within the meaning of Section 409A of the Code and the Department of Treasury regulations and other interpretive guidance issued thereunder, including without limitation any such regulations or other guidance issued after the Effective Date (together, "Section 409A"). Notwithstanding any provision of the Plan to the contrary, if the Administrator determines that any Option may be or become subject to Section 409A of the Code, the Administrator may adopt such amendments to the Plan and/or adopt other policies and procedures (including amendments, policies and procedures with retroactive effect), or take any other actions as the Administrator determines are necessary or appropriate

to avoid the imposition of taxes under Section 409A of the Code, either through compliance with the requirements of Section 409A of the Code or with an available exemption therefrom.

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To record the adoption of this Plan, the Company has caused its authorized officer to execute the same this ____ day of __________, 2017.

Calix, Inc.

By:
Its: ____________________________________

Calix, Inc.
Reconciliation of GAAP to non-GAAP Measures
(In thousands)
(Unaudited)

	Three Months Ended				Year Ended
	March 26, 2016	June 25, 2016	September 24, 2016	December 31, 2016	December 31, 2016
GAAP operating income (loss)	$ (10,738)	$ (5,881)	$ 735	$ (12,235)	$ (28,119)
Adjustments to reconcile GAAP operating income (loss) to non-GAAP operating income (loss):					
Stock-based compensation	2,721	2,968	4,677	3,919	14,285
Amortization of intangible assets	3,364	814	813	814	5,805
Occam-related litigation expenses	3,648	2,861	(78)	—	6,431
Non-GAAP operating income (loss)	$ (1,005)	$ 762	$ 6,147	$ (7,502)	$ (1,598)

Use of Non-GAAP Financial Information

Calix uses certain non-GAAP financial measures to supplement its consolidated financial statements, which are presented in accordance with GAAP. In this proxy statement, Calix has presented a non-GAAP operating income (loss). This non-GAAP measure is provided to enhance the reader's understanding of Calix's operating performance and use of the measure in our executive cash bonus plan as the measure primarily excludes certain non-cash charges for stock-based compensation, amortization of intangible assets, and non-recurring litigation-related costs, which Calix believes are not indicative of its core operating results. Management believes that the non-GAAP measure used in this proxy statement provides investors with important perspectives into our ongoing business performance, and management uses this non-GAAP measure to evaluate financial results and to establish operational goals, including as a measure in our executive cash bonus plan. The presentation of this non-GAAP measure is not meant to be a substitute for results presented in accordance with GAAP, but rather should be evaluated in conjunction with the comparable GAAP measure. A reconciliation of the non-GAAP measure to the most directly comparable GAAP measure is provided above. The non-GAAP financial measures used by Calix may be calculated differently from, and therefore may not be comparable to, similarly titled measures used by other companies.

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
Washington, DC 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 December 31, 2016

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: 001-34674

Calix, Inc.
(Exact Name of Registrant as Specified in Its Charter)

Delaware	**68-0438710**
(State or Other Jurisdiction of Incorporation or Organization)	**(I.R.S. Employer Identification No.)**
1035 N. McDowell Blvd. **Petaluma, California** **(Address of Principal Executive Offices)**	**94954** **(Zip Code)**

Registrant's telephone number, including area code (707) 766-3000

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

Title of each class	Name of each exchange on which registered
Common Stock, $0.025 par value	The New York Stock Exchange

Securities registered pursuant to section 12(g) of the Act:

None

(Title of class)

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 if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. ☐

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

Large Accelerated Filer	☐		Accelerated Filer	☒
Non-accelerated filer	☐	(Do not check if a smaller reporting Company)	Smaller Reporting Company	☐

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 the Common Stock held by non-affiliates of the registrant based upon the closing sale price on the New York Stock Exchange on June 24, 2016, the last business day of the Registrant's most recently completed second fiscal quarter, was approximately $278 million. Shares held by each executive officer, director and by each other person (if any) who owns more than 10% of the outstanding common stock have been excluded in that such persons may be deemed to be affiliates. This determination of affiliate status is not necessarily a conclusive determination for other purposes.

As of February 16, 2017, the number of shares of the registrant's common stock outstanding was 49,589,197.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive proxy statement for its 2017 annual meeting of stockholders are incorporated by reference in Items 10, 11, 12, 13 and 14 of Part III.

Calix, Inc.

Form 10-K

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS

This report includes forward-looking statements that involve substantial risks and uncertainties. All statements other than statements of historical facts contained in this report, including statements regarding Calix's future financial position, business strategy and plans and objectives of management for future operations, are forward-looking statements. In some cases, you can identify forward-looking statements by terminology such as "believe," "may," "estimate," "continue," "anticipate," "intend," "should," "plan," "expect," "predict," "potential," or the negative of these terms or other similar expressions. Forward-looking statements include Calix's expectations concerning the outlook for its business, productivity, plans and goals for future operational improvements and capital investments, operational performance, future market conditions or economic performance and developments in the capital and credit markets and expected future financial performance.

Forward-looking statements involve a number of risks, uncertainties and assumptions, and actual results or events may differ materially from those projected or implied in those statements. Important factors that could cause such differences include:

- our ability to predict our revenue and reduce and control costs related to our products or service offerings, including larger scale turnkey network improvement projects that may span several quarters;
- our ability to increase our sales to larger communications service providers ("CSPs") globally;
- the capital spending patterns of CSPs, and any decrease or delay in capital spending by CSPs due to macro-economic conditions, regulatory uncertainties, or other reasons;
- the impact of government-sponsored programs on our customers;
- intense competition;
- our ability to develop new products or enhancements that support technological advances and meet changing CSP requirements;
- our ability to achieve market acceptance of our products and CSPs' willingness to deploy our new products;
- the concentration of our customer base;
- the length and unpredictability of our sales cycles and timing of orders;
- our focus on CSPs with limited revenue potential;
- our lack of long-term, committed-volume purchase contracts with our customers;
- our exposure to the credit risks of our customers;
- fluctuations in our gross margin;
- the interoperability of our products with CSP networks;
- our dependence on sole-, single- and limited-source suppliers;
- our ability to manage our relationships with our contract manufacturers and suppliers;
- our ability to forecast our manufacturing requirements and manage our inventory;
- our products' compliance with industry standards;
- our ability to expand our international operations;
- our ability to protect our intellectual property and the cost of doing so;
- the quality of our products, including any undetected hardware defects or bugs in our software;
- our ability to estimate future warranty obligations due to product failure rates;
- our ability to obtain necessary third-party technology licenses at reasonable costs;
- the regulatory and physical impacts of climate change and other natural events;
- the attraction and retention of qualified employees and key management personnel;
- our ability to build and sustain the proper information technology infrastructure; and
- our ability to maintain proper and effective internal controls.

Calix cautions you against placing undue reliance on forward-looking statements, which reflect our current beliefs and are based on information currently available to us as of the date a forward-looking statement is made. Forward-looking statements set forth in this Annual Report on Form 10-K speak only as of the date of its filing. We undertake no obligation to revise forward-looking statements to reflect future events, changes in circumstances, or changes in beliefs. In the event that we do update any forward-looking statements, no inference should be made that we will make additional updates with respect to that statement, related matters, or any other forward-looking statements.

PART I

ITEM 1. Business

Overview

Calix, Inc. (together with its subsidiaries, "Calix," the "Company," "our," "we," or "us") was incorporated in August 1999 and is a Delaware corporation. We are a leading global provider of broadband communications access platforms, systems and software for fiber- and copper-based network architectures and a pioneer in software defined access that enable communications service providers ("CSPs") to transform their networks and enhance how they connect to their residential and business subscribers. We enable CSPs to provide a wide range of revenue-generating services, from basic voice and data to advanced broadband services, over legacy and next-generation access networks. We focus solely on CSP access networks, the portion of the network that governs available bandwidth and determines the range and quality of services that can be offered to subscribers. We develop and sell carrier-class hardware and cloud products that are designed to enhance and transform CSP access networks to meet the changing demands of subscribers rapidly and cost-effectively. Our most advanced systems operate on Access eXtensible Operating System ("AXOS"), a network operating system and software platform built for the specific needs of the access network that allows for all software functions in the access network to be developed and run without dependence on underlying hardware and associated silicon chipsets.

The Calix portfolio consists of three core systems and/or nodes: E-Series access systems and nodes ("E-Series systems and nodes"), B6 access nodes ("B-Series nodes"), and the C7 multiservice, multiprotocol access system ("C-Series system"). These systems and nodes are complemented by the P-Series optical network terminals ("ONTs") and residential gateways, the GigaFamily of GigaCenters, GigaHubs, and GigaPoints, the Calix Management System ("CMS"), OpenLink Cable software and Compass Cloud family of software-as-a-service products. Our broad and comprehensive portfolio serves the CSP network from the central office or data center to the subscriber premises and enables CSPs to deliver voice, high-speed data and an unmatched broadband experience over legacy and next-generation access networks. These packet-based systems and nodes are complemented by Compass Cloud to enable CSPs to rapidly introduce new revenue-generating services while minimizing the capital and operational costs of CSP networks. The Calix portfolio allows CSPs to evolve their networks and service delivery capabilities at a pace that balances their financial, competitive and technological needs.

We believe that the rapid growth of Internet and data traffic, introduction of bandwidth-intensive advanced broadband services, such as gigabit-speed Internet, Internet protocol television ("IPTV") and over-the-top ("OTT") video, mobile broadband, high-definition and ultra high-definition video, and online gaming, the rise of the cloud as a mainstream vehicle for content delivery over broadband, the proliferation of broadband-ready consumer devices, and the increasingly competitive market for residential and business subscribers are driving CSPs to invest in and upgrade their access networks. We also believe that CSPs will gradually transform their access networks to deliver these advanced broadband services over fiber-based networks complemented by advanced wireless technologies, thereby preparing networks for continued bandwidth growth, the introduction of new services and more cost-effective operations. During this time, CSPs will increasingly deploy new fiber-based network infrastructure to enable this transition while continuing to support basic voice and data services over legacy networks. Our portfolio is designed to enable this evolution of the access network efficiently and flexibly.

We market our access systems and related software to CSPs globally through our direct sales force as well as a limited number of international resellers. As of December 31, 2016, over 23 million ports of the Calix portfolio have been deployed at a growing number of CSPs worldwide. Our customers include many of the world's largest communications providers. In addition, we have enabled over 1,300 customers to deploy gigabit passive optical network, Active Ethernet and point-to-point Ethernet fiber access networks.

We have a single reportable operating segment. Additional information about geographic areas required by this item is incorporated herein by reference to Note 13, "*Segment Information*" of the Notes to Consolidated Financial Statements of this Annual Report on Form 10-K.

Industry Background

CSPs compete in a rapidly changing market to deliver a range of voice, data and video services to their residential and business subscribers. CSPs include wireline and wireless service providers, cable multiple system operators ("MSOs"), electrical cooperatives, and municipalities. The rise in Internet-enabled communications has created an environment in which CSPs are competing to deliver voice, data and video offerings to their subscribers across fixed and mobile networks. Residential and business subscribers now have the opportunity to purchase an array of services such as basic voice and data as well as advanced broadband services such as high-speed Internet, IPTV, mobile broadband, high-definition and ultra high-definition video, OTT video, and online gaming from a variety of CSPs. The rapid growth in new services is generating increased network traffic.

For example, Cisco Systems, Inc. estimates that global IP traffic will grow at a compound annual growth rate of 22% per year from 2015 to reach approximately 194 exabytes per month in 2020. We believe that increased network traffic will be largely driven by video applications, which are expected to account for 85% of global consumer traffic by 2020. CSPs are also broadening their offerings of bandwidth-intensive advanced broadband services, while maintaining support for their widely utilized basic voice and data services. CSPs are being driven to evolve their access networks to enable cost-effective delivery of a broad range of services demanded by their subscribers.

With strong subscriber demand for low latency and bandwidth-intensive applications, CSPs are seeking to offer new services, realize new revenue streams, build out new infrastructure and differentiate themselves from their competitors. CSPs typically compete on their cost to acquire and retain subscribers, the quality of their service offerings, including such measures as the speed, latency, and reliability of their broadband services, and the cost to deploy and operate their networks. In the past, CSPs offered different solutions delivered over distinct networks designed for specific services and were generally not in direct competition. For example, traditional wireline service providers

provided voice services while cable MSOs delivered cable television services. Currently, CSPs are increasingly offering services that leverage Internet protocol ("IP"), thereby enabling CSPs of all types to offer a comprehensive bundle of IP-based voice, data and video services to their subscribers. This has increased the level of competition among CSPs as wireline and wireless service providers, cable MSOs and other CSPs can all compete for the same residential and business subscribers using similar types of IP-based services. Over the last few years, Google has been selectively overbuilding major U.S. cities with fiber and delivering data and video service packages that include symmetrical 1 gigabit per second (gigabit) high-speed data services. Google's program has spurred both traditional wireline service providers and cable MSOs to invest in gigabit capable networks in both the Google serviced cities as well as other communities around the world.

Access Networks are Critical and Strategic to CSPs and Policymakers

Access networks, also known as the local loop or last mile, directly and physically connect the residential or business subscriber to the CSP's data center, central office or similar facilities. The access network is critical for service delivery as it governs the bandwidth capacity, service quality available to subscribers and ultimately the services and experience CSPs can provide to subscribers. Connecting the cloud to a growing number of broadband-ready consumer devices and providing differentiated, high-speed, high quality connectivity has become increasingly critical for CSPs to retain and expand their subscriber base and to launch new services. Typically, subscribers consider overall broadband service experience, including service breadth, bandwidth speed, latency, reliability, price, ease of use and technical support as key factors in the decision to purchase services from a CSP. As CSPs face increasing pressure to retain their basic voice and data customers in response to competitive CSPs offering voice, data and video services, it is critical for CSPs to continue to invest in and upgrade their access networks in order to maintain a compelling broadband service experience, drive new revenue opportunities and maintain and grow their subscriber base. Access networks can meaningfully affect the ongoing success of CSPs.

Governments around the world recognize the importance of expanding broadband networks and delivering advanced broadband services to more people and businesses. As a result, many governments are establishing one-time stimulus programs or other incentives for broadband investment on an on-going basis. In the United States, programs like the Connect America Fund ("CAF") and E-Rate provide billions of dollars each year to CSPs in the form of capital investment incentives, grants, and loans targeted at encouraging broadband network investment in unserved or underserved communities and schools. In 2015 for example, the CAF program was authorized to distribute $3.8 billion to offset the costs of installing and operating CSP operated broadband and voice networks, and the E-Rate program was authorized to offer $1.5 billion in grants to build gigabit capable network connections to schools. The CAF program is funded to distribute this same amount of funds to CSPs through 2020, and the E-Rate program targeted at networks is funded at its current level indefinitely. The Canadian Radio-television and Telecommunications Commission in 2016 created a $750 million fund targeted at increasing broadband coverage and speeds, and the European Commission is pursuing similar goals via its Connecting Europe Facility and other programs.

Limitations of Traditional Access Networks

CSPs rely on the capabilities and quality of their access networks, as well as network data analytics, to sustain their businesses and relationships with their subscribers through an enhanced subscriber experience. In the past, subscribers had little influence over the types of services provided by CSPs. Today, subscribers can be more selective among CSPs, and these device-enabled subscribers are increasingly demanding advanced broadband services on both a wireline and wireless basis in addition to basic voice and data services. In general, access networks are highly capital intensive and CSPs have historically upgraded capacity as technology and subscriber demands on their networks have changed. We believe CSPs will increasingly integrate fiber-and Ethernet-based access networks to enable the delivery of more advanced broadband services at a lower cost while at the same time enabling the continued delivery of basic voice and data services. Thus far, CSPs have taken an incremental approach to capacity upgrades in their access networks. As a result, CSPs face multiple challenges concerning their access networks, business models and service delivery capabilities, including:

- ***A Complex Patchwork of Networks and Technologies*** — In order to upgrade their access networks, CSPs have typically added networks for new residential or business services that they deliver, such as digital subscriber line ("DSL") or G.fast, data over cable service interface specification ("DOCSIS"), GPON or Gigabit Ethernet, on top of existing networks. This led to an overbuild of access technologies and an unnecessarily complex patchwork of physical connections between the central office or data center and the subscriber. In addition, CSPs have expanded the penetration of fiber into their access networks, thereby shortening the length of the subscriber connection through lower bandwidth media types (such as copper-based or coaxial cable-based networks). CSPs have also attempted to evolve their access networks to enable more efficient packet-based services by adding Ethernet protocol on top of existing asynchronous transfer mode ("ATM") and DSL protocols. In addition, CSPs have often deployed separate equipment to facilitate the delivery of synchronous optical networking ("SONET"), Gigabit Ethernet and 10 Gigabit Ethernet transport, which connects CSP central offices and data centers with their access networks, further increasing the complexity and the cost of their networks. This approach has left most CSPs with disparate architectures, features, functions and capabilities in different parts of their networks. This increasingly complex, patchwork approach to deploying access networks and delivering new services to their subscribers has created potential complications for CSPs within their access networks. These potential complications limit data transmission capability, increase the cost of operation and maintenance and can negatively impact the subscriber experience.
- ***Limited Capacity from Legacy Access Architectures*** — Legacy access network architectures were designed to address earlier-generation communication demands of wireline telephone, cable television and cellular services. Such access networks have physical limitations in their ability to scale bandwidth, avoid latency issues and deliver the advanced broadband services subscribers demand today and are expected to increasingly demand in the future. In addition, CSPs understand the need to add fiber to their networks to provide the bandwidth required to scale advanced broadband services. However, it is costly and complex to integrate fiber-based technologies into legacy access networks.

- ***Inflexible Technologies Increase Network Switching Costs*** — Legacy access networks were architected around a narrow set of technologies. For example, traditional voice calls use circuit switching technology to allocate a fixed amount of network capacity to each call, regardless of whether such capacity is fully utilized. The emergence of packet-based technologies, primarily IP and Ethernet, has significantly improved the ability to transmit data efficiently across networks as bandwidth is only consumed when signals are actually being transmitted. Most legacy access networks do not allow circuit- and packet-based technologies to co-exist or to evolve from one technology to another.
- ***Inefficient Service Roll-out Constrains Subscriber Offerings*** — Legacy access networks were designed to support a narrow range of services, and as a result, they limit the ability of CSPs to provision the advanced broadband services increasingly demanded by their subscribers. Packet-based networks are more flexible and efficient than traditional circuit-switched networks. For example, to provision additional business services in a legacy access network, a CSP would typically deploy additional physical connections and equipment, while packet-based infrastructure allows a CSP to change or add services virtually without the presence of a service technician or the installation of new equipment. In order to deploy these services quickly and efficiently, CSPs must be able to utilize their existing infrastructure while upgrading the legacy access network to packet-based technologies.
- ***Highly Reliable Access Products are Difficult to Engineer and Manage*** — Given the critical nature of access networks and their typical deployment in remote and distant locations, access infrastructure products must be highly reliable. Unlike most other communications equipment which is deployed in environmentally controlled data centers, central offices or similar facilities, a great deal of access equipment is deployed in outdoor environments and must be specifically engineered to operate in variable and often extremely harsh conditions, as well as fit into smaller spaces, such as on a street corner, near office buildings or on the side of a house or cellular tower. Since the access portion of the network is broadly distributed, it is expensive as well as difficult to manage and maintain. CSPs require access network equipment that can perform reliably in these uncontrolled environments and be deployed in a variety of form factors, thereby adding significant engineering and product development challenges as compared to most other forms of communications infrastructure equipment. In addition, some portion of the access market is supported by government initiatives and products sold into this segment require additional government certifications and approvals in order to qualify for deployment.
- ***Expensive to Deploy and Operate*** — As a result of deploying multiple networks with discrete functions, legacy access networks require a wide variety of equipment to be installed, maintained and ultimately replaced, thereby placing a significant and recurring capital and operating expense burden on the CSP. Once installed, this equipment occupies valuable space inside a data center or central office, requires frequent labor-intensive maintenance and consumes meaningful amounts of power. Moreover, the lack of integration across protocols and fiber- and copper-based network architectures negatively impacts network performance. Inferior network performance diminishes the subscriber experience and increases network operating costs by increasing service calls, the number of required support staff and the frequency of equipment upgrades and replacements.
- ***Onerous Backoffice Systems Slow Deployment of New Technologies and Services*** — Traditional methods for operationalizing new products and services often require significant testing and lengthy backoffice integration activities, often directly proportional to the size of the CSP. This often places CSPs at a competitive disadvantage when competing with emerging service providers that can leverage for streamlined or virtualized processes. Emerging frameworks like Software Defined Networking ("SDN") and Network Functions Virtualization ("NFV") can help CSPs overcome these operational challenges and bring new products and services to market faster.

Given these limitations of legacy access networks, we believe CSPs will over time increasingly emphasize fiber- and Ethernet-based technologies and frameworks like SDN and NFV in their access networks thereby enabling the rapid, cost-effective deployment of advanced broadband services. Such technologies and frameworks reduce overhead expenses, simplify network architectures and seamlessly integrate legacy and next-generation networks. We therefore believe that successful CSPs will be those that evolve from providing basic subscriber connectivity to providing the most relevant services and subscriber experience.

The Calix Solution

We are a leading global provider of broadband communications access platforms, systems and software for fiber- and copper-based network architectures and a pioneer in software defined access that enable CSPs to transform their networks and enhance how they connect to their residential and business subscribers. The Calix portfolio enables CSPs to quickly meet subscriber demands for both basic voice and data as well as advanced broadband and Wi-Fi services, while providing CSPs with the flexibility to optimize and transform their networks at a pace that balances their financial, competitive and technological needs. Our systems and software leverage packet-based technologies that enable CSPs to offer a wide range of revenue-generating services, regardless of protocol or network connection media. Our portfolio consists of our E-Series systems and nodes, as well as our B-Series nodes and C-Series system. These systems and nodes are complemented by the P-Series ONTs and residential gateways; the GigaFamily of premises service delivery centers, hubs, and points; CMS; Open Link Cable software and the Compass Cloud family of software-as-as-service products.

We believe that the Calix portfolio of network and premises-based solutions provides the following benefits to CSPs:

- ***Single Intelligent Access Network for Basic and Advanced Services*** — The Calix portfolio allows for a broad range of subscriber services to be provisioned and delivered over a single unified network. These systems can deliver basic voice and data, advanced broadband services, including high-speed Internet, IPTV, mobile broadband, high-definition video and online gaming, as well as integrated transport within our portfolio, all of which can be monitored and managed by Compass Cloud. In addition, our systems can be deployed in both small and large form factors across multiple deployment scenarios depending on subscriber proximity and service requirements. Introduced in 2014, the Open Link Cable software solution provides cable MSOs with the operational advantage of being able to provision GPON services via their traditional DOCSIS back office infrastructure. These are examples of our multiservice approach that allows CSPs to utilize their legacy access networks during the course of their equipment upgrade

and network transformation, saving them time and money in delivering both basic voice and data and advanced broadband services.

- ***High Capacity and Operational Efficiency*** — The Calix portfolio is designed to facilitate the evolution of CSP access networks to fiber- and Ethernet-based network architectures. Our portfolio includes systems and nodes that exceed the capacity of the products of our competitors. Our systems and nodes are designed and optimized for fiber- and copper-based network architectures. We also have a broad portfolio of fiber ONTs and GigaFamily products that serve as the on-premises gateways and service delivery platforms for new services to subscribers. Many of our ONTs auto-detect fiber access technologies, support both GPON and point-to-point Gigabit Ethernet, and can co-exist with next generation PON technologies to provide CSPs additional cost and management efficiencies.
- ***Highly Flexible Technology Solutions*** — The Calix portfolio enables CSPs to utilize legacy access network infrastructure during their migration towards fiber- and Ethernet-based access networks. Our portfolio supports multiple protocols, different form factors and modular options optimized for a variety of installation locations and environments, and multiple services delivered over fiber- and copper-based network architectures.
- ***Seamless Transition to Advanced Services*** — The Calix portfolio enables CSPs to better manage the evolution of their access networks by transitioning the delivery of basic voice and data services to advanced broadband services. Our C-Series system supports ongoing demand for basic voice and data services, and facilitates a seamless and controlled migration to IP-based services. For CSPs without legacy network constraints, our E-Series and B-Series systems allow CSPs to deploy advanced broadband services rapidly and cost effectively to their subscribers.
- ***Highly Reliable and Purpose-Built Solutions for Demands of Access*** — The Calix portfolio is designed for high availability and purpose-built for the demands of access network deployments. Our carrier class products are environmentally hardened and field-tested to be capable of withstanding harsh environmental conditions, including temperatures between -40 and 65 degrees Celsius, extremely dry or wet conditions and physical abuse. Our access systems are built and tested to meet or exceed network equipment-building system standards, which are a set of safety, spatial and environmental design guidelines for telecommunications equipment. Our products are highly compatible and designed to be easily integrated into the existing operational and management infrastructure of CSP access networks. Our portfolio can be deployed in multiple form factors and power configurations to address a wide range of deployment scenarios influenced by space and power constraints.
- ***An Operating System and Software Platform Built to Meet the Emerging Demands of the Access Network*** — Our AXOS platform is an architecture built to leverage the best of data center software design and network virtualization in the challenging environment and variability of the ever-changing access network. Completely hardware independent, AXOS allows for all software functions in the access network to be developed and run without dependence on the underlying hardware and associated silicon chipsets. This always-on architecture and consistent provisioning of services accelerates time-to-revenue, reduces service disruptions, and reduces operational complexity for service providers.
- ***Compelling Customer Value Proposition*** — We believe the Calix portfolio and AXOS platform offer CSPs a compelling value proposition. Our portfolio provides CSPs the flexibility to upgrade their networks over time, reduce operational costs and maximize their return on capital expenditures. Our packet-based systems and nodes and AXOS platform enable CSPs to offer new services more quickly and generate new revenue opportunities. We believe the interoperability and compatibility of our portfolio reduces the complexity and cost of managing CSP networks.

Our Strategy

The Calix portfolio enables the delivery of basic voice and data and advanced broadband services across multiple protocols and form factors over fiber- and copper-based network architectures. Our objective is to leverage our portfolio to become the leading supplier of access systems and software that enable CSPs to transform their networks and business models to meet the changing demands of their subscribers. The principal elements of our strategy are:

- ***Continue Our Sole Focus on Access Systems and Cloud Software*** — Our dedicated focus on access has been an important driver of our success with our customers. We believe our focus has allowed us to develop the highly innovative AXOS platform, our powerful operative system optimized for the access network, which allows us to develop access systems and solutions faster than our competitors. AXOS also allows our CSP customers to integrate, deploy, and upgrade our systems and solutions at an accelerated rate. This has proven to be a key differentiator for Calix. In contrast, virtually all of our large competitors in the access market devote some percentage of their resources to products outside of the access network, and in some cases, products not even designed for CSPs. We intend to continue to focus our efforts on the access market, which we believe will enable us to continue to deliver compelling, timely and innovative access solutions to CSPs.
- ***Continue to Enable our Customers to Transform Their Networks and Business Models*** — We believe that residential and business subscribers are pressuring CSPs to expand their offerings through the delivery of superior subscriber experiences. In response, CSPs need to transform their networks and business models by rapidly provisioning new services while minimizing the capital and operational costs of their networks. We believe the Calix portfolio enables CSPs to introduce new revenue-generating services as demanded by their subscribers.
- ***Continue to Engage Directly with Customers*** — We operate a differentiated business model focused on aligning with our customers, predominantly through direct engagement, service, and support, complemented in most international markets by a high touch Fiber Forward Partner Program, a selective program for Calix Channel Partners that focuses on matching the access innovation of Calix with the local market leadership of our channel partners to drive new market opportunities, rapid results, and an improved bottom line. Our direct customer engagement model allows us to target our sales resources as well as align our

product development efforts closely to our customers' needs. Our direct engagement model is a key differentiator for our business and is critical to our continued market leadership.

- ***Build on our Growing Customer Footprint*** — As of December 31, 2016, over 23 million ports of the Calix portfolio have been deployed at a growing number of CSPs worldwide. Our over 1,300 customers include many of the world's largest communications providers. This footprint provides us with the opportunity to sell additional components of the Calix portfolio to existing customers. For example, the vast majority of our existing customers have purchased additional line cards and other products from us after their initial purchase. We have also demonstrated that our footprint, combined with the flexibility of our portfolio, gives us incumbency benefits to sell complementary or new offerings in the future.
- ***Expand Deliberately into New Market and Applications*** — We believe that a disciplined approach to targeting markets and applications is critical to our long-term success. For example, we initially focused on rural Incumbent Local Exchange Carrier ("ILEC") customers and have achieved an industry leadership position as the majority of U.S. Independent Operating Companies ("IOCs") have deployed our access systems and software. We will continue our disciplined approach of targeting new markets and applications in which we believe our products will rapidly gain customer adoption. For example, we are targeting additional markets for our fiber access solutions, including the mobile backhaul market, the municipal, open access, and electrical cooperative markets, and cable MSO markets. We have also entered new geographic markets, including Africa, Asia, Australia, Europe, and Latin America. These deployments complement our significant deployments in Canada and the Caribbean.
- ***Pursue Strategic Relationships, Alliances and Acquisitions*** — We intend to continue to pursue strategic technology and distribution relationships, alliances and acquisitions that align us with CSPs' strategic directions to increase revenue-generating services while reducing the cost to deploy and operate their access networks. We believe these relationships, alliances and acquisitions will allow us to grow our footprint and enhance our ability to sell our access systems and cloud software. We developed and invested in the Calix Compatible Program to assure interoperability across the ecosystems of the majority of vendors critical for implementing and delivering new advanced broadband services. This program has approximately 61 technology members to date and enables our customers to rapidly deploy proven solutions in their access networks. We work with Ericsson Inc. ("Ericsson") and others to provide advanced broadband solutions globally, including efforts to ensure successful interoperation between our products and Ericsson's MediaFirst and Mediaroom IPTV platforms. In addition, our acquisitions of Optical Solutions, Inc. ("OSI") in 2006, Occam Networks, Inc. ("Occam") in 2011, and the fiber access assets from Ericsson in November 2012 have provided us with leading copper and fiber access technologies that have been integrated into the Calix portfolio.

Customers

We operate a differentiated customer engagement model that focuses on direct alignment with our customers through sales, service and support. In order to allocate our product development and sales efforts efficiently, we believe that it is critical to target markets, customers and applications deliberately. We have traditionally targeted CSPs, which own, build and upgrade their own access networks and which also value strong relationships with their access systems and software suppliers.

The U.S. ILEC market is composed of three distinct "tiers" of carriers, which we categorize based on their subscriber line counts and geographic coverage. Tier 1 CSPs are very large with wide geographic footprints. They have greater than ten million subscriber lines, and they generally correspond with the former Regional Bell Operating Companies. Tier 2 CSPs also operate typically within a wide geographic footprint, but are smaller in scale with subscriber line counts that range from approximately half a million to approximately seven million subscriber lines. Their service coverage areas are predominantly regional in scope and therefore they are often known as Regional Local Exchange Carriers ("RLECs"). Tier 3 CSPs consist primarily of over 1,000 predominantly local operators (often called IOCs) typically focused on a single community or a cluster of communities, although they also include a growing number of municipalities, electric cooperatives, fiber overbuilders, and wireless internet solutions providers. These entities range in size from a few hundred to approximately half a million subscriber lines.

To date, we have focused primarily on CSPs in the North American market. Our existing customers' networks serve over 100 million subscriber lines. In North America, our customers include CenturyLink, Inc. ("CenturyLink"), Frontier and Windstream. Our Tier 3 CSP customers have historically accounted for a large percentage of our sales. We also serve new entrants to the access services market who are building their own access networks, including cable MSOs and municipalities.

We have a few large customers who have represented a significant portion of our sales in any given period. In 2016, 2015 and 2014, CenturyLink accounted for 21%, 22%, and 23% of our revenue, respectively. In 2016, Windstream accounted for 15% of our revenue and less than 10% of our revenue in 2015 and 2014.

Some of our customers within the United States use or expect to use government-supported loan programs or grants to finance capital spending. Loans and grants through Rural Utility Service ("RUS"), which is a part of the United States Department of Agriculture, are used to promote the development of telecommunications infrastructure in rural areas.

Sales to customers outside the United States represented approximately 9%, 12%, and 12% of our revenues for the years ended December 31, 2016, 2015, and 2014, respectively. Historically, our sales outside the United States were predominantly to customers in the Caribbean, Canada and Europe.

Customer Engagement Model

We design, market and sell our access systems and software predominantly through our direct sales force, supported by marketing and product management personnel. We have expanded this model to include a small number of select channel partners in North America, 80 international channel partners who are part of our Fiber Forward Partner Program, and a global reseller relationship with Ericsson. Our sales

effort is organized either by named accounts or regional responsibilities. Account teams comprise sales managers, supported by sales engineers and account managers, who work to target and sell to existing and prospective CSPs. The sales process includes analyzing CSPs' existing networks and identifying how they can utilize our products within their networks. We also offer advice regarding eligibility for, and support proposals to, appropriate sources of government funding. Even in circumstances where a channel partner is involved, our sales and marketing personnel are often selling side-by-side with the channel partner. We believe that our direct customer engagement approach provides us with significant differentiation in the customer sales process by aligning us more closely with our customers' changing needs.

As part of our sales process, CSPs will often perform a lab trial or a field trial of our access systems prior to full-scale commercial deployment. This is most common for CSPs purchasing a particular access system for the first time. Upon successful completion, the CSP generally accepts the lab and field trial equipment installed in its network and may continue with deployment of additional access systems. Our sales cycle, from initial contact with a CSP through the signing of a purchase agreement, may, in some cases, take several quarters.

Typically, our customer agreements contain general terms and conditions applicable to purchases of our access systems and cloud software. By entering into a customer agreement with us, a customer does not become obligated to order or purchase any fixed or minimum quantities of our access systems and software. Our customers generally order access systems and software from us by submitting purchase orders that describe, among other things, the type and quantities of our access systems and software that they desire to order, delivery and installation terms and other terms. Customers who have been awarded RUS loans or grants are required to contract under form contracts approved by RUS.

Our direct customer engagement model extends to service and support. Our service and support organization works closely with our customers to ensure the successful installation and ongoing support and consulting services for the Calix portfolio. Our service and support organization provides technical product support and consults with our customers to address their needs. More recently, we have ramped our services organization to offer our customers professional services associated with turnkey network upgrade projects that generally involve our services to design and implement network improvements over multiple sites using Calix equipment. We anticipate the market and customer demand for such services to increase as customers increasingly look to supply partners, such as Calix, to support such projects. We offer our customers a range of support offerings, including program management, training, installation, post-sales technical support, and marketing and network planning consulting services. As a part of our pre-sales effort, our engineers design the implementation of our products in our customers' access networks to meet our customers' performance and interoperability requirements. Although some of our reseller arrangements allow resellers to provide support, training, installation, and post-sales technical support, these resellers still rely heavily on us to provide support to the customer.

Our U.S.- and China-based technical support organization offers support 24 hours a day, seven days a week. With an active Calix Advantage agreement, customers receive a license to CMS, access to telephone support and online technical information, software product upgrades and maintenance releases, advance return materials authorization and on-site support, if necessary. Calix Advantage agreements are renewable on an annual basis. Most of our customers renew their Calix Advantage agreements. In addition, we offer extended warranty periods for our products in one- to five-year durations, which include the right to warranty coverage beyond the standard warranty period. The purchase of such extended warranties is initially recorded as deferred revenue. At the end of 2016, we had $23.6 million of deferred revenue associated with such extended warranties. For customers not under a Calix Advantage agreement or who have not purchased extended warranty services, product support and warranty services are provided for a fee on a per-incident basis. Outside North America, we typically cooperate with channel partners to provide local service and support to our end customers in those locations.

Platforms, Software and Systems

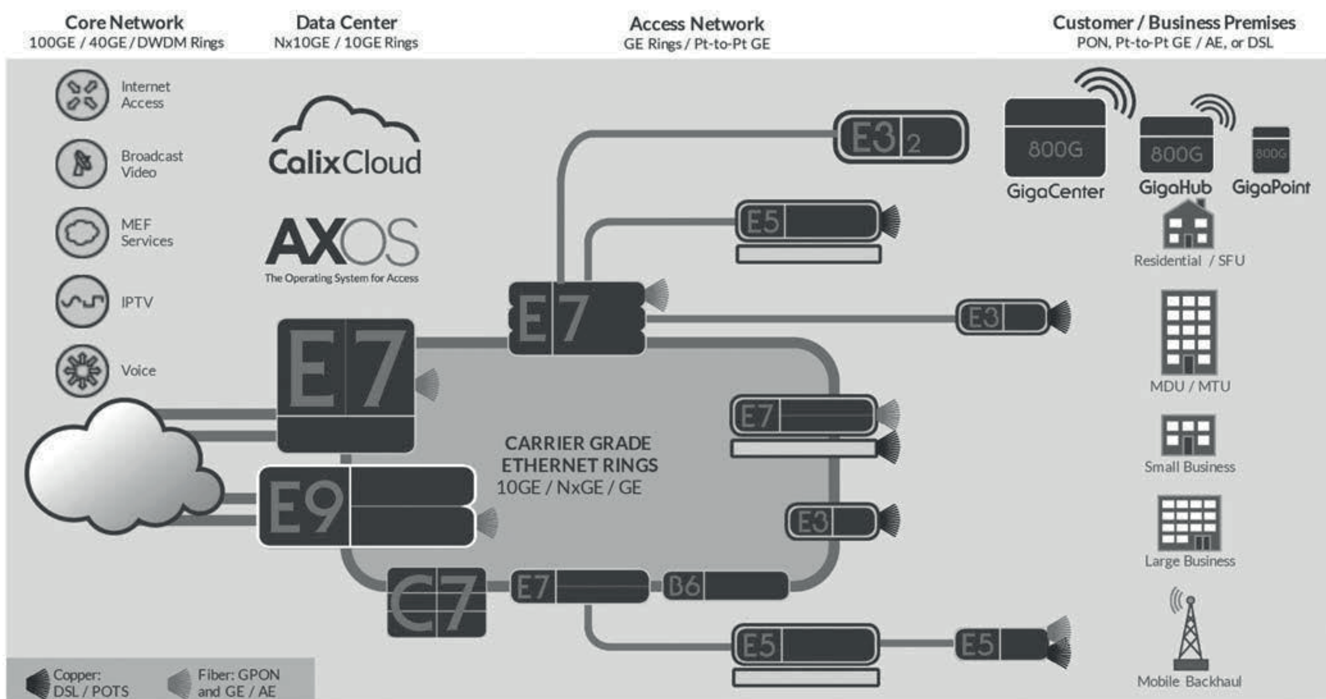
We develop, sell and support carrier-class hardware and cloud software products. The Calix portfolio enables CSPs to deliver both basic voice and data and advanced broadband services over legacy and next-generation access networks. The Calix portfolio consists of the following key features:

- ***Broad Product Offering*** — We offer a comprehensive portfolio of access systems and cloud software that is deployed in the portion of the network that extends from the data center, central office, or similar facilities to a subscriber's premises. We sell our access systems and nodes in a variety of form factors, modular options and configurations that are important to CSPs. Our network-based products include our E-Series systems and nodes, which provide cost-effective, flexible service delivery of IP-based services, as well as our B-Series nodes, which provides multiservice over Ethernet via distributed nodes, and our C-Series system, which is our multiservice, multiprotocol access system. Our premises-based offerings consist of our P-Series ONTs and residential gateways as well as our GigaFamily of premises service delivery centers, hubs, and points which are deployed in combination with our E-Series, B-Series, and C-Series systems and nodes to enable our customers to connect to their subscribers across a diverse set of form factors, protocols and functionality requirements.
- ***Multiservice and Multiprotocol*** — We develop our products and an extensive offering of service interfaces to ensure CSPs can connect to their subscribers to enable the delivery of basic voice and data or advanced broadband services over fiber- and copper-based network architectures regardless of protocol. Our C-Series system also enables CSPs to integrate IP and legacy protocols, as well as fiber- and copper-based connectivity, in a single chassis. In doing so, the C-Series system allows CSPs to evolve their access infrastructures over time. Our E-Series systems and nodes and B-Series nodes are multiservice but focus solely on Ethernet. Our E-Series systems and nodes are well suited for CSPs who are using Ethernet to transform their networks. Our B-Series nodes are focused on CSPs using Ethernet over copper and fiber and a distributed architecture to transform their networks. Our E-Series, B-Series, and C-Series systems and nodes are often, but are not required to be, deployed together so that the C-Series system can act as a protocol gateway for our E-Series and B-Series systems and nodes.

- ***Powerful Operating Systems*** — Our access systems are interoperable and are designed to be easily deployed and managed together as a single, unified access network. The C7, E7 and most other E-Series nodes utilize a common Ethernet kernel, which we refer to as the Ethernet eXtensible Architecture ("EXA"), which was developed based on industry standard protocols and focused on the needs of the access network. Our AXOS platform, available on an expanding family of E-Series systems and nodes, has taken EXA to another level by allowing all software functions in the access network to be developed and run without dependence on the underlying hardware and associated silicon chipsets. Both environments allow Calix to develop, test and introduce new access systems and software rapidly, and enable our customers to deploy advanced broadband services at their desired pace.
- ***Unified Network Management*** — Our CMS is server-based network management software capable of overseeing and managing multiple E-Series, B-Series, and C-Series networks. Activate is a cloud-based network management software optimized for AXOS systems. CMS and Activate perform all provisioning, maintenance and troubleshooting operations across disparate access technologies and networks through a common user interface. This enables CSPs to manage and unify the various elements of the Calix portfolio as a single, scalable platform. CMS and Activate are often integrated by our customers with their back-office systems for billing and provisioning.

The Calix portfolio allows CSPs to transform their legacy and mixed protocol access networks to fiber and Ethernet over time. CSPs often deploy our E-Series systems and nodes, B-Series nodes, and C-Series system together in data centers, central offices, or similar facilities to interconnect data centers and central offices. Our C-Series system can act as a protocol gateway when deployed with our E-Series and B-Series systems and nodes. Our E-Series and B-Series systems and nodes can be deployed either in data centers, central offices, remote network locations, existing cabinets or in customer premises locations depending upon the CSP's requirements. All of our E-Series, B-Series and C-Series systems and nodes interoperate with and can terminate network traffic from our P-Series ONTs. The GigaFamily of centers, hubs, and points only works with E-Series systems and nodes, with the exception of the 844E which is Ethernet-fed and can work with all Calix systems and nodes as well as those of other standards-based vendors.

A graphic representation of how the various components of the Calix portfolio work together as of the end of 2016 is shown in the network diagram below:

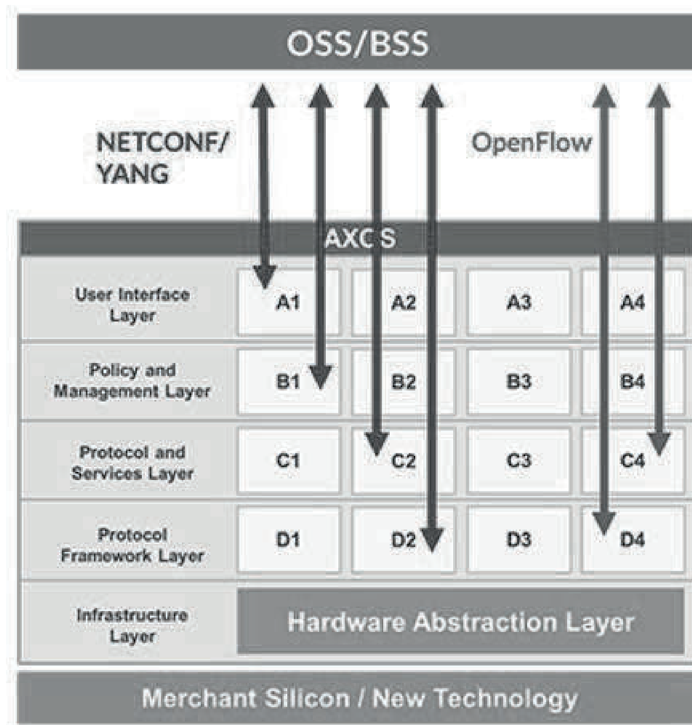


The graphic above depicts how a CSP might deploy the Calix portfolio in a CSP network. The network is divided into four segments: (1) the cloud, (2) the data center / central office, (3) the outside plant and (4) the premises. First, voice, video or data content is aggregated by a router in the cloud and transferred to an E9, E7, B6, or C7. The content is then sent around a redundant Ethernet transport ring, which operates using the 10 Gigabit Ethernet or Gigabit Ethernet standard. The ring consists of a variety of Calix access systems or nodes, including E9s, E7s, E5s, E3s, B6s, and C7s, each of which may be located in a central office or in remote terminal locations closer to subscribers. Content can be pulled from any one of these locations and delivered either to a Calix system located at a remote node or directly to a subscriber premises. In the case where content is delivered to another Calix system, the content can be delivered over a variety of fiber-based technologies, such as 10 Gigabit Ethernet, Gigabit Ethernet or multiple Gigabit Ethernet, or NxGE. Delivery to the subscriber premises over fiber or copper transmission lines is the final part of the access network. Delivery over fiber lines uses GPON, point-to-point Ethernet services, and delivery over copper lines uses DSL or G.fast services or telephone service. Both CMS and Activate manage all aspects of the Calix portfolio and supports features that allow remote management of equipment across the network, including equipment at the subscriber premises.

Access eXtensible Operating System (AXOS)

AXOS, or Access eXtensible Operating System, is a Linux-based network operating system and software platform built for the specific needs of the access network. Completely hardware independent, AXOS allows for all software functions in the access network to be developed and run without dependence on the underlying hardware and associated silicon chipsets. With an always-on architecture and consistent provisioning services, AXOS is designed to accelerate time-to-revenue, eliminate service disruptions, and reduce operational complexity for service providers. Introduced in 2015, AXOS is currently implemented in the E9-2, E3-2, E3-16F, E5-16F, and E5 business systems and is expected to expand in the future to other E3, E5, E7, and E9 systems and nodes. Within AXOS, containerized software components ride on top of a unique hardware abstraction layer that preserves software independence from the underlying hardware. All components and operational functions within AXOS use standard NETCONF protocol and YANG data models that enable AXOS powered systems to fit into any open SDN orchestration and control framework. Open, published APIs also allow customers to directly program unique network applications and services.

The following graphic depicts the components and operational functions of AXOS:



Compass Cloud

Compass Cloud is an expanding family of software-as-a-service products that enables CSPs to accelerate their business transformation. Each Compass Cloud product is designed to directly affect key business and market roles within CSPs, and can help them increase revenue, improve customer satisfaction, optimize network resources, and reduce the cost of delivering services. Compass Cloud products are offered using a software-as-a-service ("SaaS") model based on a low monthly service fee and no upfront hardware or licensing fees. The products are hosted in a cloud-based data center, alleviating CSPs' need to deploy, operate, or maintain physical hardware for Compass services, and are accessed through our Command Center subscriber interface.

Flow Analyze Plus offers a tool that provides an in-depth view of the traffic in CSP networks on a real-time basis. This view of traffic is non-intrusive and can be focused on a per-service, per-subscriber, per-location, and per-interface basis - both in real time and as a historical report. As a result, service providers can see what actually happened when a problem occurs in their network at any time. By monitoring subscriber usage data, as well as tracking universal subscriber identification mapping, Flow Analyze Plus provides a low-cost solution for generating monthly usage billing reports and diagnosing subscriber complaints.

Consumer Connect Plus enables service providers to remotely activate new broadband devices and manage home networks, creating new revenue sources, improved customer satisfaction, and reduced service delivery costs. Consumer Connect provides TR-069 ACS device management via a cloud-based SaaS solution hosted by Calix and offers such features as auto-discovery of intelligent devices within the home, auto-support of new TR-069 devices, bulk gateway maintenance, and DHCP server functionality as well as the ability to push service profiles to gateways. Consumer Connect Plus also shares a common customer ID with Flow Analyze Plus, allowing the applications to work closely together. Consumer Connect Plus can also provide remote customer LAN diagnostics as well as LAN visibility to help track consumer electronics trends.

Service Verify gives service providers the tools to comprehensively validate quality of service commitments for their business subscribers. Service Verify automates collection and analysis of key performance metrics from intelligent Ethernet access devices, and provides custom, real-time reporting that can be analyzed internally or shared externally with demanding business customers. Predictive analytics help identify performance issues before service level agreements are jeopardized.

Complementary to Compass Cloud, Open Link Cable is a software product that enables cable operators to deliver gigabit services over Calix E3-2, E7-2 and E7-20 GPON optical line terminals (OLTs) and Calix ONUs/ONTs/GigaFamily while continuing to use traditional back office and DOCSIS command and control procedures. In addition, Open Link Cable is designed to support the CableLabs DPoG 1.0 standards in order to accelerate deployments without changing operational procedures and systems.

Access Analyze is a Compass software product that enables CSPs to point their CMS server at the cloud and correlate their access data across Compass Cloud products. It also provides cloud back-up for CMS data. Access Analyze enables reporting across network, subscriber, and application data, including in-home Wi-Fi device data and CSP backoffice systems information like customer billing and service offering data.

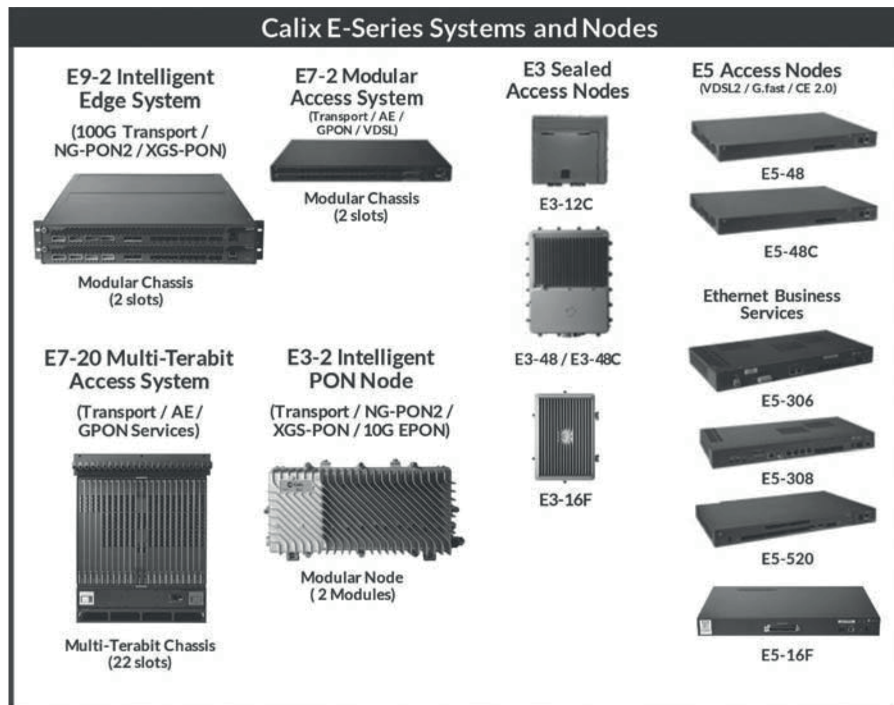
Our CMS server-based network management software system and Activate cloud-based element management for AXOS systems enable CSPs to remotely manage their access networks and scale bandwidth capacity to support advanced broadband services and video. Our CMS and Activate systems are capable of overseeing and managing multiple standalone networks and perform all provisioning, maintenance and troubleshooting operations for these networks across our E-Series, B-Series and C-Series systems and nodes. Additionally, our CMS and Activate systems are designed to scale from small networks to large, geographically dispersed networks consisting of hundreds or even thousands of our access systems. CMS and Activate provide an enhanced graphical user interface and delivers a detailed view and interactive control of various management functions, such as access control lists, alarm reporting and security. For very large CSPs, our CMS and Activate systems can be used in conjunction with operational support systems to manage large, global networks with tens of millions of subscribers. Our CMS and Activate systems are scalable to support large and small networks and enables integration into the other management systems of our customers.

We offer CSPs a graphical user interface-based management system for provisioning and troubleshooting service, and the capacity for bulk provisioning and reporting for thousands of elements simultaneously. Both CMS and Activate also have open application programming interfaces that allow third-party software developers to extend our functionality to include home provisioning, remote troubleshooting and applications monitoring and management.

Calix E-Series Access Systems and Nodes

Our E-Series access systems and access nodes consist of chassis-based systems as well as fixed form factor nodes that are designed to support an array of advanced IP-based services offered by CSPs. Our E-Series systems and nodes are designed to be carrier-class and enable CSPs to implement advanced Ethernet transport and aggregation, as well as voice, data and video services over both fiber- and copper-based network architectures. Many of our E-Series systems and nodes are environmentally hardened and can be deployed in a variety of network locations, including data centers, central offices, remote terminals, video headends and co-location facilities. In addition, due to the small size of many of our E-Series systems and nodes, most can be installed in confined locations such as remote nodes and multi-dwelling units. As such, many of our E-Series systems and nodes can be deployed in most competitor and other third-party cabinets or as stand-alone sealed nodes in our access network. The majority of our E-Series systems and nodes are managed using Activate and can be deployed in conjunction with our B-Series nodes, C-Series system, P-Series and GigaFamily premises products. We believe the deployment flexibility and Ethernet focus of our E-Series systems and nodes make them well suited for CSPs extending Ethernet services and fiber closer to the subscriber premises.

The following pictures depict the E-Series systems and nodes:



Our AXOS E9-2 Intelligent Edge System is a revolutionary, non-blocking, high-density NG-PON2 services modular chassis that enables service providers to move to a converged services network. The disruptive architecture of the E9-2 extends the access edge and delivers a dramatic reduction in total cost of ownership for service providers by collapsing access, aggregation, and service edge functions, including routing and subscriber management, into a single system. Our E7 has two form factors. Our E7-2 is a one rack unit chassis with two line card slots, while the E7-20 is a 13 rack unit chassis with two common control card slots and 20 service line card slots. Our E7s deliver Ethernet services over copper and fiber, including a wide range of GPON, point-to-point Gigabit Ethernet, VDSL2 with vectoring support, and 10 Gigabit Ethernet and NG-PON2 services. Our AXOS E3-2 Intelligent PON Node is a revolutionary design that disrupts access and edge architecture by integrating with legacy networks while collapsing access and service edge functions in a distributed fiber architecture. Its modular design provides a typically easy upgrade path to any next generation 10G PON technology while leveraging existing fiber deep designs, management systems, power, and rights-of-way. Our other E-Series nodes include the fixed form factor E5-48, E5-48C, E5-16F, E5-300, and E5-500 node families, as well as the E3-12C, E3-48, E3-48C, and E3-16F sealed access nodes, which collectively deliver high-speed broadband with interfaces that range from 10 Gigabit Ethernet transport and aggregation to ADSL2+, VDSL2 with vectoring support, G.fast , GPONm XGS-PON, NG-PON2, and point-to-point Gigabit Ethernet, as well as Carrier Ethernet 2.0 business services.

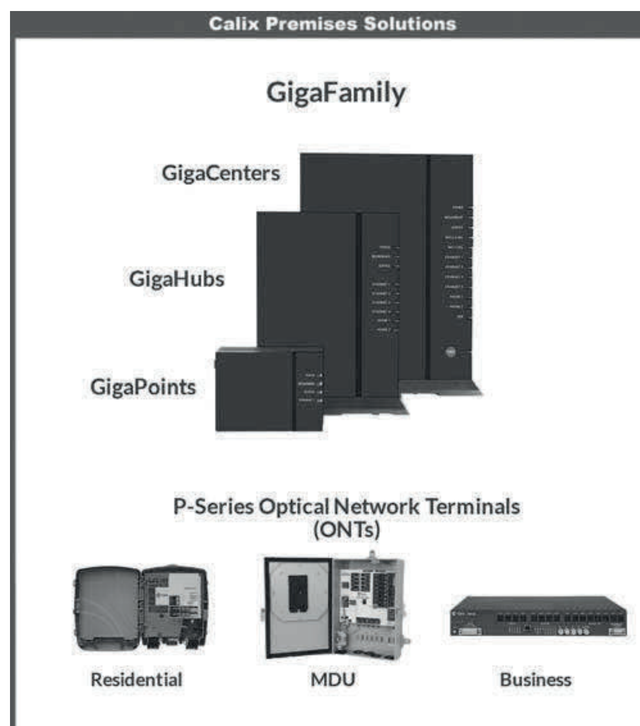
Key technology differentiators of the E-Series systems and nodes are:

- ***Standards-Based Switching Architecture*** — Most of our E-Series systems and nodes currently utilize EXA, however, an expanding family of our E-Series systems and nodes leverage the AXOS platform, our Linux-based network operating system and software platform built for the specific needs of the access network. Completely hardware independent, AXOS allows for all software functions in the access network to be developed and run without dependence on the underlying hardware and associated silicon chipsets. With its always-on architecture and consistent provisioning services, AXOS accelerates time-to-revenue, eliminates service disruptions, and reduces operational complexity for service providers. All future E-Series systems will be based on this open, standards-based, SDN-aligned platform.
- ***Multiservice over Ethernet*** — Our E-Series systems and nodes enable CSPs to offer high bandwidth, advanced broadband and low latency services across Ethernet over fiber- and copper-based network architectures.
- ***Deployment Flexibility*** — Our E-Series systems and nodes are composed of a variety of distinct small form factor configurations as little as a single rack unit in height to a 13-rack unit large chassis. The E-Series systems and nodes are designed to deliver operational efficiencies without sacrificing deployment flexibility or service functionality. Our E-Series systems are optimally sized to deliver high bandwidth services from a data center, central office, remote terminal, remote node or MDU. For CSPs seeking additional flexibility and performance, the modular E7-2 and E9-2 and the high capacity E7-20 can be combined with other E7s or other B-Series, C-Series and E-Series systems and nodes and managed uniformly.

- ***High Capacity and Reliability*** — Our E-Series systems and nodes have high data throughput capacity and are designed to meet the demanding bandwidth and low latency requirements of advanced broadband services for residential and business subscribers. Our E-Series systems and nodes support a range of transport options from multiple 100 Gigabit Ethernet uplinks in each E9-2 chassis down to redundant Gigabit Ethernet in the E5-48 node family. Our E9-2 was architected to be the industry's first fully distributed and non-blocking system. Our chassis-based E7-2 supports a redundant 100 gigabits per second backplane in each deployable module with line cards that further support a minimum of 100 gigabits per second switching capacity. The E7-20 supports the same 100 gigabits per second line card switching capacity per card, but houses each card in a 20-service line card slot chassis with a two terabits per second backplane. The E7 also supports transparent local area network services and are designed to be Metro Ethernet Forum compliant and to meet NEBS requirements.
- ***Broad Array of Advanced Services Support*** — Our E-Series systems and nodes support a broad array of advanced services. Our E3-12C supports up to 12 VDSL2 combination voice and DSL services ports as well as DSL port bonding, and offers multiple Gigabit Ethernet network uplinks. Our E3-48, E3-48C, E5-48, and E5-48C support up to 48 VDSL2 service ports as well as DSL port bonding and vectoring, and offer multiple 10 Gigabit Ethernet and 2.5 or single Gigabit Ethernet uplinks. Our E7s, E5-300s, and E5-520 support a mix of GPON, multiple Gigabit Ethernet and 10 Gigabit Ethernet ports, and well as select Metro Ethernet Forum (MEF) advanced business services. Our E9-2 supports both NG-PON2 and XGS-PON while the E3-2 supports NG-PON2, XGS-PON, and GPON. E7 line card options include a mix of GPON, point-to-point Gigabit Ethernet, 10 Gigabit Ethernet services, and in the case of the E7-2, 48 ports of VDSL2 combo and vectoring services on a line card, which translates into an industry-leading 96 VDSL2 combo ports in a 1 rack unit form factor, as well as traffic management and queuing, performance monitoring and virtual local area network stacking to support quality of service.

Calix GigaFamily, P-Series Optical Network Terminals and Residential Gateways

Our GigaFamily, P-Series ONTs, and residential gateways consist of a broad range of customer premises solutions, including standards-based GigaCenters, GigaHubs, GigaPoints, ONTs, and residential gateways for residential and business use in conjunction with our E-Series, B-Series and C-Series systems. GigaCenter premises service delivery platforms combine the ability to support a gigabit experience and host advanced applications with Carrier Class Wi-Fi - a wireless technology that enables extraordinary coverage and capacity through the use of the 802.11ac protocol, a 4x4 multiple-in, multiple-out (MIMO) antenna array, and beamforming technology. GigaHubs are multi-port service demarcation hubs and serve as fully integrated GPON broadband access and service delivery solutions. GigaPoint single port broadband demarcation points deliver gigabit services to subscribers, are simple to activate and manage, and are sometimes deployed in conjunction with subtended residential gateways as well as 844E GigaCenters. The GigaFamily of centers, hubs, and points are designed to be deployed in conjunction with the powerful Compass software application suite to provide meaningful insights into subscriber usage trends and quality of services. Our portfolio of ONTs, residential gateways, and GigaFamily centers, hubs, and points is designed to support advanced broadband services, such as IPTV, RF video, business services and mobile backhaul (including Ethernet OAM support for conformance with service level agreements). The design and flexibility of the P-Series and GigaFamily portfolio allows CSPs to lower initial capital expenditures as well as reduce operational costs. Our P-Series ONTs and residential gateways can auto-detect the bandwidth of the network and enable CSPs to change line rates and features without expensive truck rolls or hardware replacements. To meet the deployment and service requirement needs of CSPs, we offer a growing number of ONT, residential gateway, and GigaFamily models available in a variety of form factors tailored to multiple deployment scenarios, including single homes, MDUs, businesses and cellular towers as illustrated below:



Calix B-Series Access Nodes

Our B-Series access nodes consist of chassis-based nodes that are designed to support an array of advanced IP-based services offered by CSPs. Our B-Series nodes are designed to be carrier-class and enable CSPs to implement advanced Ethernet transport and aggregation, as well as voice, data and video services over both fiber- and copper-based network architectures. Our B-Series nodes are environmentally hardened and can be deployed in a variety of network locations, including data centers, central offices, remote terminals, video headends and co-location facilities. In addition, due to the small size of some of our B-Series nodes, many can be installed in confined locations such as remote nodes and multi-dwelling units. As such, many of our B-Series nodes can be deployed in most competitor and other third-party cabinets or as stand-alone sealed nodes in our access network. Our B-Series nodes are managed using our CMS and can be deployed in conjunction with our E-Series and C-Series systems as well as our P-Series ONTs. We believe the deployment flexibility and Ethernet focus of our B-Series nodes make them well suited for CSPs extending Ethernet services and fiber closer to the subscriber premises.

Our B6 has three form factors. Our B6-001 is a 1 rack unit chassis with one line card slot, whereas the B6-006 is a 7 rack unit chassis with six line card slots and the B6-012 is a 12 rack unit chassis with 20 line card slots. Our B6s deliver Ethernet services over fiber, including a wide range of GPON, point-to-point Gigabit Ethernet, and 10 Gigabit Ethernet services.

Key technology differentiators of the B-Series nodes are:

- ***Multiservice over Ethernet*** — Our B-Series nodes enable CSPs to offer high bandwidth, advanced broadband and low latency services across Ethernet over fiber- and copper-based network architectures.
- ***Deployment Flexibility*** — Our B-Series nodes are composed of three distinct form factor chassis between 1 and 12 rack units in height. The B-Series nodes are designed to deliver operational efficiencies without sacrificing deployment flexibility or service functionality. Our B-Series node options are optimally sized to deliver high bandwidth services from a data center, central office, remote terminal, remote node or MDU. For CSPs seeking additional flexibility and performance, the B6s can be combined with C-Series and E-Series systems and nodes, all of which are managed by our CMS.
- ***High Capacity and Reliability*** — Our B-Series nodes have high data throughput capacity and are designed to meet the demanding bandwidth and low latency requirements of advanced broadband services for residential and business subscribers. Our B-Series nodes support a range of transport options from multiple 10 Gigabit Ethernet uplinks in each chassis down to redundant Gigabit Ethernet ports. The distributed intelligence of the B6s supports 10 gigabits per second in each deployed line card. The B6s also support T1 circuit emulation and are designed to be Metro Ethernet Forum (MEF 9 and MEF 14) compliant and to meet Network Equipment-Building System ("NEBS") requirements.
- ***Broad Array of Advanced Services Support*** — Our B-Series nodes support a broad array of advanced services, including up to 48 VDSL2 and 48 ADSL2+ overlay or combination voice and DSL services ports as well as DSL port bonding on each line card, and offer multiple Gigabit Ethernet network uplinks. Our B6s also support a mix of GPON, point-to-point gigabit Ethernet and multiple Gigabit Ethernet and 10 Gigabit Ethernet ports. Line card options include a mix of GPON, point-to-point gigabit Ethernet, and 10 Gigabit Ethernet services, as well as traffic management and queuing, performance monitoring, and virtual local area network stacking to support quality of service.

Calix C-Series Multiservice Access System

Our C7 multiservice access system is designed to support a wide array of basic voice and data services offered by CSPs while also supporting advanced, high-speed, packet-based services such as Gigabit Ethernet, GPON, DSL (including very high-speed digital subscriber line 2 ("VDSL2") and asymmetrical digital subscriber line 2+ ("ADSL2+")) and advanced applications like IPTV. In so doing, our C-Series system facilitates network transformation by integrating the functions required to transport and deliver voice, data and video services over both fiber- and copper-based network architectures. Our C-Series system is a chassis-based product with 23 line card slots, three of which are used for common logic, switching fabric and uplinks, with the remaining 20 slots available for any service interface card we offer. Our C-Series system is managed using our CMS. Our high-capacity C-Series system is flexible and is designed to be deployed in a variety of locations, including data centers, central offices, remote terminals, video headends and co-location facilities. Our C-Series system leverages a common operating system kernel, the EXA, that it shares with many of our E-Series systems and nodes, allowing for common provisioning and facilitated platform interoperability. The multiprotocol and integrated transport capabilities of our C-Series system allow it to be deployed as an aggregation or gateway device for our E-Series and B-Series systems and nodes, and P-Series ONTs.

Key technology differentiators of the C-Series system are:

- ***Protocol Independent*** — Our C-Series system enables the integration of multiple protocols through a system architecture where line cards perform specific protocol processing.
- ***High Capacity*** — Our C-Series system can enable up to 200 gigabits per second total throughput capacity. It can provide service delivery speeds of up to 10 gigabits per second in network transport rings or directly to subscribers, which is significantly greater than the bandwidth that CSPs are typically providing to their subscribers. This enables CSPs to scale their advanced broadband service offerings over time without the need to change their equipment.
- ***Flexible Switching Architecture*** — Our C-Series system supports a highly scalable switching architecture with characteristics similar to high performance routers. All services are converted to packets on line cards allowing our system to natively switch circuits, cells and packets. As a result, both legacy and advanced packet-based services can be supported simultaneously or uniformly, allowing the C-Series to be deployed as a pure Ethernet delivery system, a traditional service delivery system or a hybrid services system.

- ***Density*** — In typical applications, a single 14-inch high C-Series system shelf can terminate 480 copper-based subscriber connections, or up to 5,120 fiber-to-the premises, or FTTP, subscribers using GPON. This functionality allows up to 2,400 subscribers of advanced broadband services over copper-based networks or over 25,000 subscribers over fiber-based networks to be served out of a single seven-foot rack in the central office.
- ***Reduced Risk of Technological Obsolescence*** — As new services and technologies are introduced to the network, our flexible C-Series architecture allows CSPs to add or swap line cards to introduce new functionality into the access system. Services such as IPTV and voice over Internet protocol require new features like Internet Group Management Protocol channel change processing and protocol gateway support, which can easily be added without substantial changes to existing equipment. As a result, equipment purchased by CSPs can have longer useful lives, which can reduce CSPs' capital expenditures.
- ***Extensive Line Card Offering*** — Currently our C-Series system offers 47 line cards that enable a diverse set of trunk and subscriber interfaces, ranging from basic voice service and specialized circuits to advanced broadband services such as packet-based Fast and gigabit Ethernet, SONET (up to optical carrier-48, or OC-48), VDSL2 and ADSL2+ across multiple copper pairs and GPON. In addition, our C-Series system supports multiple combinations of service interface cards in any slot at any time. We believe this flexibility provides CSPs the ability to evolve networks toward higher-capacity, packet-based service offerings in a minimally disruptive and cost-effective manner.

Research and Development

Continued investment in research and development is critical to our business. Our research and development team is composed of engineers with expertise in hardware, software and optics. Our team of engineers is located in our Petaluma, San Jose and Santa Barbara facilities located in California; our Minneapolis, Minnesota facility; our Acton, Massachusetts facility and our Nanjing, China facility. We also outsource a portion of our software development to domestic and international third parties. Our research and development team is responsible for designing, developing and enhancing our hardware and software platforms, performing product and quality assurance testing and ensuring the compatibility of our products with third-party hardware and software products. We have made significant investments in the Calix portfolio. We intend to continue to dedicate significant resources to research and development and to develop new product capabilities and invest in innovative technologies to support the performance, scalability and management of the Calix portfolio. For the years ended December 31, 2016, 2015, and 2014, our research and development expenses totaled $106.9 million, $89.7 million, and $80.3 million, respectively.

Manufacturing

We work closely with third parties to manufacture and deliver our products. Our manufacturing organization consists primarily of supply chain managers, new product introduction personnel and test engineers. We outsource our manufacturing and order fulfillment and tightly integrate our supply chain management and new product introduction activities. Although we have multiple contract manufacturing arrangements, we primarily utilize Flex Ltd, formerly Flextronics International Ltd ("Flex"), as our contract manufacturer. Our relationship with Flex allows us to conserve working capital, reduce product costs and minimize delivery lead times while maintaining high product quality. Generally, new product introduction occurs in Flex's facilities in Suzhou, China. Once product manufacturing quality and yields reach a satisfactory level, volume production and testing of circuit board assemblies also occur in Suzhou, China. Final system and cabinet assembly and testing are performed in Flex's facilities in Guadalajara, Mexico. Order fulfillment is performed by Pegasus Logistics Group, Inc. in Texas. We also evaluate and utilize other vendors for various portions of our supply chain from time to time, including order fulfillment of our circuit boards. This model allows us to operate with lower inventory levels while maintaining the ability to scale quickly to handle increased order volume.

Product reliability is essential for our customers, who place a premium on continuity of service for their subscribers. We perform rigorous in-house quality control testing to help ensure the reliability of our systems. Our internal manufacturing organization designs, develops and implements complex test processes to help ensure the quality and reliability of our products.

The manufacturing of our products by contract manufacturers is a complex process and involves certain risks, including the potential absence of adequate capacity, the unavailability of or interruptions in access to certain process technologies, and the reduced control over delivery schedules, manufacturing yields, quality and costs. As such, we may experience production problems or manufacturing delays in the future. Additionally, shortages in components that we use in our systems are possible and our ability to predict the availability of such components, some sourced from a single or limited source of supply, may be limited. Our systems include some components that are proprietary in nature and only available from a single source, as well as some components that are generally available from a number of suppliers. The lead times associated with certain components are lengthy and preclude rapid changes in product specifications or delivery schedules. In some cases, significant time would be required to establish relationships with alternate suppliers or providers of proprietary components. We generally do not have long-term contracts with component providers that guarantee the supply of components or their manufacturing services. If we experience any difficulties in managing relationships with our contract manufacturers, or any interruption in our own operations or our contract manufacturers operations or if a supplier is unable to meet our needs, we may encounter manufacturing delays that could impede our ability to meet our customers' requirements and harm our business, operating results and financial condition. Our ability to deliver products in a timely manner to our customers would be adversely impacted materially if we needed to qualify replacements for any of the components used in our systems.

Seasonality

Fluctuations in our revenue occur due to many factors, including the varying budget cycles and seasonal buying patterns of our customers. More specifically, our customers tend to spend less in the first fiscal quarter as they are finalizing their annual budgets, and in certain regions, customers are also challenged by winter weather conditions that inhibit fiber deployment in outside plants.

Intellectual Property

Our success depends upon our ability to protect our core technology and intellectual property. To accomplish this, we rely on a combination of intellectual property rights, including patents, trade secrets, copyrights and trademarks as well as customary contractual protections. In addition, we generally control access to and the use of our proprietary technology and other confidential information. This protection is accomplished through a combination of internal and external controls, including contractual protections with employees, contractors, customers and partners, and through a combination of U.S. and international intellectual property laws.

As of December 31, 2016, we held 111 U.S. patents and had 25 pending U.S. patent applications. One of the U.S. patents is also covered by granted international patents in three countries. As of December 31, 2016, we had no pending international patent applications. U.S. patents generally have a term of twenty years from filing. As our patent portfolio has been built over time, the remaining terms on the individual patents vary. Information pertaining to our patents such as filing dates and terms is available free-of-charge at the United States Patent and Trademark Office website at www.uspto.gov.

We rely on intellectual property laws as well as nondisclosure agreements, licensing arrangements and confidentiality provisions to establish and protect our proprietary rights. U.S. patent, copyright and trade secret laws afford us only limited protection, and the laws of some foreign countries do not protect proprietary rights to the same extent. Our pending patent applications may not result in issued patents, and the issued patents may not be enforceable. Any infringement of proprietary rights could result in significant litigation costs. Further, any failure by us to adequately protect our proprietary rights could result in competitors offering similar products, resulting in the loss of our competitive advantage and decreased sales.

We believe that the frequency of assertions of patent infringement continues to increase in our industry. In particular, patent holders, including entities and organizations that purchase or hold patents to monetize such rights, assert patent infringement claims as a competitive tactic as well as a source of revenue. Any claim of infringement from a third party, even those without merit, could cause us to incur substantial costs defending against such claims and could distract our management from operating our business. Furthermore, a party making such a claim, if successful, could secure a judgment that requires us to pay substantial damages. A judgment could also include an injunction or other court order that could prevent us from selling our products. In addition, we might be required to seek a license for the use of such intellectual property, which may not be available on commercially reasonable terms or at all. Alternatively, we may be required to develop non-infringing technology, which would require significant effort and expense and may ultimately not be successful.

Competition

The communications access equipment market is highly competitive. Competition in this market is based on any one or a combination of the following factors:

- price;
- functionality;
- existing business and customer relationships;
- the ability of products and services, including turnkey professional services capabilities, to meet customers' immediate and future network requirements;
- product quality;
- installation capability;
- service and support;
- scalability; and
- manufacturing capability.

We compete with a number of companies within markets that we serve, and we anticipate that competition will intensify. ADTRAN, Inc. enjoys strong supplier relationships with the largest U.S. ILECs and has a broad international business. Other established suppliers with which we compete include Alcatel-Lucent S.A., which was acquired by Nokia Corporation in January 2016; Arris Group, Inc.; Ciena Corporation; Huawei Technologies Co. Ltd.; and ZTE Corporation. There are also a number of smaller companies with which we compete in various geographic or vertical markets, including DASAN Zhone Solutions, Inc. While most of these smaller competitors lack broad national scale and product portfolios, they can offer strong competition on a deal-by-deal basis. As we expand into adjacent markets, we expect to encounter new competitors. Many of our competitors have substantially greater name recognition, manufacturing capacity and technical, financial and marketing resources as well as better established relationships with CSPs than we do. Many of our competitors have greater resources to develop products or pursue acquisitions and more experience in developing or acquiring new products and technologies and in creating market awareness for their products and technologies. In addition, a number of our competitors have the financial resources to offer competitive products at below market pricing levels that could prevent us from competing effectively.

Government Funding Initiatives

Many of our customers fund deployment of and improvements to telecommunications network infrastructure using government funds. In the United States, CSPs are required under the Federal Communications Commission's rules to contribute a percentage of their revenues to the federal Universal Service Fund. In early October 2011, the then-chairman of the Federal Communications Commission (the "FCC") outlined a plan to transform the Universal Service Fund, an $8 billion fund that is paid for by the nation's telephone customers and used to subsidize basic telephone service in rural areas, into one that will help expand broadband Internet service to 18 million Americans who lack high-speed access. These funds, now governed by a new set of rules called the Connect America Fund, or CAF, are distributed as subsidies to CSPs serving rural subscribers that are expensive to reach as well as to low-income consumers, schools, libraries, and rural health care

facilities. As of the end of 2016, the FCC continued to finalize the rules for the annual $3.8 billion in CAF distributions targeted at broadband deployment in underserved and unserved parts of the U.S. RUS administers funds through a separate U.S. government initiative to promote the development of telecommunications infrastructure in rural areas through loans, loan guarantees and grants. Some of our U.S. customers have been awarded RUS loans and/or have received subsidies from CAF programs, and we have provided the network equipment for such projects.

Employees

As of December 31, 2016, we employed a total of 1,109 full-time employees, of which 820 employees were located in the United States. None of our United States employees is represented by a labor union with respect to his or her employment with us. Four of our Brazilian employees and two of our French employees are subject to relevant collective bargaining arrangements. We have not experienced any work stoppages, and we consider our relations with our employees to be good.

Corporate Information

Calix, Inc., a Delaware corporation, was founded in August 1999. Our principal executive offices are located at 1035 N. McDowell Boulevard, Petaluma, California 94954, and our telephone number is (707) 766-3000. Our website address is www.calix.com. We do not incorporate the information on or accessible through our website into this Annual Report on Form 10-K, and you should not consider any information on, or that can be accessed through, our website as part of this Annual Report on Form 10-K. Calix®, the Calix logo design, B6®, C7®, E3®, E5®, E7®, Compass®, Consumer Connect SM, Fiber Forward TM, and other trademarks or service marks of Calix appearing in this Annual Report on Form 10-K are the property of Calix. Trade names, trademarks and service marks of other companies appearing in this Annual Report on Form 10-K are the property of the respective holders. Calix is subject to the information and periodic reporting requirements of the Securities Exchange Act of 1934 ("Exchange Act") and files periodic reports, proxy statements and other information with the Securities and Exchange Commission ("SEC"). Such periodic reports, proxy statements and other information are available for inspection and copying at the SEC's Public Reference Room at 100 F Street, NE., Washington, DC 20549 or may be obtained by calling the SEC at 1-800-SEC-0330. In addition, the SEC maintains a website at www.sec.gov that contains reports, proxy statements and other information regarding issuers that file electronically with the SEC. Calix posts on the Investor Relations page of its website, www.calix.com, a link to its filings with the SEC, as soon as reasonably practical after they are filed electronically with the SEC.

ITEM 1A. Risk Factors

We have identified the following additional risks and uncertainties that may affect our business, financial condition and/or results of operations. Investors should carefully consider the risks described below, together with the other information set forth in this Annual Report on Form 10-K, before making any investment decision. The risks described below are not the only ones we face. Additional risks not currently known to us or that we currently believe are immaterial may also significantly impair our business operations. Our business could be harmed by any of these risks. The trading price of our common stock could decline due to any of these risks, and investors may lose all or part of their investment.

Risks Related to Our Business and Industry

Our markets are rapidly changing, which makes it difficult to predict our future revenue and plan our expenses appropriately.

We compete in markets characterized by rapid technological change, changing needs of communications service providers, or CSPs, evolving industry standards and frequent introductions of new products and services. In addition, on an ongoing basis we expect to be required to reposition our product and service offerings and introduce new products and services as we encounter rapidly changing CSP requirements and increasing competitive pressures. We may not be successful in doing so in a timely and responsive manner, or at all. As a result, it is difficult to forecast our future revenues and plan our operating expenses appropriately, which makes it difficult to predict our future operating results.

We have a history of losses, and we may not be able to generate positive operating income and positive cash flows in the future.

We have experienced net losses in each year of our existence. For the years ended December 31, 2016, December 31, 2015, and December 31, 2014, we incurred net losses of $27.4 million, $26.3 million, and $20.8 million, respectively. As of December 31, 2016, we had an accumulated deficit of $584.3 million.

We expect to continue to incur significant expenses and cash outlays for research and development, growth of our services operations, investments in innovative technologies, expansion of our product portfolio, sales and marketing, customer support and general and administrative functions as we expand our business and operations and target new customer segments, primarily larger CSPs including cable multiple system operators, or MSOs. Given our growth rate and the intense competitive pressures we face, we may be unable to control our operating costs.

We cannot guarantee that we will achieve profitability in the future. We will have to generate and sustain significant and consistent increased revenue, while continuing to control our expenses, in order to achieve and then maintain profitability. We may also incur significant losses in the future for a number of reasons, including the risks discussed in this "Risk Factors" section and other factors that we cannot anticipate. If we are unable to generate positive operating income and positive cash flows from operations, our liquidity, results of operations and financial condition will be adversely affected. If we are unable to generate cash flows to support our operational needs, we may need to seek other sources of liquidity, including borrowings, to support our working capital needs. In addition, we may choose to seek other sources of liquidity even if we believe we have generated sufficient cash flows to support our operational needs. There is no assurance that any other sources of liquidity may be available to us on acceptable terms or at all. If we are unable to generate sufficient cash flows or obtain other

sources of liquidity, we will be forced to limit our development activities, reduce our investment in growth initiatives and institute cost-cutting measures, all of which would adversely impact our business and growth.

Our quarterly and annual operating results may fluctuate significantly, which may make it difficult to predict our future performance and could cause the market price of our stock to decline.

A number of factors, many of which are outside of our control, may cause or contribute to significant fluctuations in our quarterly and annual operating results. These fluctuations may make financial planning and forecasting difficult. Comparing our operating results on a period-to-period basis may not be meaningful, and you should not rely on our past results as an indication of our future performance. If our revenue or operating results fall below the expectations of investors or securities analysts or below any guidance we may provide to the market, the market price of our stock would likely decline. Moreover, we may experience delays in recognizing revenue under applicable revenue-recognition rules. For example, revenues associated with large turnkey network improvement projects are generally deferred until customer acceptance is received and may be subject to delays, rework requirements and unexpected costs among other uncertainties. Certain government-funded contracts, such as those funded by U.S. Department of Agriculture's RUS, also include acceptance and administrative requirements that delay revenue recognition. The extent of these delays and their impact on our revenues can fluctuate considerably depending on the number and size of purchase orders under these contracts for a given time period. In addition, unanticipated decreases in our available liquidity due to fluctuating operating results could limit our growth and delay implementation of our expansion plans.

In addition to the other risk factors listed in this "Risk Factors" section, factors that have in the past and may continue to contribute to the variability of our operating results include:

- our ability to predict our revenue and reduce and control product costs;
- our ability to increase our sales to larger CSPs globally;
- the capital spending patterns of CSPs and any decrease or delay in capital spending by CSPs due to macro-economic conditions, regulatory uncertainties, or other reasons;
- the impact of government-sponsored programs on our customers;
- intense competition;
- our ability to develop new products or enhancements that support technological advances and meet changing CSP requirements;
- our ability to achieve market acceptance of our products and CSPs' willingness to deploy our new products;
- the concentration of our customer base;
- the length and unpredictability of our sales cycles and timing of orders;
- our focus on CSPs with limited revenue potential;
- our lack of long-term, committed-volume purchase contracts with our customers;
- our exposure to the credit risks of our customers;
- fluctuations in our gross margins;
- the interoperability of our products with CSP networks;
- our dependence on sole-, single- and limited-source suppliers;
- our ability to manage our relationships with our contract manufacturers and suppliers;
- our ability to forecast our manufacturing requirements and manage our inventory;
- our products' compliance with industry standards;
- our ability to expand our international operations;
- our ability to protect our intellectual property and the cost of doing so;
- the quality of our products, including any undetected hardware defects or bugs in our software;
- our ability to estimate future warranty obligations due to product failure rates;
- our ability to obtain necessary third-party technology licenses at reasonable costs;
- the regulatory and physical impacts of climate change and other natural events;
- the attraction and retention of qualified employees and key management personnel;
- our ability to build and sustain the proper information technology infrastructure; and
- our ability to maintain proper and effective internal controls.

Our business is dependent on the capital spending patterns of CSPs, and any decrease or delay in capital spending by CSPs in response to economic conditions, uncertainties associated with the implementation of regulatory reforms, or otherwise would reduce our revenues and harm our business.

Demand for our products depends on the magnitude and timing of capital spending by CSPs as they construct, expand, upgrade and maintain their access networks. Any future economic downturn may cause a slowdown in telecommunications industry spending, including in the specific geographies and markets in which we operate. In response to reduced consumer spending, challenging capital markets or declining liquidity trends, capital spending for network infrastructure projects of CSPs could be delayed or canceled. In addition, capital spending is cyclical in our industry, sporadic among individual CSPs and can change on short notice. As a result, we may not have visibility into changes in spending behavior until nearly the end of a given quarter.

CSP spending on network construction, maintenance, expansion and upgrades is also affected by reductions in their budgets, delays in their purchasing cycles, access to external capital (such as government grants and loan programs or the capital markets), and seasonality and delays in capital allocation decisions. For example, our CSP customers tend to spend less in the first fiscal quarter as they are still finalizing their annual budgets and in certain regions customers are also challenged by winter weather conditions that inhibit fiber deployment in outside plants. Also, softness in demand across any of our customer markets, including due to macro-economic conditions beyond our control or uncertainties associated with the implementation of regulatory reforms, has in the past and could in the future lead to unexpected slowdown in capital expenditures by service providers. In some countries where we do business, such as Russia, the weakened economy has

resulted in economic instability which has had negative effects, including a decrease in purchasing power due to currency devaluations, as well as generally more cautious purchasing decisions.

Many factors affecting our results of operations are beyond our control, particularly in the case of large CSP orders and network infrastructure deployments involving multiple vendors and technologies where the achievement of certain thresholds for acceptance is subject to the readiness and performance of the CSP or other providers and changes in CSP requirements or installation plans. Further, CSPs may not pursue infrastructure upgrades that require our access systems and software. Infrastructure improvements may be delayed or prevented by a variety of factors including cost, regulatory obstacles (including uncertainties associated with the implementation of regulatory reforms), mergers, lack of consumer demand for advanced communications services and alternative approaches to service delivery. Reductions in capital expenditures by CSPs, particularly CSPs that are significant customers, may have a material negative impact on our revenues and results of operations and slow our rate of revenue growth. As a consequence, our results for a particular period may be difficult to predict, and our prior results are not necessarily indicative of results in future periods.

Government-sponsored programs could impact the timing and buying patterns of CSPs, which may cause fluctuations in our operating results.

We sell to CSPs, which include U.S.-based Independent Operating Companies ("IOCs"), which have revenues that are particularly dependent upon interstate and intrastate access charges and federal and state subsidies. The Federal Communications Commission ("FCC") and some states may consider changes to such payments and subsidies, and these changes could reduce IOC revenues. Furthermore, many IOCs use or expect to use government-supported loan programs or grants, such as RUS loans and grants, to finance capital spending. Changes to these programs, including uncertainty from government and administrative change, could reduce the ability of IOCs to access capital and thus reduce our revenue opportunities.

Many of our customers were awarded grants or loans under government stimulus programs such as the Broadband Stimulus ("BBS") programs under the American Recovery and Reinvestment Act of 2009 ("ARRA") and the funds distributed under the FCC's CAF program, and have purchased and will continue to purchase products from us or other suppliers while such programs and funding are available. However, customers may substantially curtail future purchases of products as ARRA funding winds down or because all purchases have been completed. For example, the Broadband Initiatives Program administered by RUS ended on July 31, 2015, the date by which funded projects were to be completed.

Under the terms of a RUS equipment contract that includes installation services, the customer does not take possession and control and title does not pass until formal acceptance is obtained from the customer. Under this type of arrangement, we do not recognize revenue until we have received formal acceptance from the customer. The timing of revenue recognition related to the sales of our products to CSPs who have received RUS funds may create significant fluctuations in our revenue and operating results from period to period, which could harm our financial results for certain periods. In addition, any changes in government regulations and subsidies could cause our customers to change their purchasing decisions, which could have an adverse effect on our operating results and financial condition.

We face intense competition that could reduce our revenue and adversely affect our financial results.

The market for our products is highly competitive, and we expect competition from both established and new companies to increase. Our competitors include companies such as ADTRAN, Inc., Alcatel-Lucent S.A. (now part of Nokia), Arris Group, Inc., Ciena Corporation, Huawei Technologies Co. Ltd., ZTE Corporation and DASAN Zhone Solutions, Inc., among others.

Our ability to compete successfully depends on a number of factors, including:

- the successful development of new products;
- our ability to anticipate CSP and market requirements and changes in technology and industry standards;
- our ability to differentiate our products from our competitors' offerings based on performance, cost-effectiveness or other factors;
- our ongoing ability to successfully integrate acquired product lines and customer bases into our business;
- our ability to gain customer acceptance of our products; and
- our ability to market and sell our products.

The broadband access equipment market has undergone and continues to undergo consolidation, as participants have merged, made acquisitions or entered into partnerships or other strategic relationships with one another to offer more comprehensive solutions than they individually had offered. Examples include our acquisitions of Occam in February 2011 and Ericsson's fiber access assets in November 2012; Adtran's acquisition of Nokia Siemens's broadband access line business in May 2012; Arris's acquisitions of BigBand Networks in October 2011, Motorola Mobility's Home Unit from Google in December 2012 and Pace plc in January 2016; Nokia's acquisition of Alcatel-Lucent in January 2016; and the merger of DASAN Zhone Solutions with DASAN Network Solutions in September 2016. We expect this trend to continue as companies attempt to strengthen or maintain their market positions in an evolving industry.

Many of our current or potential competitors have longer operating histories, greater name recognition, larger customer bases and significantly greater financial, technical, sales, marketing and other resources than we do and are better positioned to acquire and offer complementary products and services. Many of our competitors have broader product lines and can offer bundled solutions, which may appeal to certain customers. Our competitors may also invest additional resources in developing more compelling product offerings. Potential customers may also prefer to purchase from their existing suppliers rather than a new supplier, regardless of product performance or features, because the products that we and our competitors offer require a substantial investment of time and funds to install.

Some of our competitors may offer substantial discounts or rebates to win new customers or to retain existing customers. If we are forced to reduce prices in order to secure customers, we may be unable to sustain gross margins at desired levels or achieve profitability. Competitive pressures 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 could reduce our revenue and adversely affect our financial results.

Product development is costly, and if we fail to develop new products or enhancements that meet changing CSP requirements, we could experience lower sales.

Our market is characterized by rapid technological advances, frequent new product introductions, evolving industry standards and unanticipated changes in subscriber requirements. Our future success will depend significantly on our ability to anticipate and adapt to such changes, and to offer, on a timely and cost-effective basis, products and features that meet changing CSP demands and industry standards. We intend to continue making significant investments in developing new products and enhancing the functionality of our existing products. Developing our products is expensive, complex and involves uncertainties. We may not have sufficient resources to successfully manage lengthy product development cycles. For the years ended December 31, 2016, 2015, and 2014, our research and development expenses were $106.9 million or 23% of our revenue, $89.7 million or 22% of our revenue, and $80.3 million or 20% of our revenue, respectively. We believe that we must continue to dedicate a significant amount of resources to our research and development efforts to maintain our competitive position. These investments may take several years to generate positive returns, if ever. In addition, we may experience design, manufacturing, marketing and other difficulties that could delay or prevent the development, introduction or marketing of new products and enhancements. If we fail to meet our development targets, demand for our products will decline.

In addition, the introduction of new or enhanced products also requires that we manage the transition from older products to these new or enhanced products in order to minimize disruption in customer ordering patterns, fulfill ongoing customer commitments and ensure that adequate supplies of new products are available for delivery to meet anticipated customer demand. If we fail to maintain compatibility with other software or equipment found in our customers' existing and planned networks, we may face substantially reduced demand for our products, which would reduce our revenue opportunities and market share. Moreover, as customers complete infrastructure deployments, they may require greater levels of service and support than we have provided in the past. We may not be able to provide products, services and support to compete effectively for these market opportunities. If we are unable to anticipate and develop new products or enhancements to our existing products on a timely and cost-effective basis, we could experience lower sales, which would harm our business.

Our new products are early in their life cycles and subject to uncertain market demand. If our customers are unwilling to install our new products or deploy our new services or we are unable to achieve market acceptance of our new products, our business and financial results will be harmed.

Our new products are early in their life cycles and subject to uncertain market demand. They also may face obstacles in manufacturing, deployment and competitive response. Potential customers may choose not to invest the additional capital required for initial system deployment of new products. In addition, demand for new products is dependent on the success of our customers in deploying and selling advanced services to their subscribers. Our products support a variety of advanced broadband services, such as high-speed Internet, Internet protocol television, mobile broadband, high-definition video and online gaming. If subscriber demand for such services does not grow as expected or declines or our customers are unable or unwilling to deploy and market these services, demand for our products may decrease or fail to grow at rates we anticipate.

Our customer base is concentrated, and there are a limited number of potential customers for our products. The loss of any of our key customers, a decrease in purchases by our key customers or our inability to grow our customer base would adversely impact our revenues.

Historically, a large portion of our sales has been to a limited number of customers. For example, one customer accounted for 21%, 22% and 23%, of our revenue for the years ended December 31, 2016, 2015, and 2014, respectively, and another customer accounted for 15% of our revenue for the year ended December 31, 2016. However, we cannot anticipate the level of purchases in the future by these customers. Any decrease or delay in purchases and/or capital expenditure plans of any of our key customers, or our inability to grow our sales with existing customers, may have a material negative impact on our revenues and results of operations.

We anticipate that a large portion of our revenues will continue to depend on sales to a limited number of customers. In addition, some larger customers may demand discounts and rebates or desire to purchase their access systems and software from multiple providers. As a result of these factors, our future revenue opportunities may be limited, our margins could be reduced, and our profitability may be adversely impacted. The loss of, or reduction in, orders from any key customer would significantly reduce our revenues and harm our business.

Furthermore, in recent years, the CSP market has undergone substantial consolidation. Industry consolidation generally has negative implications for equipment suppliers, including a reduction in the number of potential customers, a decrease in aggregate capital spending, and greater pricing leverage on the part of CSPs over equipment suppliers. Continued consolidation of the CSP industry and among the ILEC and IOC customers, who represent a large part of our business, could make it more difficult for us to grow our customer base, increase sales of our products and maintain adequate gross margins.

Our sales cycles can be long and unpredictable, and our sales efforts require considerable time and expense. As a result, our sales are difficult to predict and may vary substantially from quarter to quarter, which may cause our operating results to fluctuate significantly.

The timing of our revenues is difficult to predict. Our sales efforts often involve educating CSPs about the use and benefits of our products. CSPs typically undertake a significant evaluation process, which frequently involves not only our products but also those of our competitors and results in a lengthy sales cycle. Sales cycles for larger customers are relatively longer and require considerably more time and expense. We spend substantial time, effort and money in our sales efforts without any assurance that our efforts will produce sales. In addition, product purchases are frequently subject to budget constraints, multiple approvals and unplanned administrative, processing and other delays. The timing of revenues related to sales of products and services that have installation requirements may be difficult to predict due to interdependencies that may be beyond our control, such as CSP testing and turn-up protocols or other vendors' products, services or installations of equipment upon which our products and services rely. In addition, larger projects may have longer periods between project commencement and completion and recognition of revenues. Such delays may result in fluctuations in our quarterly revenues. If sales expected from a specific customer for a particular quarter are not realized in that quarter or at all, we may not achieve our revenue forecasts and our financial results would be adversely affected.

Our focus on CSPs with relatively small networks limits our revenues from sales to any one customer and makes our future operating results difficult to predict.

A large portion of our sales efforts continue to be focused on CSPs with relatively small networks, MSOs and selected international CSPs. Our current and potential customers generally operate small networks with limited capital expenditure budgets. Accordingly, we believe the potential revenues from the sale of our products to any one of these customers are limited. As a result, we must identify and sell products to new customers each quarter to continue to increase our sales. In addition, the spending patterns of many of our customers are characterized by small and sporadic purchases. As a consequence, we have limited backlog and will likely continue to have limited visibility into future operating results.

We do not have long-term, committed-volume purchase contracts with our customers, and therefore have no guarantee of future revenues from any customer.

We typically have not entered into long-term, committed-volume purchase contracts with our customers, including our key customers which account for a material portion of our revenues. As a result, any of our customers may cease to purchase our products at any time. In addition, our customers may attempt to renegotiate terms of sale, including price and quantity. If any of our key customers stop purchasing our access systems and software for any reason, our business and results of operations would be harmed.

Our efforts to increase our sales to CSPs globally, including MSOs, may be unsuccessful.

Our sales and marketing efforts have been focused on CSPs in North America. Part of our long-term strategy is to increase sales to CSPs globally, including MSOs. We have devoted and continue to devote substantial technical, marketing and sales resources to the pursuit of these larger CSPs, who have lengthy equipment qualification and sales cycles, without any assurance of generating sales. In particular, sales to these larger CSPs may require us to upgrade our products to meet more stringent performance criteria and interoperability requirements, develop new customer-specific features or adapt our product to meet international standards. For example, we have been recently invited by a large CSP to engage in initial testing and laboratory trials for our NG-PON2 technology along with our partner Ericsson. We have invested and expect to continue to invest considerable time, effort and expenditures, including investment in product research and development, related to this opportunity without any assurance that our efforts will produce orders or revenues. If we are unable to successfully increase our sales to larger CSPs, our operating results, financial condition, cash flows and long-term growth may be negatively impacted.

We are exposed to the credit risks of our customers; if we have inadequately assessed their creditworthiness, we may have more exposure to accounts receivable risk than we anticipate. Failure to collect our accounts receivable in amounts that we anticipate could adversely affect our operating results and financial condition.

In the course of our sales to customers, we may encounter difficulty collecting accounts receivable and could be exposed to risks associated with uncollectible accounts receivable. We maintain an allowance for doubtful accounts for estimated losses resulting from the inability or unwillingness of our customers to make required payments. However, these allowances are based on our judgment and a variety of factors and assumptions.

We perform credit evaluations of our customers' financial condition. However, our evaluation of the creditworthiness of customers may not be accurate if they do not provide us with timely and accurate financial information or if their situations change after we evaluate their credit. While we attempt to monitor these situations carefully, adjust our allowances for doubtful accounts as appropriate and take measures to collect accounts receivable balances, we have written down accounts receivable and written off doubtful accounts in prior periods and may be unable to avoid additional write-downs or write-offs of doubtful accounts in the future. Such write-downs or write-offs could negatively affect our operating results for the period in which they occur, and could harm our financial condition.

Our gross margins may fluctuate over time, and our current level of gross margins may not be sustainable.

Our current level of gross margins may not be sustainable and may be adversely affected by numerous factors, including:

- changes in customer, geographic or product mix, including the mix of configurations within each product group;
- increased price competition, including the impact of customer discounts and rebates;
- our ability to reduce and control product costs;
- changes in component pricing;
- changes in contract manufacturer rates;
- charges incurred due to inventory holding periods if parts ordering does not correctly anticipate product demand;
- introduction of new products;
- an increase in revenue mix toward services, which typically have lower margins;
- changes in shipment volume;
- changes in or increased reliance on distribution channels;
- increased expansion efforts into new or emerging markets;
- increased warranty costs;
- excess and obsolete inventory and inventory holding charges;
- expediting costs incurred to meet customer delivery requirements; and
- potential costs associated with contractual liquidated damages obligations.

An increase in revenue mix towards services will adversely affect our gross margins.

Customers are demanding greater professional and support services for our products, which usually have a lower gross margin than product purchases. In particular, we have experienced increased demand for professional services associated with network improvement projects, which typically are turnkey projects whereby we supply products and related professional services such as network planning, product installation, testing and network turn up. Revenue recognized from such professional services may be delayed because of the timing of completion and acceptance of a project or milestone, including third party delays that may be outside our control. Additionally, if we are unable to meet project deadlines for professional and support services due to our suppliers' inability to meet our demands for components or for any other reasons, we will incur additional costs, including higher premiums to source necessary components, additional costs and expedite fees to meet project deadlines, all of which would negatively impact our gross margins. Furthermore, as we grow our professional service business to meet customer demand, we incur ramp up costs and we may not achieve the desired efficiencies as we ramp and scale our professional services business. Increases in professional services as a proportion of our revenue mix have resulted in lower overall gross margins and may continue to result in lower overall gross margins in future periods. This negative impact on gross margins is exacerbated in periods where we experience higher pace of activities for professional services project due to project requirements and customer deadlines. Moreover, the increase in our professional services projects has resulted in increased deferred costs, including costs directly associated with the delivery of the professional services for the arrangement, that are recognized as cost of revenue only when all revenue recognition criteria are met for the arrangement. In the event some or all of such deferred costs are deemed unrecoverable, including as a result of cost overruns, we will incur additional charges to cost of revenue in the period such deferred costs are determined to be unrecoverable. Any charge to cost of revenue for deferred costs determined to be unrecoverable would negatively impact our gross margins.

Our products must interoperate with many software applications and hardware products found in our customers' networks. If we are unable to ensure that our products interoperate properly, our business would be harmed.

Our products must interoperate with our customers' existing and planned networks, which often have varied and complex specifications, utilize multiple protocol standards, include software applications and products from multiple vendors and contain multiple generations of products that have been added over time. As a result, we must continually ensure that our products interoperate properly with these existing and planned networks. To meet these requirements, we must undertake development efforts that require substantial capital investment and employee resources. We may not accomplish these development goals quickly or cost-effectively, if at all. If we fail to maintain compatibility with other software or equipment found in our customers' existing and planned networks, we may face substantially reduced demand for our products, which would reduce our revenue opportunities and market share.

We have entered into interoperability arrangements with a number of equipment and software vendors for the use or integration of their technology with our products. These arrangements give us access to and enable interoperability with various products that we do not otherwise offer. If these relationships fail, we may have to devote substantially more resources to the development of alternative products and processes and our efforts may not be as effective as the combined solutions under our current arrangements. In some cases, these other vendors are either companies that we compete with directly or companies that have extensive relationships with our existing and potential customers and may have influence over the purchasing decisions of those customers. Some of our competitors have stronger relationships with some of our existing and other potential interoperability partners, and as a result, our ability to have successful interoperability arrangements with these companies may be harmed. Our failure to establish or maintain key relationships with third-party equipment and software vendors may harm our ability to successfully sell and market our products.

We do not have manufacturing capabilities, and therefore we depend upon a small number of outside contract manufacturers. We do not have supply contracts with all of these contract manufacturers; consequently, our operations could be disrupted if we encounter problems with any of these contract manufacturers.

We do not have internal manufacturing capabilities and rely upon a small number of contract manufacturers to build our products. In particular, we rely on Flex Ltd., formerly Flextronics ("Flex") for the manufacture of most of our products. Our reliance on a small number of contract manufacturers makes us vulnerable to possible capacity constraints and reduced control over component availability, delivery schedules, manufacturing yields and costs.

We do not have supply contracts with some of our contract manufacturers. Consequently, these contract manufacturers are not obligated to supply products to us for any specific period, in any specific quantity or at any certain price. In addition, we have limited control over our contract manufacturers' quality systems and controls, and therefore may not be able to ensure levels of quality manufacture suitable for our customers.

The revenues that Flex and other contract manufacturers generate from our orders represent a relatively small percentage of those manufacturers' overall revenues. As a result, fulfilling our orders may not be considered a priority if such manufacturers are constrained in their ability to fulfill all of their customer obligations in a timely manner. In addition, a substantial part of our manufacturing is done in our contract manufacturer facilities that are located outside of the United States. We believe that the location of these facilities outside of the United States increases supply risk, including the risk of supply interruptions or reductions in manufacturing quality or controls. Moreover, the administration of United States President Donald Trump may create further uncertainty regarding export or import regulations, economic sanctions or related legislation, which could result in disruption in our operations with our contract manufacturers.

If Flex or any of our other contract manufacturers were unable or unwilling to continue manufacturing our products in required volumes and at high quality levels, we would have to identify, qualify and select acceptable alternative contract manufacturers. An alternative contract manufacturer may not be available to us when needed or may not be in a position to satisfy our production requirements at commercially reasonable prices and quality. Any significant interruption in manufacturing would require us to reduce our supply of products to our customers, which in turn would reduce our revenues and harm our relationships with our customers.

We and our business partners, including our contract manufacturers and suppliers, depend on sole-source, single-source and limited-source suppliers for some key components. If we and our business partners are unable to source these components on a timely basis, we will not be able to deliver our products to our customers.

We and our business partners, including our contract manufacturers and suppliers, depend on sole-source, single-source and limited-source suppliers for some key components of our products. For example, certain of our application-specific integrated circuit processors and resistor networks are purchased from sole-source suppliers.

Any of the sole-source, single-source and limited-source suppliers upon whom we or our business partners rely could stop producing our components, cease operations, or enter into exclusive arrangements with our competitors. In addition, purchase volumes of such components may be too low for Calix to be considered a priority customer by these suppliers. As a result, these suppliers could stop selling to us and our business partners at commercially reasonable prices, or at all. Any such interruption or delay may force us and our business partners to seek similar components from alternative sources, which may not be available. Switching suppliers could also require that we redesign our products to accommodate new components, and could require us to re-qualify our products with our customers, which would be costly and time-consuming. Any interruption in the supply of sole-source, single-source or limited-source components for our products would adversely affect our ability to meet scheduled product deliveries to our customers, could result in lost revenue or higher expenses and would harm our business.

We utilize domestic and international third parties to design and manufacture certain of our products. If these manufacturers fail to provide these products, we could incur additional costs and delays or lose revenue.

From time to time we enter into original design manufacturer ("ODM") and original equipment manufacturer ("OEM") agreements for the design and manufacture of certain products in order to enable us to offer products on an accelerated basis. For example, a third party assisted in the design of and currently manufactures portions of our E-series systems and nodes family. If any of these ODMs or OEMs stop producing these products, for any reason, we would have to obtain similar products from alternative sources, which may not be available on commercially reasonable terms, if at all. We also have limited control over disruptions, such as supply interruptions or manufacturing quality, that may occur at ODM and OEM facilities located outside of the United States. In addition, switching manufacturers could require us to re-qualify our products with our customers, which would also be costly and time-consuming. Any interruption in the supply of products would adversely affect our ability to meet scheduled product deliveries to our customers, could result in lost revenue or higher expenses and would harm our business.

If we fail to forecast our manufacturing requirements accurately or fail to properly manage our inventory with our contract manufacturers, we could incur additional costs, experience manufacturing delays and lose revenue.

We bear inventory risk under our contract manufacturing arrangements and our ODM and OEM agreements. Lead times for the materials and components that we order through our manufacturers vary significantly and depend on numerous factors, including the specific supplier, contract terms and market demand for a component at a given time. Lead times for certain key materials and components incorporated into our products are currently lengthy, requiring our manufacturers to order materials and components several months in advance of manufacture.

If we overestimate our production requirements, our manufacturers may purchase excess components and build excess inventory. If our manufacturers, at our request, purchase excess components that are unique to our products or build excess products, we could be required to pay for these excess parts or products and their storage costs. Historically, we have reimbursed our primary contract manufacturers for a portion of inventory purchases when our inventory has been rendered excess or obsolete. Examples of when inventory may be rendered excess or obsolete include manufacturing and engineering change orders resulting from design changes or in cases where inventory levels greatly exceed projected demand. If we incur payments to our manufacturers associated with excess or obsolete inventory, this would have an adverse effect on our gross margins, financial condition and results of operations.

We have experienced unanticipated increases in demand from customers, which resulted in delayed shipments and variable shipping patterns. If we underestimate our product requirements, our manufacturers may have inadequate component inventory, which could interrupt manufacturing of our products and result in delays or cancellation of sales.

As the market for our products evolves, changing customer requirements may adversely affect the valuation of our inventory.

Customer demand for our products can change rapidly in response to market and technology developments. Demand can be affected not only by customer- or market-specific issues, but also by broader economic and/or geopolitical factors. We may, from time to time, adjust inventory valuations downward in response to our assessment of demand from our customers for specific products or product lines.

If we fail to comply with evolving industry standards, sales of our existing and future products would be adversely affected.

The markets for our products are characterized by a significant number of standards, both domestic and international, which are evolving as new technologies are developed and deployed. As we expand into adjacent markets and increase our international footprint, we are likely to encounter additional standards. Our products must comply with these standards in order to be widely marketable. In some cases, we are compelled to obtain certifications or authorizations before our products can be introduced, marketed or sold in new markets or to customers that we have not historically served. For example, our ability to maintain Operations System Modification for Intelligent Network Elements ("OSMINE") certification for our products will affect our ongoing ability to continue to sell our products to Tier 1 CSPs.

In addition, our ability to expand our international operations and create international market demand for our products may be limited by regulations or standards adopted by other countries that may require us to redesign our existing products or develop new products suitable for sale in those countries. Although we believe our products are currently in compliance with domestic and international standards and regulations in countries in which we currently sell, we may not be able to design our products to comply with evolving standards and

regulations in the future. This ongoing evolution of standards may directly affect our ability to market or sell our products. Further, the cost of complying with the evolving standards and regulations or the failure to obtain timely domestic or foreign regulatory approvals or certification could prevent us from selling our products where these standards or regulations apply, which would result in lower revenues and lost market share.

We may be unable to successfully expand our international operations. In addition, we may be subject to a variety of international risks that could harm our business.

We currently generate most of our sales from customers in North America and have limited experience marketing, selling and supporting our products and services outside North America or managing the administrative aspects of a worldwide operation. While we are in the process of expanding our international operations, we may not be able to create or maintain international market demand for our products. In addition, as we 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. If we invest substantial time and resources to expand our international operations and are unable to do so successfully and in a timely manner, our business, financial condition and results of operations will suffer.

In the course of expanding our international operations and operating overseas, we will be subject to a variety of risks, including:

- differing regulatory requirements, including tax laws, trade laws, data privacy laws, labor regulations, tariffs, export quotas, custom duties or other trade restrictions;
- liability or damage to our reputation resulting from corruption or unethical business practices;
- fluctuation in currency exchange rates;
- longer collection periods and difficulties in collecting accounts receivable;
- greater difficulty supporting and localizing our products;
- different or unique competitive pressures as a result of, among other things, the presence of local equipment suppliers;
- challenges inherent in efficiently managing an increased number of employees over large geographic distances, including the need to implement appropriate systems, policies, and compensation, benefits and compliance programs;
- limited or unfavorable intellectual property protection;
- risk of change in international political or economic conditions, terrorist attacks or acts of war; and
- restrictions on the repatriation of earnings.

We engage resellers to promote, sell, install and support our products to some customers in North America and internationally. Their failure to do so or our inability to recruit or retain appropriate resellers may reduce our sales and thus harm our business.

We engage some value added resellers ("VARs"), who provide sales and support services for our products. In particular, the non-exclusive reseller agreement entered into with Ericsson in 2012 has provided us with an extensive global reseller channel. More recently we have partnered with Ericsson on larger customer opportunities. We compete with other telecommunications systems providers for our VARs' business and many of our VARs, including Ericsson, are free to market competing products. Our use of VARs and other third-party support partners and the associated risks of doing so are likely to increase as we expand sales outside of North America. If Ericsson or any other VAR promotes a competitor's products to the detriment of our products or otherwise fails to market our products and services effectively, we could lose market share. In addition, the loss of a key VAR or the failure of VARs to provide adequate customer service could have a negative effect on customer satisfaction and could cause harm to our business. If we do not properly recruit and train VARs to sell, install and service our products, our business, financial condition and results of operations may suffer.

The results of the United Kingdom's referendum on withdrawal from the European Union may have a negative effect on global economic conditions, financial markets and our business.

In June 2016, a majority of voters in the United Kingdom elected to withdraw from the European Union in a national referendum. The referendum was advisory, and the terms of any withdrawal are subject to a negotiation period that could last at least two years after the government of the United Kingdom formally initiates a withdrawal process. Nevertheless, the referendum has created significant uncertainty about the future relationship between the United Kingdom and the European Union, including with respect to the laws and regulations that will apply as the United Kingdom determines which European Union laws to replace or replicate in the event of a withdrawal. The referendum has also given rise to calls for the governments of other European Union member states to consider withdrawal. These developments, or the perception that any of them could occur, have had and may continue to have a material adverse effect on global economic conditions and the stability of global financial markets, and may significantly reduce global market liquidity and restrict the ability of key market participants to operate in certain financial markets. Any of these factors could depress economic activity and restrict our access to capital, or the access to capital of our customers or partners, which could have a material adverse effect on our business, financial condition and results of operations and reduce the price of our securities.

We may have difficulty evolving and scaling our business and operations to meet customer and market demand, which could result in lower profitability or cause us to fail to execute on our business strategies.

In order to grow our business, we believe we will need to continually evolve and scale our business and operations to meet customer and market demand. Evolving and scaling our business and operations place increased demands on our management as well as our financial and operational resources to effectively:

- manage organizational change;
- manage a larger organization;
- accelerate and/or refocus research and development activities;
- expand our manufacturing, supply chain and distribution capacity;
- increase our sales and marketing efforts;

- broaden our customer-support and services capabilities;
- maintain or increase operational efficiencies;
- scale support operations in a cost-effective manner;
- implement appropriate operational and financial systems; and
- maintain effective financial disclosure controls and procedures.

If we cannot evolve and scale our business and operations effectively, we may not be able to execute our business strategies in a cost-effective manner and our business, financial condition, profitability and results of operations would be adversely affected.

We may not be able to protect our intellectual property, which could impair our ability to compete effectively.

We depend on certain proprietary technology for our success and ability to compete. We rely on intellectual property laws as well as nondisclosure agreements, licensing arrangements and confidentiality provisions to establish and protect our proprietary rights. U.S. patent, copyright and trade secret laws afford us only limited protection, and the laws of some foreign countries do not protect proprietary rights to the same extent. Our pending patent applications may not result in issued patents, and our issued patents may not be enforceable. Any infringement of our proprietary rights could result in significant litigation costs. Further, any failure by us to adequately protect our proprietary rights could result in our competitors offering similar products, resulting in the loss of our competitive advantage and decreased sales.

Despite our efforts to protect our proprietary rights, attempts may be made to copy or reverse engineer aspects of our products or to obtain and use information that we regard as proprietary. Accordingly, we may be unable to protect our proprietary rights against unauthorized third-party copying or use. Furthermore, policing the unauthorized use of our intellectual property is difficult and costly. Litigation may be necessary in the future to enforce our intellectual property rights, to protect our trade secrets or to determine the validity and scope of the proprietary rights of others. Litigation could result in substantial costs, diversion of resources and harm to our business.

We could become subject to litigation regarding intellectual property rights that could harm our business.

We may be subject to intellectual property infringement claims that are costly to defend and could limit our ability to use some technologies in the future. Third parties may assert patent, copyright, trademark or other intellectual property rights to technologies or rights that are important to our business. Such claims may originate from non-practicing entities, patent holding companies or other adverse patent owners who have no relevant product revenue, and therefore, our own issued and pending patents may provide little or no deterrence to suit from these entities.

We have received in the past and expect that in the future we may receive communications from competitors and other companies alleging that we may be infringing their patents, trade secrets or other intellectual property rights; offering licenses to such intellectual property; threatening litigation or requiring us to act as a third-party witness in litigation. In addition, we have agreed, and may in the future agree, to indemnify our customers for expenses or liabilities resulting from certain claimed infringements of patents, trademarks or copyrights of third parties. Any claims asserting that our products infringe the proprietary rights of third parties, with or without merit, could be time-consuming, result in costly litigation and divert the efforts of our engineering teams and management. These claims could also result in product shipment delays or require us to modify our products or enter into royalty or licensing agreements. Such royalty or licensing agreements, if required, may not be available to us on acceptable terms, if at all.

The quality of our support and services offerings is important to our customers, and if we fail to continue to offer high quality support and services, we could lose customers, which would harm our business.

Once our products are deployed within our customers' networks, they depend on our support organization to resolve any issues relating to those products. A high level of support is critical for the successful marketing and sale of our products. If we do not effectively assist our customers in deploying our products, succeed in helping them quickly resolve post-deployment issues or provide effective ongoing support, it could adversely affect our ability to sell our products to existing customers and harm our reputation with potential new customers. As a result, our failure to maintain high quality support and services could result in the loss of customers, which would harm our business.

Our products are highly technical and may contain undetected hardware defects or software bugs, which could harm our reputation and adversely affect our business.

Our products are highly technical and when deployed, are critical to the operation of many networks. Our products have contained and may contain undetected defects, bugs or security vulnerabilities. Some defects in our products may only be discovered after a product has been installed and used by customers, and may in some cases only be detected under certain circumstances or after extended use. Any errors, bugs, defects or security vulnerabilities discovered in our products after commercial release could result in loss of revenues or delay in revenue recognition, loss of customers and increased service and warranty cost, any of which could adversely affect our business, operating results and financial condition. In addition, we could face claims for product liability, tort or breach of warranty. 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 adversely affect 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.

Our estimates regarding future warranty or product obligations may change due to product failure rates, shipment volumes, field service obligations and rework costs incurred in correcting product failures. If our estimates change, the liability for warranty or product obligations may be increased, impacting future cost of revenue.

Our products are highly complex, and our product development, manufacturing and integration testing may not be adequate to detect all defects, errors, failures and quality issues. Quality or performance problems for products covered under warranty could adversely impact our reputation and negatively affect our operating results and financial position. The development and production of new products with high complexity often involves problems with software, components and manufacturing methods. If significant warranty or other product obligations arise due to reliability or quality issues arising from defects in software, faulty components or improper manufacturing methods, our operating results and financial position could be negatively impacted by:

- cost associated with fixing software or hardware defects;
- high service and warranty expenses;
- high inventory obsolescence expense;
- delays in collecting accounts receivable;
- payment of liquidated damages for performance failures; and
- declining sales to existing customers.

Our use of open source software could impose limitations on our ability to commercialize our products.

We incorporate open source software into our products. Although we closely monitor our use of open source software, the terms of many open source software licenses have not been interpreted by the courts, and there is a risk that such licenses could be construed in a manner that could impose unanticipated conditions or restrictions on our ability to sell our products. In such event, we could be required to make our proprietary software generally available to third parties, including competitors, at no cost, to seek licenses from third parties in order to continue offering our products, to re-engineer our products or to discontinue the sale of our products in the event re-engineering cannot be accomplished on a timely basis or at all, any of which could adversely affect our revenues and operating expenses.

If we are unable to obtain necessary third-party technology licenses, our ability to develop new products or product enhancements may be impaired.

While our current licenses of third-party technology generally relate to commercially available off-the-shelf technology, we may from time to time be required to license additional technology from third parties to develop new products or product enhancements. These third-party licenses may be unavailable to us on commercially reasonable terms, if at all. Our inability to obtain necessary third-party licenses may force us to obtain substitute technology of lower quality or performance standards or at greater cost, or may increase the time-to-market of our products or product enhancements, any of which could harm the competitiveness of our products and result in lost revenues.

Our ability to incur debt and the use of our funds could be limited by the restrictive covenants in our loan agreement for our revolving credit facility.

Our Credit Agreement with Bank of America, N.A. provides for a revolving credit facility that contains restrictive covenants, as well as requirements to comply with certain leverage and other financial maintenance tests. These restrictive covenants and requirements limit the amount of borrowings that are available to us. We have incurred operating losses in recent quarters and, if we continue to incur operating losses, we will not be able to make any borrowing under the terms of the Credit Agreement. The Credit Agreement covenants may also affect our ability to obtain future financing and to pursue attractive business opportunities and our flexibility in planning for, and reacting to, changes in business conditions. These covenants could place us at a disadvantage compared to some of our competitors, who may have fewer restrictive covenants and may not be required to operate under these restrictions.

Our failure or the failure of our manufacturers to comply with environmental and other legal regulations could adversely impact our results of operations.

The manufacture, assembly and testing of our products may require the use of hazardous materials that are subject to environmental, health and safety regulations, or materials subject to laws restricting the use of conflict minerals. Our failure or the failure of our contract manufacturers, ODMs and OEMs to comply with any of these requirements could result in regulatory penalties, legal claims or disruption of production. In addition, our failure or the failure of our manufacturers to properly manage the use, transportation, emission, discharge, storage, recycling or disposal of hazardous materials could subject us to increased costs or liabilities. Existing and future environmental regulations and other legal requirements may restrict our use of certain materials to manufacture, assemble and test products. Any of these consequences could adversely impact our results of operations by increasing our expenses and/or requiring us to alter our manufacturing processes.

Regulatory and physical impacts of climate change and other natural events may affect our customers and our contract manufacturers, resulting in adverse effects on our operating results.

As emissions of greenhouse gases continue to alter the composition of the atmosphere, affecting large-scale weather patterns and the global climate, any new regulation of greenhouse gas emissions may result in additional costs to our customers and our contract manufacturers. In addition, the physical impacts of climate change and other natural events, including changes in weather patterns, drought, rising ocean and temperature levels, earthquakes and tsunamis may impact our customers, suppliers, contract manufacturers, and our operations. These potential physical effects may adversely affect our revenues, costs, production and delivery schedules, and cause harm to our results of operations and financial condition.

We have in the past pursued, and may in the future continue to pursue, acquisitions which involve a number of risks and uncertainties. If we are unable to address and resolve these risks and uncertainties successfully, such acquisitions could disrupt our business and result in higher costs than we anticipate.

We acquired Occam Networks in 2011 and Ericsson's fiber access assets in 2012. We may in the future acquire other businesses, products or technologies to expand our product offerings and capabilities, customer base and business. We have evaluated and expect to continue to evaluate a wide array of potential strategic transactions. We have limited experience making such acquisitions or integrating these businesses after such acquisitions. Unanticipated costs to us from these historical transactions as well as both anticipated and unanticipated costs to us related to any future transactions could exceed amounts that are covered by insurance and could have a material adverse impact on our financial condition and results of operations. For example, the Occam acquisition resulted in litigation with defense costs that were in excess of available Directors & Officers liability insurance coverage, including costs for which coverage was denied by our insurance carriers. Although the Delaware Court of Chancery approved a global settlement on the matter at a hearing on August 26, 2016 and, on September 7, 2016, issued its Order and Final Judgment, terminating the case before the court, our indemnity obligations, including our defense costs, in excess of such insurance coverage have been material, as described further in Note 6, "Commitments and Contingencies - Litigation" of the Notes to Consolidated Financial Statements included in Part II, Item 8 of this Annual Report on Form 10-K. In addition, the anticipated benefit of any acquisitions we do may never materialize or the process of integrating acquired businesses, products or technologies may create unforeseen operating difficulties and expenditures.

Some of the areas where we have experienced and may in the future experience acquisition-related risks include:

- expenses and distractions, including diversion of management time related to litigation;
- expenses and distractions related to potential claims resulting from any possible future acquisitions, whether or not they are completed;
- retaining and integrating employees from acquired businesses;
- issuance of dilutive equity securities or incurrence of debt;
- integrating various accounting, management, information, human resource and other systems to permit effective management;
- incurring possible write-offs, impairment charges, contingent liabilities, amortization expense of intangible assets or impairment of goodwill and intangible assets with finite useful lives;
- difficulties integrating and supporting acquired products or technologies;
- unexpected capital expenditure requirements;
- insufficient revenues to offset increased expenses associated with the acquisition; and
- opportunity costs associated with committing capital to such acquisitions.

If our goodwill or intangible assets with finite useful lives become impaired, we may be required to record a significant charge to earnings. We review our goodwill and intangible assets with finite useful lives for impairment when events or changes in circumstances indicate the carrying value may not be recoverable, such as a sustained or significant decline in stock price and market capitalization. We test goodwill for impairment at least annually. If the carrying values of such assets were deemed to be impaired, an impairment loss equal to the amount by which the carrying amount exceeds the estimated fair value would be recognized. Any such impairment could materially and adversely affect our financial condition and results of operations.

Foreign acquisitions would involve risks in addition to those mentioned above, including those related to integration of operations across different cultures and languages, currency risks and the particular economic, political and regulatory risks associated with specific countries. We may not be able to address these risks and uncertainties successfully, or at all, without incurring significant costs, delays or other operating problems.

Our inability to address or anticipate any of these risks and uncertainties could disrupt our business and could have a material impact on our financial condition and results of operations.

Our use of and reliance upon development resources in China may expose us to unanticipated costs or liabilities.

We operate a wholly foreign owned enterprise in Nanjing, China, where a dedicated team of engineers performs product development, quality assurance, cost reduction and other engineering work. We also outsource a portion of our software development to a team of software engineers based in Shenyang, China. Our reliance upon development resources in China may not enable us to achieve meaningful product cost reductions or greater resource efficiency. Further, our development efforts and other operations in China involve significant risks, including:

- difficulty hiring and retaining appropriate engineering resources due to intense competition for such resources and resulting wage inflation;
- the knowledge transfer related to our technology and exposure to misappropriation of intellectual property or confidential information, including information that is proprietary to us, our customers and third parties;
- heightened exposure to changes in the economic, security and political conditions of China;
- fluctuation in currency exchange rates and tax risks associated with international operations;
- development efforts that do not meet our requirements because of language, cultural or other differences associated with international operations, resulting in errors or delays; and
- uncertainty with regards to actions the Trump administration may take with respect to international trade agreements and U.S. tax provisions related to international commerce that could adversely affect our international operations.

Difficulties resulting from the factors above and other risks related to our operations in China could expose us to increased expense, impair our development efforts, harm our competitive position and damage our reputation.

Our customers are subject to government regulation, and changes in current or future laws or regulations that negatively impact our customers could harm our business.

The FCC has jurisdiction over all of our U.S. customers. FCC regulatory policies that create disincentives for investment in access network infrastructure or impact the competitive environment in which our customers operate may harm our business. For example, future FCC regulation affecting providers of broadband Internet access services could impede the penetration of our customers into certain markets or affect the prices they may charge in such markets. Similarly, changes to regulatory tariff requirements or other regulations relating to pricing or terms of carriage on communication networks could slow the development or expansion of network infrastructures. Consequently, such changes could adversely affect the sale of our products and services. Furthermore, many of our customers are subject to FCC rate regulation of interstate telecommunications services and are recipients of CAF capital incentive payments, which are intended to subsidize broadband and telecommunications services in areas that are expensive to serve. Changes to these programs, rules and regulations that could affect the ability of IOCs to access capital, and which could in turn reduce our revenue opportunities, remain possible.

In addition, many of our customers are subject to state regulation of intrastate telecommunications services, including rates for such services, and may also receive funding from state universal service funds. Changes in rate regulations or universal service funding rules, either at the U.S. federal or state level, could adversely affect our customers' revenues and capital spending plans. Moreover, various international regulatory bodies have jurisdiction over certain of our non-U.S. customers. Changes in these domestic and international standards, laws and regulations, or judgments in favor of plaintiffs in lawsuits against CSPs based on changed standards, laws and regulations could adversely affect the development of broadband networks and services. This, in turn, could directly or indirectly adversely impact the communications industry in which our customers operate.

Many jurisdictions, including international governments and regulators, are also evaluating, implementing and enforcing regulations relating to cyber security, privacy and data protection, which can affect the market and requirements for networking and communications equipment. To the extent our customers are adversely affected by laws or regulations regarding their business, products or service offerings, our business, financial condition and results of operations would suffer.

Privacy concerns relating to our products and services could affect our business practices, damage our reputation and deter customers from purchasing our products and services.

Government and regulatory authorities in the United States and around the world have implemented and are continuing to implement laws and regulations concerning data protection. For example, in July 2016, the European Commission adopted the EU-U.S. Privacy Shield to replace Safe Harbor as a compliance mechanism for the transfer of personal data from the European Union to the United States. The interpretation and application of these data protection laws and regulations are often uncertain and in flux, and it is possible that they may be interpreted and applied in a manner that is inconsistent with our data practices. Complying with these various laws could cause us to incur substantial costs or require us to change our business practices in a manner adverse to our business.

Concerns about or regulatory actions involving our practices with regard to the collection, use, disclosure, or security of customer information or other privacy related matters, even if unfounded, could damage our reputation and adversely affect operating results. While we strive to comply with all data protection laws and regulations, the failure or perceived failure to comply may result in inquiries and other proceedings or actions against us by government entities or others, or could cause us to lose customers, which could potentially have an adverse effect on our business.

Interruptions, failures or material breaches in our information technology and communications systems could harm our business, customer relations and financial condition.

Information technology helps us operate efficiently, interface with and provide software solutions to customers, maintain financial accuracy and efficiency and accurately produce our financial statements. If we do not allocate and effectively manage the resources necessary to build and sustain the proper technology infrastructure, we could be subject to transaction errors, processing inefficiencies, the loss of customers, business disruptions or the loss of or damage to intellectual property through security breach. If our data management systems do not effectively collect, store, process and report relevant data for the operation of our business, whether due to equipment malfunction or constraints, software deficiencies or human error, our ability to effectively plan, forecast and execute our business plan and comply with laws and regulations will be impaired, perhaps materially. Any such impairment could materially and adversely affect our financial condition, results of operations, cash flows and the timeliness with which we internally and externally report our operating results.

We have applied multiple layers of security to control access to our information technology systems. We also use encryption and authentication technologies to secure the transmission and storage of data. These security measures may be compromised as a result of third-party security breaches, employee error, malfeasance, faulty password management or other irregularity, and result in persons obtaining unauthorized access to our data or accounts. Third parties may attempt to fraudulently induce employees into disclosing user names, passwords or other sensitive information, which may in turn be used to access our information technology systems.

While we seek to apply best practice policies and devote significant resources to network security, data encryption and other security measures to protect our information technology and communications systems and data, these security measures cannot provide absolute security. We may experience a breach of our systems and be unable to protect sensitive data. The costs to us to eliminate or alleviate network security problems, bugs, viruses, worms, malicious software programs and security vulnerabilities could be significant, and our efforts to address these problems may not be successful and could result in unexpected interruptions, delays and cessation of service which may harm our business operations.

Although our systems have been designed around industry-standard architectures to reduce downtime in the event of outages or catastrophic occurrences, they remain vulnerable to damage or interruption from earthquakes, floods, fires, power loss, telecommunication failures, terrorist attacks, cyber-attacks, viruses, denial-of-service attacks, human error, hardware or software defects or malfunctions, and similar events or disruptions. Some of our systems are not fully redundant, and our disaster recovery planning is not sufficient for all eventualities. Our systems are also subject to break-ins, sabotage, and intentional acts of vandalism. Despite any precautions we may take, the occurrence of a natural disaster, a decision by any of our third-party hosting providers to close a facility we use without adequate notice for financial or other reasons, or other unanticipated problems at our hosting facilities could cause system interruptions and delays which may result in loss of critical data and lengthy interruptions in our services.

We are subject to governmental export and import controls that could subject us to liability or impair our ability to compete in additional international markets.

Our products are subject to U.S. export and trade controls and restrictions. International shipments of certain of our products may require export licenses or are subject to additional requirements for export. In addition, the import laws of other countries may limit our ability to distribute our products, or our customers' ability to buy and use our products, in those countries. Changes in our products or changes in export and import regulations or duties may create delays in the introduction of our products in international markets, prevent our customers with international operations from deploying our products or, in some cases, prevent the export or import of our products to certain countries altogether. Any change in export or import regulations, duties or related legislation, shift in approach to the enforcement or scope of existing regulations, or change in the countries, persons or technologies targeted by such regulations, could negatively impact our ability to sell, profitably or at all, our products to existing or potential international customers.

If we lose any of our key personnel, or are unable to attract, train and retain qualified personnel, our ability to manage our business and continue our growth would be negatively impacted.

Our success depends, in large part, on the continued contributions of our key management, engineering, sales and marketing personnel, many of whom are highly skilled and would be difficult to replace. None of our senior management or key technical or sales personnel is bound by a written employment contract to remain with us for a specified period. In addition, we do not currently maintain key person life insurance covering our key personnel. If we lose the services of any key personnel, our business, financial condition and results of operations may suffer.

Competition for skilled personnel, particularly those specializing in engineering and sales, is intense. We cannot be certain that we will be successful in attracting and retaining qualified personnel, or that newly hired personnel will function effectively, both individually and as a group. In particular, we must continue to expand our direct sales force, including hiring additional sales managers, to grow our customer base and increase sales. If we are unable to effectively recruit, hire and utilize new employees, execution of our business strategy and our ability to react to changing market conditions may be impeded, and our business, financial condition and results of operations may suffer.

Volatility or lack of performance in our stock price may also affect our ability to attract and retain our key personnel. Our executive officers and employees hold a substantial number of shares of our common stock and vested stock options. Employees may be more likely to leave us if the shares they own or the shares underlying their equity awards decline in value, or if the exercise prices of stock options that they hold are significantly above the market price of our common stock. If we are unable to retain our employees, our business, operating results and financial condition will be harmed.

If we fail to maintain proper and effective internal controls, our ability to produce accurate financial statements on a timely basis could be impaired, which would adversely affect our operating results, our ability to operate our business and our stock price.

Ensuring that we have adequate internal financial and accounting controls and procedures in place to produce accurate financial statements on a timely basis is a costly and time-consuming effort that needs to be re-evaluated frequently. We have in the past discovered, and may in the future discover areas of our internal financial and accounting controls and procedures that need improvement.

Our management is responsible for establishing and maintaining adequate internal control over financial reporting to provide reasonable assurance regarding the reliability of our financial reporting and the preparation of financial statements for external purposes in accordance with U.S. generally accepted accounting principles. Our management does not expect that our internal control over financial reporting will prevent or detect all error and all fraud. A control system, no matter how well designed and operated, can provide only reasonable, not absolute, assurance that the control system's objectives will be met. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that misstatements due to error or fraud will not occur or that all control issues and instances of fraud, if any, within our company will have been detected.

We are required to comply with Section 404 of the Sarbanes-Oxley Act ("SOX"), which requires us to expend significant resources in developing the required documentation and testing procedures. We cannot be certain that the actions we have taken and are taking to improve our internal controls over financial reporting will be sufficient to maintain effective internal controls over financial reporting in subsequent reporting periods or that we will be able to implement our planned processes and procedures in a timely manner. In addition, new and revised accounting standards and financial reporting requirements may occur in the future and implementing changes required by new standards, requirements or laws may require a significant expenditure of our management's time, attention and resources which may adversely affect our reported financial results. If we are unable to produce accurate financial statements on a timely basis, investors could lose confidence in the reliability of our financial statements, which could cause the market price of our common stock to decline and make it more difficult for us to finance our operations and growth.

We incur significant costs as a result of operating as a public company, which may adversely affect our operating results and financial condition.

As a public company, we incur significant accounting, legal and other expenses, including costs associated with our public company reporting requirements. We also anticipate that we will continue to incur costs associated with corporate governance requirements, including requirements and rules under SOX and the Dodd-Frank Wall Street Reform and Consumer Protection Act (the "Dodd-Frank Act") among other rules and regulations implemented by the SEC, as well as listing requirements of the New York Stock Exchange (the "NYSE"). Furthermore, these laws and regulations could make it difficult or costly for us to obtain certain types of insurance, including director and officer liability insurance, and we may be forced to accept reduced policy limits and coverage or incur substantially higher costs to obtain the same or similar coverage. The impact of these requirements could also make it difficult for us to attract and retain qualified persons to serve on our board of directors, our board committees or as executive officers.

New laws and regulations as well as changes to existing laws and regulations affecting public companies, including the provisions of SOX and the Dodd-Frank Act and rules adopted by the SEC and the NYSE, would likely result in increased costs to us as we respond to their requirements. We continue to invest resources to comply with evolving laws and regulations, and this investment may result in increased general and administrative expense.

Risks Related to Ownership of Our Common Stock

Our stock price may continue to be volatile, and the value of an investment in our common stock may decline.

The trading price of our common stock has been, and is likely to continue to be, volatile, which means that it could decline substantially within a short period of time and could fluctuate widely in response to various factors, some of which are beyond our control. These factors include those discussed in the "Risk Factors" section of this Annual Report on Form 10-K and others such as:

- quarterly variations in our results of operations or those of our competitors;
- failure to meet any guidance that we have previously provided regarding our anticipated results;
- changes in earnings estimates or recommendations by securities analysts;
- failure to meet securities analysts' estimates;
- announcements by us or our competitors of new products, significant contracts, commercial relationships, acquisitions or capital commitments;
- developments with respect to intellectual property rights;
- our ability to develop and market new and enhanced products on a timely basis;
- our commencement of, or involvement in, litigation and developments relating to such litigation;
- changes in governmental regulations; and
- a slowdown in the communications industry or the general economy.

In recent years, the stock market in general, and the market for technology companies in particular, has experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of those companies. Broad market and industry factors may seriously affect the market price of our common stock, regardless of our actual operating performance. In addition, in the past, following periods of volatility in the overall market and the market price of a particular company's securities, securities class action litigation has often been instituted against these companies. This litigation, if instituted against us, could result in substantial costs and a diversion of our management's attention and resources.

If securities or industry analysts do not publish research or reports about our business or if they issue an adverse or misleading opinion regarding our stock, our stock price and trading volume could decline.

The trading market for our common stock will be influenced by the research and reports that industry or securities analysts publish about us or our business. If any of the analysts who cover us issue an adverse or misleading opinion regarding our stock, our stock price would likely decline. If several of these analysts cease coverage of our company or fail to publish reports on us regularly, we could lose visibility in the financial markets, which in turn could cause our stock price or trading volume to decline.

Provisions in our charter documents and under Delaware law could discourage a takeover that stockholders may consider favorable and may lead to entrenchment of our management and board of directors.

Our amended and restated certificate of incorporation and amended and restated bylaws contain provisions that could have the effect of delaying or preventing changes in control or changes in our management or our board of directors. These provisions include:

- a classified board of directors with three-year staggered terms, which may delay the ability of stockholders to change the membership of a majority of our board of directors;
- no cumulative voting in the election of directors, which limits the ability of minority stockholders to elect director candidates;
- the exclusive right of our board of directors to elect a director to fill a vacancy created by the expansion of the board of directors or the resignation, death or removal of a director, which prevents stockholders from being able to fill vacancies on our board of directors;
- the ability of our board of directors to issue shares of preferred stock and to determine the price and other terms of those shares, including preferences and voting rights, without stockholder approval, which could be used to significantly dilute the ownership of a hostile acquirer;
- a prohibition on stockholder action by written consent, which forces stockholder action to be taken at an annual or special meeting of our stockholders;

- the requirement that a special meeting of stockholders may be called only by the chairman of the board of directors, the chief executive officer or the board of directors, which may delay the ability of our stockholders to force consideration of a proposal or to take action, including the removal of directors; and
- advance notice procedures that stockholders must comply with in order to nominate candidates to our board of directors or to propose matters to be acted upon at a stockholders' meeting, which may discourage or deter a potential acquirer from conducting a solicitation of proxies to elect the acquirer's own slate of directors or otherwise attempting to obtain control of us.

We are also subject to certain anti-takeover provisions under Delaware law. Under Delaware law, a corporation may not, in general, engage in a business combination with any holder of 15% or more of its capital stock unless the holder has held the stock for three years or, among other things, the board of directors has approved the transaction.

We may need additional capital in the future to finance our business.

We may need to raise additional capital to fund operations in the future. Although we believe that, based on our current level of operations and anticipated growth, our existing cash and cash equivalents will provide adequate funds for ongoing operations, planned capital expenditures and working capital requirements for at least the next 12 months, our working capital needs and cash use have continued to increase to support our growth initiatives, and we may need additional capital if our current plans and assumptions change. If future financings involve the issuance of equity securities, our then-existing stockholders would suffer dilution. If we raise additional debt financing, we may be subject to restrictive covenants that limit our ability to conduct our business. We may not be able to raise sufficient additional funds on terms that are favorable to us, if at all. If we fail to raise sufficient funds and continue to incur losses, our ability to fund our operations, take advantage of strategic opportunities, develop products or technologies or otherwise respond to competitive pressures could be significantly limited. Any failure to obtain financing when and as required could force us to curtail our operations, which would harm our business.

We do not currently intend to pay dividends on our common stock and, consequently, our stockholders' ability to achieve a return on their investment will depend on appreciation in the price of our common stock.

We do not currently intend to pay any cash dividends on our common stock for the foreseeable future. We currently intend to invest our future earnings, if any, to fund our growth. Additionally, the terms of our credit facility restrict our ability to pay dividends under certain circumstances. Therefore, our stockholders are not likely to receive any dividends on our common stock for the foreseeable future.

ITEM 1B. Unresolved Staff Comments

None.

ITEM 2. Properties

We currently lease approximately 238,600 square feet of office space worldwide. Information concerning our principal leased properties as of December 31, 2016 is set forth below:

Location	Principal Use	Square Footage	Lease Expiration Date
Petaluma, California [1]	Corporate headquarters, sales, marketing, product design, service and repair engineering, distribution, research and development	82,100	February 2019
San Jose, California	Product design, research and development, administration	46,100	August 2018
Nanjing, China [2]	Research and development	42,800	February 2021
Minneapolis, Minnesota [3]	Product design, research and development, service and repair engineering	28,500	March 2019
Richardson, Texas	Service and test engineering	14,400	January 2022
Santa Barbara, California	Research and development	12,400	June 2019
Acton, Massachusetts	Research and development	6,200	June 2017
Richardson, Texas [4]	Service and repair engineering	6,100	July 2017

(1) On January 28, 2013, we entered into an amendment to this Petaluma lease and extended the lease expiration date to February 2019.

(2) In February 2016, we entered into an amendment to extend the lease term from February 2016 to February 2021. Effective on October 1, 2016, we entered into another amendment for the expansion of lease premises from 32,200 to 42,800 square feet.

(3) In October 2013, we entered into an amendment to this Minneapolis lease to extend the lease term from March 2014 to March 2019. Effective as of January 1, 2014, the square footage has been reduced from 33,200 to 28,500 square feet.

(4) This property, for which we have been actively seeking a sublease, was vacated in September 2014. Employees in this location were relocated into our new site also in Richardson, Texas.

We believe that our facilities are in good condition and are generally suitable to meet our needs for the foreseeable future. However, we may continue to seek additional space as needed, and we believe this space will be available on commercially reasonable terms.

ITEM 3. Legal Proceedings

For a description of our material pending legal proceedings, please refer to Note 6, "*Commitments and Contingencies – Litigation*" of the Notes to Consolidated Financial Statements included in Part II, Item 8 of this Annual Report on Form 10-K.

ITEM 4. Mine Safety Disclosures

Not applicable.

PART II

ITEM 5. Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Comparative Stock Prices

Our common stock has been trading on the New York Stock Exchange, under the trading symbol "CALX" since our initial public offering on March 24, 2010. Prior to this time, there was no public market for our common stock. The following table sets forth, for the fiscal periods indicated, the high and low sale prices per share of our common stock as reported on NYSE.

	High	Low
Fiscal Year 2016		
First Quarter	$ 7.87	$ 5.64
Second Quarter	7.76	6.24
Third Quarter	8.20	6.30
Fourth Quarter	8.10	6.15

	High	Low
Fiscal Year 2015		
First Quarter	$ 10.63	$ 8.09
Second Quarter	8.96	7.25
Third Quarter	8.79	6.75
Fourth Quarter	9.07	6.30

Number of Common Stock Holders and Number of Shares Outstanding

On February 16, 2017, there were approximately 257 stockholders of record of our common stock who held an aggregate of 49,589,197 shares of our common stock. The closing price of our common stock as of February 16, 2017 was $6.85. A substantially greater number of holders of Calix common stock are street name or beneficial holders, whose shares are held of record by banks, brokers and other financial institutions.

Dividends

We have never declared or paid any cash dividends on our common stock. Our credit facility does not limit our ability to pay dividends on our common stock if credit extensions under the credit facility are less than $5 million and certain conditions are met; otherwise the maximum amount of dividends permitted to be paid under the credit facility is $15 million a year if certain conditions are met. We currently expect to be able to meet these conditions. However, we do not currently intend to pay any cash dividends on our common stock in the foreseeable future.

Recent Sales of Unregistered Securities

None.

Stock Repurchase

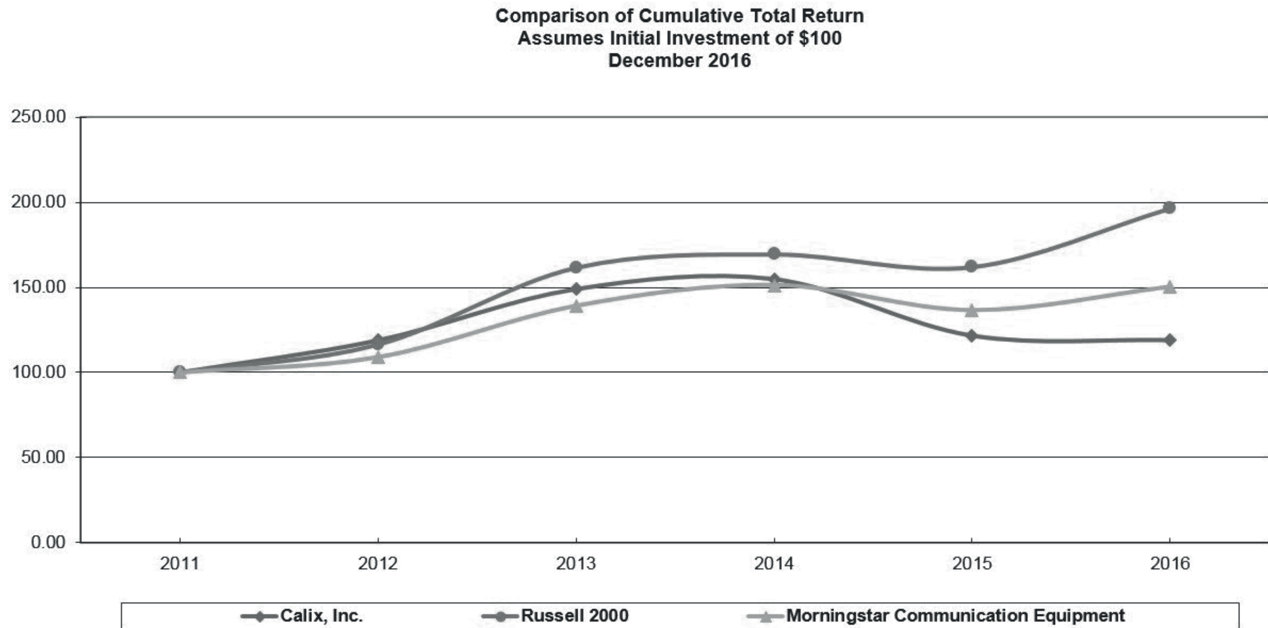
On April 26, 2015, our board of directors approved a program to repurchase up to $40 million of our common stock from time to time. This stock repurchase program commenced in May 2015 and was completed in March 2016.

Under this program, stock was purchasable in open market or private transactions, through block trades, and/or pursuant to any trading plan adopted in accordance with Rule 10b5-1 of the Securities Exchange Act of 1934, as amended ("Exchange Act") and any open market purchases were to be made in accordance with the limitations set out in Rule 10b-18 of the Exchange Act. Further, decisions to consummate repurchases (including any decision to adopt a 10b5-1 plan for this purpose) were to be made at management's discretion at prices management considers to be attractive and in the best interests of the Company and its stockholders.

In March 2016, we completed purchases under the $40 million stock repurchase program and have repurchased a total of 5,329,817 shares of common stock from May 2015 to March 2016 at an average price of $7.50 per share.

Performance Graph

The following graph shows a comparison of the cumulative total stockholder return on our common stock with the cumulative total returns of the Russell 2000 Index and the Morningstar Communication Equipment Index. The graph tracks the performance of a $100 investment in our common stock and in each of the indexes during the last five fiscal years ended December 31, 2016. Data for the Russell 2000 Index and the Morningstar Communication Equipment Index assume reinvestment of dividends. Stockholder returns over the indicated period are based on historical data and should not be considered indicative of future stockholder returns.



This performance graph shall not be deemed "soliciting material" or to be "filed" with the Securities and Exchange Commission for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, or otherwise subject to the liabilities under that Section, and shall not be deemed to be incorporated by reference into any filing of Calix, Inc. under the Securities Act of 1933, as amended.

ITEM 6. Selected Financial Data

The following selected consolidated financial data should be read in conjunction with our consolidated financial statements and the related notes thereto, of this Annual Report on Form 10-K, the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations" and the other financial information and data appearing elsewhere in this Annual Report on Form 10-K. The selected financial data included in this section is not intended to replace and is not a substitute for, the financial statements and related notes in this Annual Report on Form 10-K.

We derived the statements of operations data for the years ended December 31, 2016, 2015 and 2014 and the balance sheet data as of December 31, 2016 and 2015 from our audited financial statements and related notes thereto of this Annual Report on Form 10-K. We derived the statements of operations data for the years ended December 31, 2013 and 2012, and the balance sheet data as of December 31, 2014, 2013 and 2012 from our audited financial statements and related notes which are not included in this Annual Report on Form 10-K. Historical results for any prior period are not necessarily indicative of future results for any period.

	Years Ended December 31,				
	2016	2015	2014	2013	2012 [(1)]
	(In thousands, except per share data)				
Statements of Operations Data:					
Revenue	$ 458,787	$ 407,463	$ 401,227	$ 382,618	$ 330,218
Cost of revenue:					
Products and services [(2)]	253,465	208,681	215,085	203,191	185,103
Amortization of intangible assets	4,104	8,353	8,353	8,353	7,539
Total cost of revenue	257,569	217,034	223,438	211,544	192,642
Gross profit	201,218	190,429	177,789	171,074	137,576
Operating expenses:					
Research and development [(2)]	106,869	89,714	80,311	79,299	66,748
Sales and marketing [(2)]	83,675	78,563	76,283	68,075	62,129
General and administrative [(2)]	41,592	38,454	31,371	31,945	26,114
Amortization of intangible assets	1,701	10,208	10,208	10,208	10,208
Acquisition-related expenses	—	—	—	—	1,401
Litigation settlement gain	(4,500)	—	—	—	—
Total operating expenses	229,337	216,939	198,173	189,527	166,600
Loss from operations	(28,119)	(26,510)	(20,384)	(18,453)	(29,024)
Interest and other income (expense), net [(3)]	1,064	712	151	1,174	856
Loss before provision for (benefit from) income taxes	(27,055)	(25,798)	(20,233)	(17,279)	(28,168)
Provision for (benefit from) income taxes	347	535	581	(14)	158
Net loss	$ (27,402)	$ (26,333)	$ (20,814)	$ (17,265)	$ (28,326)
Net loss per common share:					
Basic and diluted	$ (0.56)	$ (0.51)	$ (0.41)	$ (0.35)	$ (0.59)
Weighted-average number of shares used to compute net loss per common share:					
Basic and diluted	48,730	51,489	50,808	49,419	48,180

	As of December 31,				
	2016	2015	2014	2013	2012 [(1)]
	(In thousands, except per share data)				
Balance Sheet Data:					
Cash, cash equivalents and marketable securities	$ 78,107	$ 73,590	$ 111,679	$ 82,747	$ 46,995
Working capital	97,926	115,561	131,693	114,366	84,255
Total assets	355,475	323,886	370,221	383,599	377,897
Common stock and additional paid-in capital	837,931	820,080	803,101	783,509	761,454
Total stockholders' equity	212,964	235,785	272,591	273,923	269,075

(1) We acquired Ericsson's fiber access assets in November 2012. Our Consolidated Statements of Operations and Consolidated Balance Sheets data include the results of this acquired business only for periods subsequent to the acquisition date.

(2) Includes stock-based compensation as follows:

	2016	2015	2014	2013	2012
Cost of revenue	$ 672	$ 709	$ 1,120	$ 1,468	$ 1,433
Research and development	5,125	4,797	5,056	4,896	4,227
Sales and marketing	4,586	4,712	5,601	5,577	5,160
General and administrative	3,902	3,587	4,240	7,980	6,617
Total	$ 14,285	$ 13,805	$ 16,017	$ 19,921	$ 17,437

(3) 2013 includes $1.7 million of gain from utilization of inventory credit from Ericsson and 2012 includes $1.0 million of gain on bargain purchase of Ericsson's fiber access assets.

ITEM 7. Management's Discussion and Analysis of Financial Condition and Results of Operations

The Management's Discussion and Analysis of Financial Condition and Results of Operations contains forward-looking statements regarding future events and our future results that are subject to the safe harbors created under the Securities Act of 1933 (the "Securities Act") and the Securities Exchange Act of 1934 (the "Exchange Act"). All statements other than statements of historical facts are statements that could be deemed forward-looking statements. These statements are based on current expectations, estimates, forecasts, and projections about the industries in which we operate and the beliefs and assumptions of our management. In some cases, forward-looking statements can be identified by the use of words such as "may," "will," "expects," "believes," "intends," "plans," "anticipates," "estimates," "projects," "potential," or "continue" or the negative thereof or other comparable terminology. In addition, any statements that refer to projections of our future financial performance, our anticipated growth and trends in our businesses, and other characterizations of future events or circumstances are forward-looking statements. Readers are cautioned that these forward-looking statements are only predictions and are subject to risks, uncertainties, and assumptions that are difficult to predict, including those identified in the Risk Factors discussed in Item 1A, in the discussion below, as well as in other sections of this Annual Report on Form 10-K. Therefore, actual results may differ materially and adversely from those expressed in any forward-looking statements. All forward-looking statements and reasons why results may differ included in this report are made as of the date hereof, and we assume no obligation to update these forward-looking statements or reasons why actual results might differ.

Overview

We are a leading global provider of broadband communications access platforms, systems and software for fiber- and copper-based network architectures and a pioneer in software defined access that enable CSPs to transform their networks and enhance how they connect to their residential and business subscribers. We enable CSPs to provide a wide range of revenue-generating services, from basic voice and data to advanced broadband services, over legacy and next-generation access networks. We focus solely on CSP access networks, the portion of the network that governs available bandwidth and determines the range and quality of services that can be offered to subscribers. We develop and sell carrier-class hardware and cloud products that are designed to enhance and transform CSP access networks to meet the changing demands of subscribers rapidly and cost-effectively. Our most advanced systems operate on AXOS, a network operating system and software platform built for the specific needs of the access network that allows for all software functions in the access network to be developed and run without dependence on underlying hardware and associated silicon chipsets.

We market our access systems and related software to CSPs globally through our direct sales force as well as a limited number of resellers. As of December 31, 2016, over 23 million ports of the Calix portfolio have been deployed at a growing number of CSPs worldwide. Our customers include many of the world's largest CSPs. In addition, we have enabled over 1,300 customers to deploy gigabit passive optical network, Active Ethernet and point-to-point Ethernet fiber access networks.

Our revenue increased to $458.8 million for 2016 from $407.5 million for 2015 and $401.2 million for 2014, respectively. Our revenue levels and continued revenue growth will depend on our ability to continue to sell our access systems and software to existing customers and to attract new customers, particularly larger CSPs, globally. Since 2015, we have seen increased market demand for turnkey solutions that include professional services together with the supply of equipment and materials, including a project we commenced in 2015 with one of our existing customers. We believe that these services enable us to offer broader solutions to meet customer and market demand and support our growth initiatives. During 2016, we continued to ramp up our services operations for this project along with other professional services projects. Revenue for such projects is generally recognized only when project requirements are completed, typically over longer periods depending on the nature and scope of the project. Similarly, some of the costs incurred by us for such projects, including labor and related costs, are deferred and recognized to cost of revenue when the associated revenue is recognized.

Revenue fluctuations result from many factors, including: increases or decreases in customer orders for our products and services, large customer purchase agreements with delayed revenue recognition, varying budget cycles and seasonal buying patterns of our customers. More specifically, our customers tend to spend less in the first fiscal quarter as they are finalizing their annual budgets, and in certain regions, customers are also challenged by winter weather conditions that inhibit fiber deployment in outside plants. Our revenue levels are also dependent upon our customers' timing of purchases and capital expenditure plans, including expenditure plans for turnkey solutions projects, which are generally non-recurring in nature. As of December 31, 2016, our deferred revenue of $48.1 million primarily included extended warranty services contracts that are recognized ratably over the period during which the services are to be performed, as well as those relating to turnkey projects that are recognized only upon acceptance by customers. The timing of recognition of deferred revenue may cause significant fluctuations in our revenue and operating results from period to period.

Cost of revenue is strongly correlated to revenue and tends to fluctuate from all of the above factors that could impact revenue. Factors that impacted our cost of revenue for 2016, and that may impact cost of revenue in future periods, also include: changes in the mix of products delivered, increases in services as a mix of total revenue as well as timing of completion of professional services project requirements, higher than anticipated costs associated with delivery of services for which project pricing is typically set at the outset of the project, charges related to cost overruns on services projects, customer location and regional mix, changes in product warranty and incurrence of retrofit costs, changes in the cost of our inventory and inventory write-downs. Cost of revenue also includes fixed expenses related to our internal operations, which could impact our cost of revenue as a percentage of revenue if there are large fluctuations in revenue.

Cost of revenue has a direct impact on gross profit and gross margins. During 2016, our gross profit and gross margin were negatively impacted by an increase in our services revenue, which carries lower gross margin, as a mix of total revenue. In addition, we incurred higher costs related to the ramp up of our professional services business during the fiscal year to meet customer demand for turnkey network improvement projects and incurred higher costs and cost overruns associated with delivery of services due to project delays as well as an increase in the pace of services activities to complete project requirements towards the end of the year. We expect that the higher pace of services activities to complete project requirements will continue into the first and second quarters of 2017. Our gross profit and gross margin fluctuate based on timing of factors such as new product introduction or upgrades to existing products, changes in customer mix, changes in

the mix of products demanded and sold (and any related write-downs of existing inventory), increase in mix of revenue towards professional services, increase in mix of revenue from channel sales rather than direct sales or other unfavorable customer or product mix, shipment volumes and any related volume discounts, changes in our product and services costs, pricing decreases, customer rebates and incentive programs due to competitive pressure. The timing of our recognition of deferred revenue and related deferred costs related to turnkey professional services projects could also result in lower gross profit and gross margin in the periods such revenue is recognized, and the relative size of these arrangements could cause large fluctuations in our gross profit from period to period. Moreover, to the extent that deferred cost of revenue relating to the professional services portion of turnkey projects is determined to be unrecoverable, we incur a charge to cost of revenue in the period such cost is determined to be unrecoverable.

Our operating expenses have fluctuated based on the following factors: changes in headcount and personnel costs which comprise a significant portion of our operating expenses, timing of variable compensation expenses due to fluctuations in order volumes, timing of research and development expenses including prototype builds and outsourced development projects, fluctuations in stock-based compensation expenses due to timing of equity grants or other factors affecting vesting, changes in acquisition-related expenses, and timing of legal fees and other expenses incurred in connection with the Occam litigation. During 2016, our total operating expense increased due to increases in headcount and outside contractors, primarily for research and development. In 2016, we also recognized a litigation settlement gain of $4.5 million recovered in our settlement of the Occam litigation, recorded as a reduction in operating expense. We anticipate that our operating expenses will increase in absolute dollar amounts but will decline as a percentage of revenue over time.

During 2016, our costs, operating expenses and working capital needs increased primarily due to the ramp up of our services operations to meet customer and market demand for turnkey network upgrade projects and higher research and development expenditures in strategic investments in our platform, systems and software. We focus our research and development efforts on innovative technologies that we believe will grow our customer base, including through larger customer opportunities. We expect to continue to incur higher capital and operating expenditures, and higher levels of cash use, related to our investments in these initiatives as we seek to grow our market share.

Our net loss was $27.4 million, $26.3 million, and $20.8 million for the years ended December 31, 2016, 2015, and 2014, respectively. Since our inception we have incurred significant losses, and as of December 31, 2016, we had an accumulated deficit of $584.3 million. Further, as a result of the fluctuations described above and a number of other factors, many of which are outside our control, our annual operating results fluctuate from period to period. Comparing our operating results on a period-to-period basis may not be meaningful, and you should not rely on our past results as an indication of our future performance.

Critical Accounting Policies and Estimates

Our financial statements are prepared in accordance with U.S. GAAP. These accounting principles require us to make certain estimates and judgments that can affect the reported amounts of assets and liabilities as of the date of the financial statements, as well as the reported amounts of revenue and expenses during the periods presented. We base our estimates, assumptions and judgments on historical experience and on various other factors that are believed to be reasonable under the circumstances. To the extent there are material differences between these estimates and actual results, our financial statements will be affected. We evaluate our estimates, assumptions and judgments on an ongoing basis.

We believe the following critical accounting policies affect our more significant judgments and estimates used in the preparation of our financial statements.

Revenue Recognition

We derive revenue primarily from the sale of hardware products and related software. Revenue is recognized when all of the following criteria have been met:

- Persuasive evidence of an arrangement exists. We generally rely upon sales agreements and customer purchase orders as evidence of an arrangement.
- Delivery has occurred. We use the shipping terms of the arrangement or evidence of customer acceptance to verify delivery or performance.
- Sales price is fixed or determinable. We assess whether the sales price is fixed or determinable based on the payment terms and whether the sales price is subject to refund or adjustment. Payment terms to customers can range from net 30 to net 120 days.
- Collectability is reasonably assured. We assess collectability based primarily on creditworthiness of customers and their payment histories.

Revenue from installation and training services is recognized as the services are completed. Post-sales software support revenue and extended warranty services revenue are deferred and recognized ratably over the period during which the services are to be performed. In instances where substantive acceptance provisions are specified in the customer agreement, revenue is deferred until all acceptance criteria have been met. From time to time, we offer customers sales incentives, which include volume rebates and discounts. These amounts are estimated on a quarterly basis and recorded net of revenue.

We enter into arrangements with certain of our customers who receive government supported loans and grants from the RUS to finance capital spending. Under the terms of an RUS equipment contract that includes installation services, the customer does not take possession and control and title does not pass until formal acceptance is obtained from the customer. Under this type of arrangement, we do not recognize revenue until we have received formal acceptance from the customer. For RUS arrangements that do not involve installation services, we recognize revenue when all of the revenue recognition criteria as described above have been met.

Our products contain both software and non-software components that function together to deliver the products' essential functionality. When we enter into sales arrangements that consist of multiple deliverables of our product and service offerings, we allocate the total consideration of the arrangement to each separable deliverable based on their relative selling price. We limit the amount allocable to delivered elements to the amount that is not contingent upon the delivery of additional items or meeting specified performance conditions, and we recognize revenue on each deliverable in accordance with our revenue policy. The determination of selling price for each deliverable is based on a selling price hierarchy, which is vendor-specific objective evidence ("VSOE") if available, third-party evidence ("TPE") if VSOE is not available, or estimated selling price ("ESP") if neither VSOE nor TPE is available. VSOE of selling price is based on the price charged when the element is sold separately. In determining VSOE, we require that a substantial majority of the selling prices of an element fall within a narrow range when each element is sold separately. We have established VSOE for our training and post-sales software support services based on the normal pricing practices of these services when sold separately. TPE of selling price is established by evaluating whether there are similar competitor products or services that are sold in stand-alone sales transaction to similarly situated customers. Generally, our marketing strategy differs from that of our peers and our offerings contain a significant level of customization and differentiation such that the comparable pricing of products with similar functionality cannot be obtained. Additionally, as we are unable to reliably determine what similar competitor products' selling prices are on a stand-alone basis, we are not typically able to determine TPE. ESP is established considering multiple factors including, but not limited to geographies market conditions, competitive landscape, internal costs, gross margin objectives, characteristics of targeted customers and pricing practices. The determination of ESP is made through consultation with and formal approval by management, taking into consideration the go-to-market strategy.

Stock-Based Compensation

Stock-based awards are recorded at fair value as of the grant date and recognized to expense over the employee's requisite service period (generally the vesting period), which we have elected to amortize on a straight-line basis.

We value restricted stock units ("RSUs") and restricted stock awards ("RSAs") at the closing market price of our common stock on the date of grant.

Stock-based compensation expense associated with performance restricted stock units ("PRSUs") with graded vesting features and which contain both a performance and a service condition is measured based on the closing market price of our common stock on the date of grant, and is recognized, net of forfeitures, as expense over the requisite service period using the graded vesting attribution method. Compensation expense is only recognized if we have determined that it is probable that the performance condition will be met. We reassess the probability of vesting at each reporting period and adjusts compensation expense based on this probability assessment.

The fair value of PRSUs with a market condition is estimated on the date of grant, using a Monte Carlo simulation model to estimate the total return ranking of our common stock in relation to the peer group over each performance period. Compensation cost on PRSUs with a market condition is not adjusted for subsequent changes in the Company's stock performance or the level of ultimate vesting.

We estimate the fair value of stock options and employee stock purchase rights under the Employee Stock Purchase Plan ("ESPP") at the grant date using the Black-Scholes option-pricing model. This model requires the use of highly judgmental assumptions, including expected stock price volatility and expected life of the stock options, which have a significant impact on the fair value estimates and are discussed in detail in Note 8, "*Stockholders' Equity*" of the Notes to Consolidated Financial Statements in this Annual Report on Form 10-K. Changes to these estimates will cause the fair values of our stock options and employee stock purchase rights under the ESPP, and related stock-based compensation expense that we record to vary.

In addition, we apply an estimated forfeiture rate to awards granted and record stock-based compensation expense only for those awards that are expected to vest. Forfeiture rates are estimated at the time of grant based on our historical experience. Further, to the extent our actual forfeiture rates are different from our estimates, stock-based compensation is adjusted accordingly.

Inventory Valuation

Inventory, which primarily consists of finished goods purchased from contract manufacturers, is stated at the lower of cost, determined by the first-in, first-out method, or market value. Inbound shipping costs are included in cost of inventory. In addition, the Company, from time to time, procures component inventory primarily as a result of manufacturing discontinuation of critical components by suppliers. We regularly monitor inventory quantities on-hand and record write-downs for excess and obsolete inventories based on our estimate of demand for our products, potential obsolescence of technology, product life cycle and whether pricing trends or forecasts indicate that the carrying value of inventory exceeds our estimated selling price. These factors are impacted by market and economic conditions, technology changes and new product introductions and require estimates that may include elements that are uncertain. Actual demand may differ from forecasted demand and may have a material effect on gross margins. If inventory is written down, a new cost basis is established that cannot be increased in future periods. The sale of previously reserved inventory has not had a material impact on our gross margins.

Allowance for Doubtful Accounts

We maintain an allowance for doubtful accounts for estimated losses resulting from the inability of our customers to make required payments. We record a specific allowance based on an analysis of individual past-due balances. Additionally, based on historical write-offs and our collection experience, we record an additional allowance based on a percentage of outstanding receivables. We perform credit evaluations of our customers' financial condition. These evaluations require significant judgment and are based on a variety of factors including, but not limited to, current economic trends, payment history and a financial review of the customer. Actual collection losses may differ from management's estimates, and such differences could be material to our financial position and results of operations.

Valuation of Goodwill and Intangible Assets

Goodwill is not amortized but instead is subject to an annual impairment test or more frequently if events or changes in circumstances indicate that it may be impaired. We evaluate goodwill on an annual basis as of the end of the second quarter of each year. Management has determined that we operate as a single reporting unit and, therefore, evaluates goodwill impairment at the enterprise level. Intangible assets are reviewed for impairment whenever events or changes in circumstances indicate an asset's carrying value may not be recoverable.

In an annual impairment test, we first assess qualitative factors to determine whether it is necessary to perform the two-step quantitative goodwill impairment test. In assessing the qualitative factors, management considers the impact of these key factors: macro-economic conditions, industry and market environment, overall financial performance of the Company, cash flow from operating activities, market capitalization and stock price. If management determines as a result of the qualitative assessment that it is more likely than not (that is, a likelihood of more than 50 percent) that the fair value of a reporting unit is less than its carrying amount, then the quantitative test is required. Otherwise, no further testing is required.

In a quantitative test, we compare the Company's fair value to its carrying value including goodwill. We determine the Company's fair value using both an income approach and a market approach. Under the income approach, we determine fair value based on estimated future cash flows, discounted by an estimated weighted-average cost of capital, which reflects the overall level of inherent risk of the Company and the rate of return an outside investor would expect to earn. Under the market-based approach, we utilize information regarding the Company as well as publicly available industry information to determine earnings multiples that are used to value the Company. If the carrying value of the Company exceeds its fair value, we will determine the amount of impairment loss by comparing the implied fair value of goodwill with the carrying value of goodwill. An impairment charge is recognized for the excess of the carrying value of goodwill over its implied fair value.

As of the end of the second quarter of 2016, we completed our annual goodwill impairment test. Based on our assessment of the above qualitative factors, we concluded that the estimated fair value of the Company was more likely than not greater than its carrying amount as of June 25, 2016. As such, it was not necessary to perform the two-step quantitative goodwill impairment test at the time. There have been no significant events or changes in circumstances subsequent to the 2016 annual impairment test that would more likely than not indicate that the carrying value of goodwill may have been impaired as of December 31, 2016. Therefore, there was no impairment to the carrying value of the Company's goodwill as of December 31, 2016. There were no impairment losses for goodwill in the years ended December 31, 2015 or 2014.

Intangible assets with finite useful lives are amortized over their estimated useful life. We periodically evaluate intangible assets for impairment whenever events or changes in circumstances indicate that a potential impairment may have occurred. If such events or changes in circumstances arise, we compare the carrying amount of the intangible assets to the estimated future undiscounted cash flows expected to be generated by the assets. If the estimated aggregate undiscounted cash flows are less than the carrying amount of the intangible assets, an impairment charge, calculated as the amount by which the carrying amount of the assets exceeds the fair value of the assets, is recorded. The fair value of intangible assets is determined based on the estimated discounted cash flows expected to be generated from the assets. We have reviewed events and changes to our business during the year and have determined that there was no impairment to our intangible assets during 2016. We did not incur any impairment losses for intangible assets in the years ended December 31, 2015 and 2014.

Income Taxes

We evaluate our tax positions and estimate our current tax exposure in each jurisdiction in which we operate. This includes assessing the temporary differences resulting from differing treatment of items not currently deductible for tax purposes. These differences result in deferred tax assets and liabilities on our consolidated balance sheets, which are calculated based upon the difference between the financial statement and tax bases of assets and liabilities using the enacted tax rates that will be in effect when these differences reverse. In general, deferred tax assets represent future tax benefits to be received when certain expenses previously recognized in our statements of operations become deductible expenses under applicable income tax laws or loss or credit carry-forwards are utilized. Since realization of our deferred tax assets is dependent on future taxable income against which these deductions, losses and credits can be utilized, we must assess the likelihood that our deferred tax assets will be recovered from future taxable income. To the extent we believe that recovery is below the more likely than not threshold, we must establish a valuation allowance against the net deferred tax asset. Significant judgment is required in determining our provision for income taxes, our deferred tax assets and liabilities and any valuation allowance recorded against net deferred tax assets.

Since inception, we have incurred operating losses and accordingly have federal and state net operating loss carry-forwards of $520.6 million and $132.2 million, respectively, as of December 31, 2016. The U.S. federal net operating loss carryforwards will expire at various dates beginning in 2019 and through 2036, if not utilized. The state net operating loss carryforwards will expire at various dates beginning in 2017 and through 2036, if not utilized. Additionally, we had U.S. federal and state research and development credits of $27.9 million and $33.3 million as of December 31, 2016. The credits have varying expiration dates between 2017 and 2036 with California credits having no expiration. These two items account for the bulk of our net deferred tax asset of $239.8 million as of December 31, 2016. Excluding our foreign operations, we have recorded a full valuation allowance against the net deferred assets at each balance sheet date presented. We believe that based on the available evidence and history of operation losses, it is more likely than not that we will not be able to utilize all of our deferred assets, with the exception of certain foreign deferred tax assets, before expiration. We intend to maintain the full valuation allowances until sufficient evidence exists to support the reversal of the valuation allowances.

Loss Contingencies

We accrue loss contingencies when the loss is probable and reasonably estimable. In addition, disclosure of a loss contingency is required if there is at least a reasonable possibility that a loss (or an additional loss above the amount accrued) has been incurred.

From time to time, we are involved in legal proceedings arising from the normal course of business activities. We evaluate the likelihood of an unfavorable outcome of legal proceedings to which we are a party and accrue a loss contingency when the loss is probable and reasonably estimable. Assessing legal contingencies involves significant judgment and estimates and the outcome of litigation is inherently uncertain and subject to numerous factors outside our control. Significant judgment is required when we assess the likelihood of any adverse judgments or outcomes, including the potential range of possible losses, and whether losses are probable and reasonably estimable.

We offer initial limited warranties for our hardware products for a period of one, three or five years, depending on the product type. Under certain circumstances, we also provide fixes on specifically identified performance failures for products that are outside of the standard warranty period and recognize estimated costs related to retrofit activities upon identification of such product failures. We estimate costs related to warranty and retrofit activities based upon historical and projected product failure and claim rates, historical costs incurred in correcting product failures along with other relevant information available related to any specifically identified product failures. We recognize estimated warranty and retrofit costs when it is probable that a liability has been incurred and the amount of loss is reasonably estimable. Significant judgment is required in estimating costs associated with warranty and retrofit activities and our estimates are limited to information available to us at the time of such estimates. In some cases, such as when a specific product failure is first identified or a new product is introduced, we may initially have limited information and limited historical failure and claim rates upon which to base our estimates, and such estimates may require revision in future periods.

Because of uncertainties related to these matters, our estimates of whether a loss contingency is probable or reasonably possible, as well as the reasonable range of possible losses associated with each loss contingency, is based only on the information available at the time. As additional information becomes available, and at least quarterly, we reassess the potential liability on each significant matter and may revise our estimates. These revisions could have a material impact on our business, operating results or financial condition. The actual outcome of these legal proceedings may materially differ from our estimates of potential liability, which could have a material adverse effect on our business, operating results or financial condition.

Results of Operations for Years Ended December 31, 2016, 2015 and 2014

Revenue

The following table sets forth our revenue (in thousands, except for percentages):

	Years Ended December 31,			2016 vs 2015 Change		2015 vs 2014 Change	
	2016	2015	2014	$	%	$	%
Revenue	$ 458,787	$ 407,463	$ 401,227	$ 51,324	13%	$ 6,236	2%

Our revenue is principally derived in the United States. During 2016, 2015 and 2014, revenue generated in the United States represented approximately 91%, 88% and 88% of our total revenue, respectively.

2016 compared to 2015: The increase in revenue during 2016 compared with 2015 resulted from stronger bookings and shipments as customer demand increased. This was led by higher demand from our larger domestic customers for both products and services with the increase in services associated with our turnkey network improvement projects. The increase in revenue was partially offset by lower demand from our international markets and lower revenue derived from contracts funded by the Broadband Stimulus Programs under the ARRA as we completed and closed our existing contracts. The extended date for completion of projects funded under the Broadband Initiatives Program, which is administered by the RUS, ended on July 31, 2015. During the year ended 2016, revenue generated in the United States represented approximately $415.6 million or 91% of our total revenue. International revenue represented approximately $43.2 million or 9% of total revenue. We expect overall revenue to grow as we increase our focus on key customer accounts, new customer opportunities and seek to expand our international markets.

We had two customers that each accounted for more than 10% of our total revenue in 2016 and one of these customers accounted for more than 10% of our total revenue in 2015 and 2014. See Note 1 to the consolidated financial statements set forth in Part II, Item 8 of this report for more details on concentration of revenue for the periods presented.

2015 compared to 2014: The increase in revenue during 2015 compared with 2014 resulted from stronger bookings and shipments in certain territories due to increased customer demand. This was partially offset by lower revenue derived from contracts funded by the Broadband Stimulus Programs under the ARRA as we completed and closed our existing contracts. The extended date for completion of projects funded under the Broadband Initiatives Program, which is administered by the RUS, ended on July 31, 2015. This was also impacted by the decrease in services revenue due to lower professional services projects performed during the period. Our revenue is principally derived in the United States. During the year ended 2015, revenue generated in the United States represented approximately $360.1 million or 88% of our total revenue. International revenue represented approximately $47.4 million or 12% of total revenue.

Cost of Revenue and Gross Profit

The following table sets forth our cost of revenue (in thousands, except for percentages):

	Years Ended December 31,			2016 vs 2015 Change		2015 vs 2014 Change	
	2016	2015	2014	$	%	$	%
Cost of revenue:							
Products and services	$253,465	$208,681	$215,085	$ 44,784	21 %	$ (6,404)	(3)%
Amortization of intangible assets	4,104	8,353	8,353	(4,249)	(51)%	—	— %
Total cost of revenue	$257,569	$217,034	$223,438	$ 40,535	19 %	$ (6,404)	(3)%
Gross profit	$201,218	$190,429	$177,789	$ 10,789	6 %	$ 12,640	7 %
Gross margin	44%	47%	44%				

2016 compared to 2015: The increase in cost of product and services revenue by $44.8 million during 2016 compared with 2015 was primarily attributed to an increase in product cost of revenue of $23.1 million mainly due to higher shipments. Our services cost of revenue increased by $16.3 million as we continued to ramp up our professional services business to meet demand for turnkey professional services solutions and incurred higher costs as we accelerated activity at the end of the year to meet project schedules. Our warranty and retrofit costs also increased by approximately $5.2 million primarily driven by certain retrofit charges for two specific product families. This was partially offset by a decrease in inventory write-downs attributed to slow moving inventories by approximately $3.5 million.

Amortization of intangible assets decreased by $4.2 million in 2016 as compared to 2015 as one intangible asset reached completion of its amortization period before the end of the first quarter of fiscal 2016. Hence, we have a shorter amortization period for that particular intangible asset during 2016 as compared with full amortization in 2015.

Including amortization of intangible assets, gross margin decreased from 47% in 2015 to 44% in 2016 primarily due to an increase in revenue mix toward services revenue as we continued to ramp our services business in 2016. Services revenue typically has higher associated costs and lower margins. The decrease in gross margin was partially offset by the impact of lower amortization of intangible assets during 2016 as compared to 2015.

2015 compared to 2014: The decrease in cost of revenue by $6.4 million during 2015 compared with 2014 was due mainly to a decrease in hardware cost of sales attributed to a favorable product and customer mix. Services cost of revenue also decreased due to lower professional services projects performed during the period. This was partially offset by an increase in other cost of revenue primarily driven by certain retrofit charges for a specific product. The amortization of intangible assets remained at the same level.

Gross margin increased to 47% in 2015 from 44% in 2014 primarily due to a favorable product and customer mix with higher margins.

Operating Expenses

Research and Development Expenses

Research and development expenses represent the largest component of our operating expenses and include personnel costs, outside contractor and consulting services, depreciation on lab equipment, costs of prototypes and overhead allocations, which are generally expensed as incurred. The following table sets forth our research and development expenses (in thousands, except for percentages):

	Years Ended December 31,			2016 vs 2015 Change		2015 vs 2014 Change	
	2016	2015	2014	$	%	$	%
Research and development	$106,869	$ 89,714	$ 80,311	$ 17,155	19%	$ 9,403	12%
Percent of total revenue	23%	22%	20%				

2016 compared to 2015: The increase in research and development expenses during 2016 compared with 2015 was primarily due to an increase in personnel for research and development, resulting in higher compensation and employee benefits of $7.3 million, to support our growing product portfolio, strategic investments in new solutions, including next generation solutions and new customer segments, and international market expansion. Expenses for outside contractors increased by $6.8 million and expenditures relating to prototype and expendable equipment used for research and development activities increased by approximately $3.8 million, primarily for development services including investments in next generation technologies to pursue broader growth opportunities.

The percentage of research and development expenses over total revenue remained relatively flat from year to year.

We are continuing our strategic investments in our portfolio. We intend to continue to invest in research and development to support our systems and software platforms in anticipation of expected growth opportunities.

2015 compared to 2014: The increase in research and development expenses during 2015 compared with 2014 was primarily driven by an increase in compensation and employee benefits of $7.0 million due to increase in workforce. Additionally, computer software licenses mainly relating to licenses used in new product development also increased by $0.8 million. Expenditures for services, mainly relating to outside consulting and contracted services also increased by $0.7 million. Other expenses such as prototype and expendable equipment, as well as depreciation and amortization, also increased by an aggregate of $0.8 million, which is in line with our planned increase in research and development efforts.

Sales and Marketing Expenses

Sales and marketing expenses consist of personnel costs, employee sales commissions and marketing programs. The following table sets forth our sales and marketing expenses (in thousands, except for percentages):

	Years Ended December 31,			2016 vs 2015 Change		2015 vs 2014 Change	
	2016	2015	2014	$	%	$	%
Sales and marketing	$ 83,675	$ 78,563	$ 76,283	$ 5,112	7%	$ 2,280	3%
Percent of total revenue	18%	19%	19%				

2016 compared to 2015: The increase in sales and marketing expenses during 2016 compared with 2015 was primarily due to an increase in compensation and employee benefits of $3.3 million mainly attributed to higher commissions due to increased shipments. Additionally, expenses relating to marketing events, trade shows and promotional items related to marketing programs also increased by $1.0 million.

The percentage of total sales and marketing expenses over total revenue remained relatively flat from year to year.

We expect to continue our investments in sales and marketing in order to extend our market reach and grow our business in support of our key strategic initiatives.

2015 compared to 2014: The increase in sales and marketing expenses during 2015 compared with 2014 was primarily due to an increase in compensation and employee benefits of $2.9 million mainly due to hiring of additional employees to support our expansion, and due to higher commissions attributed to higher shipments. This was partially offset by a $0.9 million decrease in stock-based compensation mainly due to equity awards that completed vesting in 2014.

General and Administrative Expenses

General and administrative expenses consist primarily of personnel costs and costs for facilities related to our executive, finance, human resources, information technology and legal organizations and fees for professional services. Professional services consist of outside legal, tax, accounting and audit services. The following table sets forth our general and administrative expenses (in thousands, except for percentages):

	Years Ended December 31,			2016 vs 2015 Change		2015 vs 2014 Change	
	2016	2015	2014	$	%	$	%
General and administrative	$ 41,592	$ 38,454	$ 31,371	$ 3,138	8%	$ 7,083	23%
Percent of total revenue	9%	9%	8%				

2016 compared to 2015: The increase in general and administrative expenses during 2016 compared with 2015 was primarily due to an increase in our compensation and employee benefits by $2.0 million mainly due to an increase in headcount for our support organizations. Additionally, legal fees and expenses related to defense costs in the Occam litigation that were not reimbursable under our Directors & Officers liability insurance or were otherwise in excess of the insurance coverage increased by $2.8 million. See "*Litigation Settlement Gain*" section below and Note 6, "*Commitments and Contingencies - Litigation*" of the Notes to Consolidated Financial Statements for related discussions regarding $4.5 million partial recovery of the Company's out-of-pocket expenses incurred in relation to the Occam litigation. The increase was partially offset by a $1.3 million decrease in consulting and contracted labor services.

Our general and administrative expenses as a percentage of total revenue remained relatively flat from year to year.

2015 compared to 2014: The increase in general and administrative expenses during 2015 compared with 2014 was primarily due to an increase in personnel-related expenses by $3.9 million mainly due to an increase in headcount and recruiting fees. Additionally, professional services also increased by $3.2 million. This was mainly attributed to a $2.7 million increase in legal fees and expenses related to defense costs in the Occam litigation and which were not reimbursable under our Directors & Officers liability insurance coverage, and higher contracted labor services which increased by $0.6 million in line with our additional resource needs. Depreciation and amortization also increased by $0.7 million. The increase was partially offset by a $0.7 million decrease in stock-based compensation mainly due to equity awards that completed vesting in 2014.

Amortization of Intangible Assets

In connection with our acquisition of Occam in 2011, we recorded an amortizable intangible asset related to customer relationships of $51.0 million. This amount is amortized to operating expenses over its estimated useful life. The following table sets forth our amortization of intangible assets expenses included in operating expenses (in thousands, except for percentages):

	Years Ended December 31,			2016 vs 2015 Change		2015 vs 2014 Change	
	2016	2015	2014	$	%	$	%
Amortization of intangible assets	$ 1,701	$ 10,208	$ 10,208	$ (8,507)	(83)%	$ —	—%
Percent of total revenue	—%	3%	3%				

Amortization of intangible assets decreased by $8.5 million in 2016 as compared to 2015 due to an intangible asset that had reached completion of its amortization period before the end of the first quarter of fiscal 2016. Hence, we have a shorter amortization period for that particular intangible asset in 2016 as compared with full amortization during 2015.

Amortization of intangible assets was the same for 2015 and 2014 as there were no movements or changes in our intangible assets during those periods.

See Note 4, "*Goodwill and Intangible Assets*" of the Notes to Consolidated Financial Statements included in this Annual Report on Form 10-K for details of our intangible assets.

Litigation Settlement Gain

The following table sets forth our litigation settlement gain (in thousands, except percentages):

	Years Ended December 31,			2016 vs 2015 Change		2015 vs 2014 Change	
	2016	2015	2014	$	%	$	%
Litigation settlement gain	$ (4,500)	$ —	$ —	$ (4,500)	100%	$ —	—%
Percent of total revenue	(1)%	—%	—%				

In 2016, we recognized a litigation settlement gain of $4.5 million as a reduction to operating expense as a result of $4.5 million in cash proceeds from our settlement of the Occam litigation as disclosed and described in further detail in Note 6, "*Commitments and Contingencies – Litigation*" of the Notes to Consolidated Financial Statements.

Interest and Other Income (Expense), net

The following table sets forth our interest and other income (expense), net (in thousands, except for percentages):

	Years Ended December 31,			2016 vs 2015 Change		2015 vs 2014 Change	
	2016	2015	2014	$	%	$	%
Interest and other income (expense), net							
Interest income	$ 737	$ 1,285	$ 729	$ (548)	(43)%	$ 556	76%
Interest expense	(585)	(1,144)	(806)	559	(49)%	(338)	42%
Other income (expense), net	912	571	228	341	60 %	343	150%
Total interest and other income (expense), net	$ 1,064	$ 712	$ 151	$ 352	49 %	$ 561	372%

The fluctuations in interest income were primarily due to the level of cash and investment balances during the periods presented, partially offset by the fluctuations in interest expense during those respective periods primarily attributed to amortization of premiums relating to available-for-sale securities.

There were no significant changes in other income (expense) components during the periods presented.

Provision for Income Taxes

The following table sets forth our provision for income taxes (in thousands, except percentages):

	Years Ended December 31,			2016 vs 2015 Change		2015 vs 2014 Change	
	2016	2015	2014	$	%	$	%
Provision for income taxes	$ 347	$ 535	$ 581	$ (188)	(35)%	$ (46)	(8)%
Effective tax rate	(1.3)%	(2.1)%	(2.9)%				

2016 compared to 2015: Income tax expense decreased by $0.2 million from $0.5 million in 2015 to $0.3 million in 2016. The decrease was primarily due to the reversal of a foreign entity's deferred tax assets valuation allowance.

The income tax provisions for 2016 and 2015 primarily consisted of state and foreign income taxes.

As of December 31, 2016, we had unrecognized tax benefits of $18.3 million, none of which would affect our effective tax rate if recognized.

2015 compared to 2014: Income tax expense decreased by $46.0 thousand from $0.6 million in 2014 to $0.5 million in 2015. The decrease was primarily due to lower unfavorable permanent adjustments to taxable income in taxable foreign jurisdictions, partially offset by higher state tax expense in Texas.

The income tax provisions for 2015 and 2014 primarily consisted of state and foreign income taxes.

As of December 31, 2015, we had unrecognized tax benefits of $16.6 million, none of which would affect our effective tax rate if recognized.

Liquidity and Capital Resources

We have funded our operations primarily through cash generated from operations. At December 31, 2016, we had cash, cash equivalents and marketable securities of $78.1 million, which consisted of deposits held at banks, money market mutual funds held at major financial institutions, and highly liquid marketable securities such as corporate debt instruments, commercial paper and U.S. government agency securities. This includes $5.9 million of cash held by our foreign subsidiaries primarily in China. Our current intent is to permanently reinvest our earnings from foreign operations outside the United States, and our current plans do not demonstrate a need to repatriate the earnings from foreign operations to fund our U.S. operations.

The following table presents the cash inflows and outflows by activity during 2016, 2015 and 2014 (in thousands):

	Years Ended December 31,		
	2016	2015	2014
Net cash provided by (used in) operating activities	$ 24,419	$ (5,341)	$ 38,075
Net cash provided by (used in) investing activities	12,083	4,665	(75,444)
Net cash provided by (used in) financing activities	(9,243)	(24,141)	3,575

Operating Activities

Our operating activities provided cash of $24.4 million in 2016, and used cash of $5.3 million in 2015 and provided cash of $38.1 million in 2014. The increase in net cash provided by (used in) operating activities during 2016 as compared to 2015 was due primarily to a $45.6 million increase in net cash inflow resulting from changes in operating assets and liabilities, partially offset by unfavorable change of $15.8 million in our operating results after adjustment of non-cash charges.

In 2016, cash inflows from changes in operating assets and liabilities included primarily a $34.9 million increase in accrued liabilities primarily due to customer advance payments for certain turnkey projects, and due to the timing of our payroll, sales commissions and other expenses accruals and payout, a $4.2 million increase in accounts payable due to the timing of inventory receipts and payments to our contract manufacturers, and a $3.1 million decrease in inventory due to higher inventory turnover. Cash outflows from changes in operating assets and liabilities primarily resulted from a $13.4 million net decrease in deferred revenue and deferred cost of revenue as a result of revenue and cost recognition for previous shipments related to certain turnkey projects and RUS-funded contracts, a $4.2 million increase in net accounts receivable due to higher revenue in 2016, a $1.2 million increase in prepaid expenses and other assets, and a $0.4 million decrease in other long-term liabilities. Non-cash charges were $28.8 million (the majority of which consist of stock-based compensation expense, amortization expenses and depreciation).

The decrease in net cash provided by (used in) operating activities during 2015 as compared to 2014 was due primarily to a $37.0 million decrease in net cash inflow resulting from changes in operating assets and liabilities and unfavorable change of $6.4 million in our operating results after adjustment of non-cash charges. In 2015, cash inflows from changes in operating assets and liabilities included primarily a $2.9 million decrease in prepaid expenses and other assets and a release of $0.3 million restricted cash previously used to collateralize outstanding letters of credit with Silicon Valley Bank. Cash outflows from changes in operating assets and liabilities primarily resulted from a $16.4 million increase in net accounts receivable due to timing of collections at year-end, a $4.0 million decrease in accounts payable due to the timing of inventory receipts and payments, a $3.8 million decrease in accrued expenses due to the timing of our sales commissions and other expenses accruals and payout, a $0.9 million increase in inventory due to timing of inventory receipts, a $0.4 million decrease in deferred revenue as a result of revenue recognition for previous shipments related to certain RUS-funded contracts, and a $0.4 million decrease in other long-term liabilities. Non-cash charges were $43.6 million (the majority of which consist of stock-based compensation expense, amortization expenses and depreciation).

The decrease in cash provided by operating activities during 2014 as compared to 2013 was due primarily to an unfavorable change of $6.7 million in our operating results after adjustment of non-cash charges, offset partially by a $3.9 million increase in net cash inflow resulting from changes in operating assets and liabilities. In 2014, non-cash charges were $44.5 million (the majority of which consist of stock-based compensation expense, amortization expenses and depreciation). Cash inflows from changes in operating assets and liabilities primarily resulted from a $16.0 million decrease in cost of deferred revenue due to recognition of certain RUS-funded contracts, a $12.8 million decrease in net accounts receivable due to strong collections in 2014, a $4.3 million decrease in inventory due to timing of inventory receipts, a $0.5 million increase in accounts payable due to the timing of inventory receipts and payments, a $7.4 million increase in accrued expenses and a $0.5 million increase in other long-term liabilities due to the timing of our sales commissions and other expenses accruals and payout. Cash outflows from changes in operating assets and liabilities included primarily a $5.9 million increase in prepaid expenses and other assets, and a $21.2 million decrease in deferred revenue as a result of revenue recognition for previous shipments related to certain RUS-funded contracts.

Investing Activities

In 2016, our cash provided by investing activities consisted of $21.9 million in net maturities of marketable securities, partially offset by $9.8 million in capital expenditures for purchases of test equipment, computer equipment and software.

In 2015, our cash provided by investing activities consisted of $11.9 million in net maturities of marketable securities, which provide higher income yields than money market funds, partially offset by $7.3 million in capital expenditures for purchases of test equipment, computer equipment and software.

In 2014, our cash used in investing activities consisted of $63.5 million in net purchases of marketable securities, which provide higher income yields than money market funds, and $12.0 million in capital expenditures primarily as a result of leasehold improvements, purchases of test equipment, computer equipment and software.

Financing Activities

In 2016, our financing activities used cash of $9.2 million, which consisted of $12.8 million in repurchases of common stock and $2.1 million in payment of payroll taxes for the vesting of awards under equity incentive plans, partially offset by $5.7 million of proceeds from the issuance of common stock under the employee stock purchase plan ("ESPP") and $17.0 thousand of proceeds from the exercises of stock options.

In 2015, our financing activities used cash of $24.1 million, which consisted of $27.2 million in repurchases of common stock, $2.4 million in payment of payroll taxes for the vesting of awards under equity incentive plans, and $0.1 million in payment for debt issuance costs associated with the extension of credit agreement that we entered into with Bank of America, partially offset by $4.9 million of proceeds from the issuance of common stock under the ESPP and $0.6 million of proceeds from the exercises of stock options.

In 2014, our financing activities provided cash of $3.6 million, which consisted of $4.6 million of proceeds from the issuance of common stock under the ESPP and $1.7 million of proceeds from the exercises of stock options, offset by $2.7 million in payment of payroll taxes for the vesting of awards under equity incentive plans.

Stock Repurchase Program

On April 26, 2015, our board of directors approved a program to repurchase up to $40 million of our common stock from time to time. This stock repurchase program commenced in May 2015 and was completed in March 2016.

Under this program, stock was purchasable in open market or private transactions, through block trades, and/or pursuant to any trading plan adopted in accordance with Rule 10b5-1 of the Exchange Act and any open market purchases were to be made in accordance with the limitations set out in Rule 10b-18 of the Exchange Act. Further, decisions to consummate repurchases (including any decision to adopt a 10b5-1 plan for this purpose) were to be made at management's discretion at prices management considers to be attractive and in the best interests of the Company and its stockholders.

During the year ended December 31, 2016, we repurchased 1,789,287 shares of common stock for $12.8 million at an average price of $7.16 per share. During the year ended December 31, 2015, we repurchased 3,540,530 shares of common stock for $27.2 million at an average price of $7.68 per share. In March 2016, we completed purchases under the $40 million stock repurchase program and have repurchased a total of 5,329,817 shares of common stock from May 2015 to March 2016 at an average price of $7.50 per share.

Working Capital and Capital Expenditure Needs

We currently have no material cash commitments, except for normal recurring trade payables, expense accruals, operating leases and non-cancelable firm purchase commitments. We expect our working capital needs to increase related to turnkey arrangements where we may purchase substantial equipment, components and materials and pay our subcontractors at the outset of a project, but we generally do not expect payment from our customers until completion and acceptance of the associated services, which may be one or more quarters later. We believe that our outsourced approach to manufacturing provides us significant flexibility in both managing inventory levels and financing our inventory. In the event that our revenue plan does not meet our expectations, we may eliminate or curtail expenditures to mitigate the impact on our working capital.

We also have a credit facility with an aggregate principal amount of up to $50.0 million, with any borrowings limited to a maximum consolidated leverage ratio of consolidated funded indebtedness to consolidated EBITDA (as defined in the Credit Agreement). The credit facility matures in September 2018, as amended. Proceeds of the credit facility may be used for general corporate purposes and permitted acquisitions. As of December 31, 2016, no revolving loans were drawn under this credit facility and our available borrowings under the terms of the Credit Agreement were approximately $4.8 million. For a detailed discussion of our credit facility, please refer to Note 11, "*Credit Facility*" of the Notes to Consolidated Financial Statements included in this Annual Report on Form 10-K.

We believe based on our current operating plan and operating cash flows, our existing cash, cash equivalents and marketable securities, along with available borrowings under our existing Credit Agreement, will be sufficient to meet our anticipated cash needs for at least the next twelve months. Our future capital requirements will depend on many factors including our rate of revenue growth, the timing, extent and size of turnkey professional services projects, the timing and extent of spending to support development efforts, particularly research and development related to growth initiatives such as our software defined access portfolio, the expansion of sales and marketing activities, the timing of introductions of new products and enhancements to existing products, the acquisition of new capabilities or technologies and the continued market acceptance of our products. In the event that additional financing is required from outside sources, we may not be able to raise it on terms acceptable to us or at all. If we are unable to raise additional capital when desired, our business, operating results and financial condition would be harmed.

Contractual Obligations and Commitments

Our principal commitments consist of obligations under operating leases for office space and non-cancelable outstanding purchase obligations. The following table summarizes our contractual obligations at December 31, 2016 (in thousands):

	Payments Due by Period				
	Total	**Less Than 1 Year**	**1-3 Years**	**3-5 Years**	**More Than 5 Years**
Operating lease obligations	$ 7,957	$ 3,103	$ 3,835	$ 1,000	$ 19
Non-cancelable purchase commitments [1]	18,981	18,981	—	—	—
Total	$ 26,938	$ 22,084	$ 3,835	$ 1,000	$ 19

(1) Represents outstanding non-cancelable purchase orders for inventories to be delivered by our suppliers, including contract manufacturers.

Future minimum operating lease obligations in the table above include primarily payments for our office space in Petaluma, California, and for our facilities in Minneapolis, Minnesota; Acton, Massachusetts; Nanjing, China; Richardson, Texas; and San Jose and Santa Barbara, California, which expire at various dates through 2022. We are actively seeking to sublease our former Richardson, Texas facility that was vacated in September 2014.

See Note 6, "*Commitments and Contingencies*" of the Notes to Consolidated Financial Statements included in this Annual Report on Form 10-K for more discussions on our operating leases and purchase commitments.

Off-Balance Sheet Arrangements

As of December 31, 2016 and December 31, 2015, we did not have any off-balance sheet arrangements.

ITEM 7A. Quantitative and Qualitative Disclosures About Market Risk

Interest Rate Risk

The primary objectives of our investment activity are to preserve principal, provide liquidity and maximize income without significantly increasing risk. By policy, we do not enter into investments for trading or speculative purposes. At December 31, 2016, we had cash, cash equivalents and marketable securities of $78.1 million, which were held primarily in cash, money market funds and highly liquid marketable securities such as corporate debt instruments and U.S. government agency securities. Due to the nature of these money market funds and highly liquid marketable securities, we believe that we do not have any material exposure to changes in the fair value of our cash equivalents and marketable securities as a result of changes in interest rates.

Our exposure to interest rate risk also relates to the amount of interest we must pay on our borrowings under our credit facility. Borrowings under our credit facility will accrue interest at a variable rate based upon the applicable base rate or LIBOR plus a margin depending on the Company's consolidated leverage ratio of consolidated funded indebtedness to consolidated EBITDA (as defined in the Credit Agreement). As of December 31, 2016, we had no borrowings under the credit facility.

Foreign Currency Exchange Risk

Our primary foreign currency exposures are described below.

Economic Exposure

The direct effect of foreign currency fluctuations on our sales and expenses has not been material because our sales and expenses are primarily denominated in U.S. dollars ("USD"). However, we are indirectly exposed to changes in foreign currency exchange rates to the extent of our use of foreign contract manufacturers whom we pay in U.S. dollars. Increases in the local currency rates of these vendors in relation to the U.S. dollar could cause an increase in the price of products that we purchase. Additionally, if the U.S. dollar strengthens relative to other currencies, such strengthening could have an indirect effect on our sales to the extent it raises the cost of our products to non-U.S. customers and thereby reduces demand. A weaker U.S. dollar could have the opposite effect. The precise indirect effect of currency fluctuations is difficult to measure or predict because our sales are influenced by many factors in addition to the impact of such currency fluctuations.

Translation Exposure

Our sales contracts are primarily denominated in USD and, therefore, the majority of our revenues are not subject to foreign currency risk. We are directly exposed to changes in foreign exchange rates to the extent such changes affect our expenses related to our foreign assets and liabilities with our subsidiary in Brazil, China and the United Kingdom, whose functional currencies are the Brazilian Real ("BRL"), Chinese Renminbi ("RMB") and British Pounds Sterling ("GBP"), respectively.

Our operating expenses are incurred primarily in the United States, with a small portion of expenses incurred in Brazil associated with sales and marketing expenses, in China associated with our research and development operations that are maintained there, and in the United Kingdom for our sales and services office there. Our operating expenses are generally denominated in the functional currencies of our subsidiaries in which the operations are located. The percentages of our operating expenses denominated in the following currencies for the indicated fiscal years were as follows:

	Years Ended December 31,		
	2016	2015	2014
USD	88%	89%	90%
RMB	7%	5%	5%
GBP	4%	5%	5%
BRL	1%	1%	—%
	100%	100%	100%

If the currency exchange rates in 2016 had been the same as in 2015, our 2016 operating results would have decreased by approximately $2.4 million. If the U.S. dollar had appreciated or depreciated by 10% relative to RMB, GBP and BRL, our operating expenses for 2016 would have decreased or increased by $2.7 million, or approximately 1%. We do not currently enter into forward exchange contracts to hedge exposure denominated in foreign currencies or any derivative financial instruments. In the future, we may consider entering into hedging transactions to help mitigate our foreign currency exchange risk.

Foreign exchange rate fluctuations may also adversely impact our financial position as the assets and liabilities of our foreign operations are translated into U.S. dollars in preparing our Consolidated Balance Sheets. The effect of foreign exchange rate fluctuations on our consolidated financial position for the year ended December 31, 2016 was a net translation loss of approximately $0.5 million. This loss is recognized as an adjustment to stockholders' equity through accumulated other comprehensive income (loss).

Transaction Exposure

We have certain assets and liabilities, primarily receivables and accounts payable (including inter-company transactions) that are denominated in currencies other than the relevant entity's functional currency. In certain circumstances, changes in the functional currency value of these assets and liabilities create fluctuations in our reported consolidated financial position, cash flows and results of operations. Transaction gains and losses on these foreign currency denominated assets and liabilities are recognized each period within other income (expense), net in our Consolidated Statements of Comprehensive Loss. During the year ended December 31, 2016, net gain we recognized related to these foreign exchange assets and liabilities was approximately $0.3 million.

ITEM 8. Financial Statements and Supplementary Data

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Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders
Calix, Inc.:

We have audited the accompanying consolidated balance sheet of Calix, Inc. and subsidiaries ("the Company") as of December 31, 2016, and the related consolidated statements of comprehensive loss, stockholders' equity, and cash flows for the year ended December 31, 2016. We also have audited Calix, Inc.'s internal control over financial reporting as of December 31, 2016, based on criteria established in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO). Calix, Inc.'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 the accompanying Management's Annual Report on Internal Controls over Financial Reporting at Item 9A. Our responsibility is to express an opinion on these consolidated financial statements and an opinion on the Company's internal control over financial reporting based on our audit.

We conducted our audit in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement and whether effective internal control over financial reporting was maintained in all material respects. Our audit of the consolidated financial statements included examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, and evaluating the overall financial statement presentation. 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 audit also included performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

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 (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) 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 (3) 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.

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of Calix, Inc. and subsidiaries as of December 31, 2016, and the consolidated results of their operations and their cash flows for the year ended December 31, 2016, in conformity with U.S. generally accepted accounting principles. Also in our opinion, Calix, Inc. maintained, in all material respects, effective internal control over financial reporting as of December 31, 2016, based on criteria established in *Internal Control - Integrated Framework* issued by the COSO.

/s/ KPMG LLP

San Francisco, California
February 28, 2017

Report of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders of Calix, Inc.

We have audited the accompanying consolidated balance sheet of Calix, Inc. as of December 31, 2015, and the related consolidated statements of comprehensive loss, stockholders' equity and cash flows for each of the two years in the period ended December 31, 2015. These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with the standards of the Public Company Accounting Oversight Board (United States). Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the consolidated financial position of Calix, Inc. at December 31, 2015, and the consolidated results of its operations and its cash flows for each of the two years in the period ended December 31, 2015, in conformity with U.S. generally accepted accounting principles.

/s/ Ernst & Young LLP

San Francisco, California
February 25, 2016

CALIX, INC.

CONSOLIDATED BALANCE SHEETS
(In thousands, except par value and share data)

	December 31, 2016	December 31, 2015
ASSETS		
Current assets:		
Cash and cash equivalents	$ 50,359	$ 23,626
Marketable securities	27,748	49,964
Accounts receivable, net	51,336	47,155
Inventory	44,545	47,667
Deferred cost of revenue	34,763	4,918
Prepaid expenses and other current assets	10,571	9,470
Total current assets	219,322	182,800
Property and equipment, net	17,984	17,149
Goodwill	116,175	116,175
Intangible assets, net	813	6,618
Other assets	1,181	1,144
Total assets	$ 355,475	$ 323,886
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	$ 23,827	$ 19,603
Accrued liabilities	69,715	35,512
Deferred revenue	27,854	12,124
Total current liabilities	121,396	67,239
Long-term portion of deferred revenue	20,237	19,569
Other long-term liabilities	878	1,293
Total liabilities	142,511	88,101
Commitments and contingencies (See Note 6)		
Stockholders' equity:		
Preferred stock, $0.025 par value; 5,000,000 shares authorized; no shares issued and outstanding as of December 31, 2016 and December 31, 2015	—	—
Common stock, $0.025 par value; 100,000,000 shares authorized; 54,722,135 shares issued and 49,392,318 shares outstanding as of December 31, 2016, and 53,049,781 shares issued and 49,509,251 shares outstanding as of December 31, 2015	1,368	1,326
Additional paid-in capital	836,563	818,754
Accumulated other comprehensive loss	(656)	(195)
Accumulated deficit	(584,325)	(556,923)
Treasury stock, 5,329,817 shares as of December 31, 2016 and 3,540,530 shares as of December 31, 2015	(39,986)	(27,177)
Total stockholders' equity	212,964	235,785
Total liabilities and stockholders' equity	$ 355,475	$ 323,886

See accompanying notes to consolidated financial statements.

CALIX, INC.

CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(In thousands, except per share data)

	Years Ended December 31,		
	2016	**2015**	**2014**
Revenue	$ 458,787	$ 407,463	$ 401,227
Cost of revenue:			
Products and services [(1)]	253,465	208,681	215,085
Amortization of intangible assets	4,104	8,353	8,353
Total cost of revenue	257,569	217,034	223,438
Gross profit	201,218	190,429	177,789
Operating expenses:			
Research and development [(1)]	106,869	89,714	80,311
Sales and marketing [(1)]	83,675	78,563	76,283
General and administrative [(1)]	41,592	38,454	31,371
Amortization of intangible assets	1,701	10,208	10,208
Litigation settlement gain	(4,500)	—	—
Total operating expenses	229,337	216,939	198,173
Loss from operations	(28,119)	(26,510)	(20,384)
Interest and other income (expense), net:			
Interest income	737	1,285	729
Interest expense	(585)	(1,144)	(806)
Other income (expense), net	912	571	228
Total interest and other income (expense), net	1,064	712	151
Loss before provision for income taxes	(27,055)	(25,798)	(20,233)
Provision for income taxes	347	535	581
Net loss	$ (27,402)	$ (26,333)	$ (20,814)
Net loss per common share:			
Basic and diluted	$ (0.56)	$ (0.51)	$ (0.41)
Weighted-average number of shares used to compute net loss per common share:			
Basic and diluted	48,730	51,489	50,808
Net loss	$ (27,402)	$ (26,333)	$ (20,814)
Other comprehensive income (loss), net of tax:			
Unrealized gains (losses) on available-for-sale marketable securities, net	$ 88	$ (36)	$ (58)
Foreign currency translation adjustments, net	(549)	(239)	(52)
Total other comprehensive income (loss), net of tax	(461)	(275)	(110)
Comprehensive loss	$ (27,863)	$ (26,608)	$ (20,924)
(1) Includes stock-based compensation as follows:			
Cost of revenue	$ 672	$ 709	$ 1,120
Research and development	5,125	4,797	5,056
Sales and marketing	4,586	4,712	5,601
General and administrative	3,902	3,587	4,240

See accompanying notes to consolidated financial statements.

CALIX, INC.

CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(In thousands)

	Common Stock		Additional Paid-in Capital	Accumulated Other Comprehensive Income (Loss)	Accumulated Deficit	Treasury Stock	Total Stockholders' Equity
	Shares	Amount					
Balance at December 31, 2013	50,225	$ 1,256	$ 782,253	$ 190	$ (509,776)	$ —	$ 273,923
Stock-based compensation	—	—	16,017	—	—	—	16,017
Exercise of stock options	224	6	1,662	—	—	—	1,668
Issuance of vested performance restricted stock units, net of taxes withheld	99	2	(535)	—	—	—	(533)
Issuance of vested restricted stock units, net of taxes withheld	449	11	(1,851)	—	—	—	(1,840)
Stock issued under employee stock purchase plan	683	17	4,610	—	—	—	4,627
Shares withheld for taxes for vested restricted stock awards	(42)	(1)	(346)	—	—	—	(347)
Restricted stock awards forfeited	(10)	—	—	—	—	—	—
Net loss	—	—	—	—	(20,814)	—	(20,814)
Other comprehensive loss	—	—	—	(110)	—	—	(110)
Balance at December 31, 2014	51,628	1,291	801,810	80	(530,590)	—	272,591
Stock-based compensation	—	—	13,805	—	—	—	13,805
Exercise of stock options	97	2	636	—	—	—	638
Issuance of vested performance restricted stock units, net of taxes withheld	92	2	(473)	—	—	—	(471)
Issuance of vested restricted stock units, net of taxes withheld	491	12	(1,733)	—	—	—	(1,721)
Stock issued under employee stock purchase plan	762	19	4,869	—	—	—	4,888
Shares withheld for taxes for vested restricted stock awards	(20)	—	(160)	—	—	—	(160)
Net loss	—	—	—	—	(26,333)	—	(26,333)
Other comprehensive loss	—	—	—	(275)	—	—	(275)
Repurchases of common stock	(3,541)	—	—	—	—	(27,177)	(27,177)
Balance at December 31, 2015	49,509	1,326	818,754	(195)	(556,923)	(27,177)	235,785
Stock-based compensation	—	—	14,285	—	—	—	14,285
Exercise of stock options	3	—	17	—	—	—	17
Issuance of vested performance restricted stock units, net of taxes withheld	26	1	(115)	—	—	—	(114)
Issuance of vested restricted stock units, net of taxes withheld	633	16	(2,003)	—	—	—	(1,987)
Stock issued under employee stock purchase plan	1,010	25	5,625	—	—	—	5,650
Net loss	—	—	—	—	(27,402)	—	(27,402)
Other comprehensive loss	—	—	—	(461)	—	—	(461)
Repurchases of common stock	(1,789)	—	—	—	—	(12,809)	(12,809)
Balance at December 31, 2016	49,392	$ 1,368	$ 836,563	$ (656)	$ (584,325)	$ (39,986)	$ 212,964

See accompanying notes to consolidated financial statements.

CALIX, INC.

CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)

	Years Ended December 31,		
	2016	2015	2014
Operating activities:			
Net loss	$ (27,402)	$ (26,333)	$ (20,814)
Adjustments to reconcile net loss to net cash provided by (used in) operating activities:			
Depreciation and amortization	8,319	10,262	9,263
Loss on retirement of property and equipment	—	24	50
Amortization of intangible assets	5,805	18,561	18,561
Amortization of premiums relating to available-for-sale securities	382	907	574
Gain on sale of available-for-sale securities	—	—	(1)
Stock-based compensation	14,285	13,805	16,017
Changes in operating assets and liabilities:			
Restricted cash	—	295	—
Accounts receivable, net	(4,185)	(16,411)	12,776
Inventory	3,122	(915)	4,319
Deferred cost of revenue	(29,845)	162	15,996
Prepaid expenses and other assets	(1,197)	2,889	(5,908)
Accounts payable	4,236	(4,021)	467
Accrued liabilities	34,913	(3,781)	7,440
Deferred revenue	16,398	(422)	(21,178)
Other long-term liabilities	(412)	(363)	513
Net cash provided by (used in) operating activities	24,419	(5,341)	38,075
Investing activities:			
Purchases of property and equipment	(9,839)	(7,278)	(11,961)
Purchases of marketable securities	(16,478)	(60,002)	(67,698)
Sales of marketable securities	—	—	615
Maturities of marketable securities	38,400	71,945	3,600
Net cash provided by (used in) investing activities	12,083	4,665	(75,444)
Financing activities:			
Proceeds from exercise of stock options	17	638	1,668
Proceeds from employee stock purchase plan	5,650	4,888	4,627
Payments for repurchases of common stock	(12,809)	(27,177)	—
Taxes paid for awards vested under equity incentive plans	(2,101)	(2,352)	(2,720)
Payments for debt issuance costs	—	(138)	—
Net cash provided by (used in) financing activities	(9,243)	(24,141)	3,575
Effect of exchange rate changes on cash and cash equivalents	(526)	(386)	(124)
Net increase (decrease) in cash and cash equivalents	26,733	(25,203)	(33,918)
Cash and cash equivalents at beginning of period	23,626	48,829	82,747
Cash and cash equivalents at end of period	$ 50,359	$ 23,626	$ 48,829
Supplemental disclosures of cash flow information			
Interest paid	$ 127	$ 127	$ 159
Income taxes paid	965	483	72
Non-cash investing activities			
Changes in accounts payable and accrued liabilities related to purchases of property and equipment	$ (478)	$ —	$ —

See accompanying notes to consolidated financial statements.

1. Description of Business and Significant Accounting Policies

Company

Calix, Inc. (together with its subsidiaries, "Calix," the "Company," "our," "we," or "us") was incorporated in August 1999, and is a Delaware corporation. The Company is a leading global provider of broadband communications access platforms, systems and software for fiber- and copper-based network architectures and a pioneer in software defined access that enables communications service providers ("CSPs") to transform their networks and enhance how they connect to their residential and business subscribers. The Company develops and sells carrier-class hardware and software products, referred to as the Calix portfolio that are designed to enhance and transform CSP access networks to meet the changing demands of subscribers rapidly and cost-effectively. The Company enables CSPs to provide a wide range of revenue-generating services, from basic voice and data to advanced broadband services, over legacy and next-generation access networks. The Company focuses solely on CSP access networks, the portion of the network that governs available bandwidth and determines the range and quality of services that can be offered to subscribers.

Basis of Presentation

The Company's fiscal year begins on January 1st and ends on December 31st. Quarterly periods are based on a 4-4-5 fiscal calendar with the first, second and third fiscal quarters ending on the 13th Saturday of each fiscal period.

The accompanying consolidated financial statements, including the accounts of Calix, Inc. and its wholly owned subsidiaries, have been prepared in accordance with the requirements of the U.S. Securities and Exchange Commission ("SEC"). In the opinion of management, the consolidated financial statements include all normal and recurring adjustments that are considered necessary for the fair presentation of the Company's financial position and operating results. All significant intercompany balances and transactions have been eliminated in consolidation.

Applicable Accounting Guidance

Any reference in these notes to applicable accounting guidance ("guidance") is meant to refer to the authoritative U.S. generally accepted accounting principles ("GAAP") as found in the Financial Accounting Standards Board ("FASB") Accounting Standards Codification ("ASC").

Use of Estimates

The preparation of financial statements is in conformity with U.S. GAAP, which requires management to make estimates and assumptions that affect the amounts reported in the consolidated financial statements and accompanying notes. For the Company, these estimates include, but are not limited to: allowances for doubtful accounts and sales returns, excess and obsolete inventory, allowances for obligations to its contract manufacturers, valuation of stock-based compensation, useful lives assigned to long-lived assets and acquired intangible assets, standard and extended warranty costs, and contingencies. Actual results could differ from those estimates, and such differences could be material to the Company's financial position and results of operations.

Revenue Recognition

The Company derives revenue primarily from the sale of hardware products and related software. Revenue is recognized when all of the following criteria have been met:

- Persuasive evidence of an arrangement exists. The Company generally relies upon sales agreements and customer purchase orders as evidence of an arrangement.
- Delivery has occurred. The Company uses the shipping terms of the arrangement or evidence of customer acceptance to verify delivery or performance.
- Sales price is fixed or determinable. The Company assesses whether the sales price is fixed or determinable based on the payment terms and whether the sales price is subject to refund or adjustment. Payment terms to customers can range from net 30 to net 120 days.
- Collectability is reasonably assured. The Company assesses collectability based primarily on creditworthiness of customers and their payment histories.

Revenue from installation and training services is recognized as the services are completed. Post-sales software support revenue and extended warranty services revenue are deferred and recognized ratably over the period during which the services are to be performed. In instances where substantive acceptance provisions are specified in the customer agreement, revenue is deferred until all acceptance criteria have been met. From time to time, the Company offers customers sales incentives, which include volume rebates and discounts. These amounts are estimated on a quarterly basis and recorded as a reduction of revenue.

The Company enters into arrangements with certain of its customers who receive government supported loans and grants from the U.S. Department of Agriculture's Rural Utility Service ("RUS") to finance capital spending. Under the terms of an RUS equipment contract that includes installation services, the customer does not take possession and control and title does not pass until formal acceptance is obtained from the customer. Under this type of arrangement, the Company does not recognize revenue until it has received formal acceptance from the

customer. For RUS arrangements that do not involve installation services, the Company recognizes revenue when all of the revenue recognition criteria as described above have been met.

The Company's products contain both software and non-software components that function together to deliver the products' essential functionality. When the Company enters into sales arrangements that consist of multiple deliverables of its product and service offerings, the Company allocates the total consideration of the arrangement to each separable deliverable based on its relative selling price. The Company limits the amount allocable to delivered elements to the amount that is not contingent upon the delivery of additional items or meeting specified performance conditions, and recognizes revenue on each deliverable in accordance with its revenue recognition policy. The determination of selling price for each deliverable is based on a selling price hierarchy, which is vendor-specific objective evidence ("VSOE") if available, third-party evidence ("TPE") if VSOE is not available, or estimated selling price ("ESP") if neither VSOE nor TPE is available. VSOE of selling price is based on the price charged when the element is sold separately. In determining VSOE, the Company requires that a substantial majority of the selling prices of an element fall within a narrow range when each element is sold separately. The Company has established VSOE for its training and post-sales software support services based on the normal pricing practices of these services when sold separately. TPE of selling price is established by evaluating whether there are similar competitor products or services that are sold in stand-alone sales transaction to similarly situated customers. Generally, the Company's marketing strategy differs from that of its peers and its offerings contain a significant level of customization and differentiation such that the comparable pricing of products with similar functionality cannot be obtained. Additionally, as the Company is unable to reliably determine what similar competitor products' selling prices are on a stand-alone basis, it is not typically able to determine TPE. ESP is established considering multiple factors including, but not limited to, geographies market conditions, competitive landscape, internal costs, gross margin objectives, characteristics of targeted customers and pricing practices. The determination of ESP is made through consultation with and formal approval by management, taking into consideration the go-to-market strategy.

Cost of Revenue

Cost of revenue consists primarily of finished goods inventory purchased from the Company's contract manufacturers, payroll and related expenses associated with managing the relationships with contract manufacturers, depreciation of manufacturing test equipment, warranty and retrofit costs, excess and obsolete inventory costs, shipping charges, and amortization of certain intangible assets. It also includes contractor and other costs of services incurred directly related to the delivery of services to customers.

Warranty and Retrofit

The Company offers limited warranties for its hardware products for a period of one, three or five years, depending on the product type. The Company recognizes estimated costs related to warranty activities as a component of cost of revenue upon product shipment or upon identification of a specific product failure. Under certain circumstances, the Company also provides fixes on specifically identified performance failures for products that are outside of the standard warranty period and recognizes estimated costs related to retrofit activities as a component of cost of revenue upon identification of such product failures. The Company recognizes estimated warranty and retrofit costs when it is probable that a liability has been incurred and the amount of loss is reasonably estimable. The estimates are based upon historical and projected product failure and claim rates, historical costs incurred in correcting product failures and information available related to any specifically identified product failures. Significant judgment is required in estimating costs associated with warranty and retrofit activities and the Company estimates are limited to information available to the Company at the time of such estimates. In some cases, such as when a specific product failure is first identified or a new product is introduced, the Company may initially have limited information and limited historical failure and claim rates upon which to base its estimates, and such estimates may require revision in future periods. The recorded amount is adjusted from time to time for specifically identified warranty and retrofit exposure. Actual warranty and retrofit expenses are charged against the Company's estimated warranty and retrofit liability when incurred. Factors that affect the Company's warranty and retrofit liability include the number of active installed units and historical and anticipated rates of warranty and retrofit claims and cost per claim.

Stock-Based Compensation

Stock-based awards are measured at fair value as of the grant date and recognized to expense over the employee's requisite service period (generally the vesting period), which the Company has elected to amortize on a straight-line basis. Stock-based compensation expense is reduced by the Company's estimated forfeitures on all unvested awards.

The fair value of stock option and employee stock purchase right under the Employee Stock Purchase Plan ("ESPP") is estimated at the grant date using the Black-Scholes option valuation model. The fair value of restricted stock units and restricted stock awards is based on the closing market price of the Company's common stock on the date of grant. The fair value of performance restricted stock units ("PRSUs") with a market condition is estimated on the date of grant, using a Monte Carlo simulation model to estimate the total return ranking of the Company's stock in relation to the peer group over each performance period. Compensation cost on PRSUs with a market condition is not adjusted for subsequent changes in the Company's stock performance or the level of ultimate vesting.

Research and Development

Research and development costs include costs of developing new products and processes, as well as design and engineering costs. Such costs are charged to research and development expense as incurred.

Development costs related to software incorporated in the Company's products incurred subsequent to the establishment of technological feasibility are capitalized and amortized over the estimated useful lives of the related products. Technological feasibility is established upon completion of a working model.

Loss Contingencies

From time to time, the Company is involved in legal proceedings arising from the normal course of business activities. The Company evaluates the likelihood of an unfavorable outcome of legal proceedings to which it is a party and accrues a loss contingency when the loss is probable and reasonably estimable. Assessing legal contingencies involves significant judgment and estimates and the outcome of litigation is inherently uncertain and subject to numerous factors outside the Company's control. Significant judgment is required when the Company assesses the likelihood of any adverse judgments or outcomes, including the potential range of possible losses, and whether losses are probable and reasonably estimable.

Because of uncertainties related to these matters, the Company bases its estimates of whether a loss contingency is probable or reasonably possible, as well as the reasonable range of possible losses associated with each loss contingency, only on the information available at the time. As additional information becomes available, and at least quarterly, the Company reassesses the potential liability on each significant matter and may revise its estimates. These revisions could have a material impact on the Company's business, operating results or financial condition. The actual outcome of these legal proceedings may materially differ from the Company's estimates of potential liability, which could have a material adverse effect on the Company's business, operating results or financial condition.

Legal Fees

The Company incurs legal expenses related to disputes, litigation and other legal actions in the ordinary course of business. Legal fees, including those legal defense costs expected to be incurred in connection with a loss contingency, are expensed as incurred in the period that the related services are received. In the event the Company has insurance coverage for legal defense costs incurred and the likelihood of reimbursement is assured, legal defense costs recognized in a period are reduced by the amount recoverable from the insurance. A receivable is recognized for the portion of legal costs recoverable under the insurance at the time such legal costs are incurred and accrued.

Credit Risk and Inventory Supplier Concentrations

Financial instruments that potentially subject the Company to significant concentrations of credit risk consist primarily of cash and cash equivalents and accounts receivable. Cash equivalents consist of money market funds, which are invested through financial institutions in the United States. Deposits in these financial institutions may, at times, exceed federally insured limits. The Company has not experienced any losses in such accounts. The Company also has approximately $5.9 million of cash held by its foreign subsidiaries in Brazil, China and the United Kingdom. Management believes that the financial institutions that hold the Company's cash and cash equivalents are financially sound and, accordingly, minimal credit risk exists with respect to these cash and cash equivalents.

Concentrations of credit risk in relation to customer with an accounts receivable balance of 10% or greater of total accounts receivable and customer with net revenues of 10% or greater of total revenues are presented below for the periods indicated.

	Percentage of Accounts Receivable		Percentage of Revenue		
	At December 31,		Years Ended December 31,		
	2016	2015	2016	2015	2014
CenturyLink	28%	27%	21%	22%	23%
Windstream	13%	*	15%	*	*

* Less than 10% of total accounts receivable or revenue.

The Company maintains an allowance for doubtful accounts for estimated losses resulting from the inability of its customers to make required payments. The Company records a specific allowance based on an analysis of individual past-due balances. Additionally, based on its historical write-offs and collections experience, the Company records an additional allowance based on a percentage of outstanding receivables. The Company performs credit evaluations of its customers' financial condition. These evaluations require significant judgment and are based on a variety of factors including, but not limited to, current economic trends, payment history and financial review of the customer. Actual collection losses may differ from management's estimates, and such differences could be material to the Company's financial position and results of operations.

The Company depends primarily on a small number of outside contract manufacturers for the bulk of its finished goods inventory. In particular, the Company relies on Flex Ltd., formerly Flextronics for the manufacture of a large percentage of its products. The Company generally purchases its products through purchase orders with its suppliers or contract manufacturers. While the Company seeks to maintain a sufficient reserve of its products, the Company's business and results of operations could be adversely affected by a stoppage or delay in receiving such products, the receipt of defective parts, an increase in price of such products or the Company's inability to obtain lower prices from its contract manufacturers and suppliers in response to competitive pressures.

Fair Value of Financial Instruments

The carrying amounts of cash and cash equivalents, marketable securities, trade receivables, accounts payable, and other accrued liabilities approximate their fair value due to their relatively short-term nature.

Cash, Cash Equivalents, and Marketable Securities

The Company has invested its excess cash primarily in money market funds and highly liquid marketable securities such as corporate debt instruments, commercial paper and U.S. government agency securities. The Company considers all investments with maturities of three months or less when purchased to be cash equivalents. Marketable securities represent highly liquid corporate debt instruments, commercial paper and U.S. government agency securities with maturities greater than 90 days at date of purchase. Marketable securities with maturities greater than one year are classified as current because management considers all marketable securities to be available for current operations.

Cash equivalents and marketable securities are stated at amounts that approximate fair value based on quoted market prices.

The Company's investments have been classified and accounted for as available-for-sale. Such investments are recorded at fair value and unrealized holding gains and losses are reported as a separate component of comprehensive loss in the stockholders' equity until realized. Realized gains and losses on sales of marketable securities, if any, are determined on the specific identification method and are reclassified from accumulated other comprehensive income to results of operations as other income (expense).

The Company, to date, has not determined that any of the unrealized losses on its investments are considered to be other-than-temporary. The Company reviews its investment portfolio to determine if any security is other-than-temporarily impaired, which would require the Company to record an impairment charge in the period any such determination is made. In making this judgment, the Company evaluates, among other things: the duration and extent to which the fair value of a security is less than its cost; the financial condition of the issuer and any changes thereto; and the Company's intent and ability to hold its investment for a period of time sufficient to allow for any anticipated recovery in market value, or whether the Company will more likely than not be required to sell the security before recovery of its amortized cost basis. The Company has evaluated its investments as of December 31, 2016 and has determined that no investments with unrealized losses are other-than-temporarily impaired. No investments have been in a continuous loss position greater than one year.

Allowance for Doubtful Accounts

The Company maintains an allowance for doubtful accounts for estimated losses resulting from the inability of its customers to make required payments. The Company records a specific allowance based on an analysis of individual past-due balances. Additionally, based on historical write-offs and the Company's collection experience, the Company records an additional allowance based on a percentage of outstanding receivables. The Company performs credit evaluations of its customers' financial condition. These evaluations require significant judgment and are based on a variety of factors including, but not limited to, current economic trends, payment history and a financial review of the customer. Actual collection losses may differ from management's estimates, and such differences could be material to our financial position and results of operations.

Inventory Valuation

Inventory, which primarily consists of finished goods purchased from contract manufacturers, is stated at the lower of cost, determined by the first-in, first-out method, or market value. Inbound shipping costs are included in cost of inventory. In addition, the Company, from time to time, procures component inventory primarily as a result of manufacturing discontinuation of critical components by suppliers. The Company regularly monitors inventory quantities on hand and records write-downs for excess and obsolete inventories based on the Company's estimate of demand for its products, potential obsolescence of technology, product life cycles, and whether pricing trends or forecasts indicate that the carrying value of inventory exceeds its estimated selling price. These factors are impacted by market and economic conditions, technology changes, and new product introductions and require estimates that may include elements that are uncertain. Actual demand may differ from forecasted demand and may have a material effect on gross margins. If inventory is written down, a new cost basis is established that cannot be increased in future periods. Shipments from suppliers or contract manufacturers before the Company receives them are recorded as in-transit inventory when title and the significant risks and rewards of ownership have passed to the Company.

Deferred Revenue and Deferred Cost of Revenue

Deferred revenue results from transactions where the Company billed the customer for product shipped or services performed but not all revenue recognition criteria have been met.

When the Company's products have been shipped, but the product revenue associated with the arrangement has been deferred as a result of not meeting the criteria for immediate revenue recognition, the Company also defers the related inventory costs for the delivered items until all criteria are met for revenue recognition. The Company defers tangible direct costs associated with hardware products delivered based on the inventory cost at the time of shipment.

Certain costs directly related to the delivery of professional services that cannot be accounted for separately from the undelivered items included in a multiple element arrangement or have not been earned yet are also capitalized and deferred, if deemed recoverable, until all revenue recognition criteria are met. Accordingly, all cost of services incurred directly related to the delivery of an inseparable professional service item in which revenue has not yet been recognized are deferred and recorded within "Deferred cost of revenue" in the Company's Consolidated Balance Sheets.

The Company evaluates deferred cost of revenue for recoverability based on multiple factors, including whether net revenues will exceed the amount of deferred cost of revenue applicable to each deliverable specified in the arrangement. To the extent that deferred cost of revenue is determined to be unrecoverable, the Company adjusts deferred cost of revenue with a charge to cost of revenue in the current period. In connection with the Company's recoverability assessments, it has incurred $2.2 million of impairment charges through December 31, 2016. The Company did not incur significant impairment charges as of December 31, 2015.

The Company recognizes deferred revenue and associated deferred cost of revenue, as revenue and cost of revenue respectively, in the Consolidated Statements of Comprehensive Loss once all revenue recognition criteria have been met.

Property and Equipment

Property and equipment are stated at cost, less accumulated depreciation, and are depreciated using the straight-line method over the estimated useful life of each asset. Computer equipment is depreciated over two years; purchased software is depreciated over three years; test equipment is depreciated over three years; furniture and fixtures are depreciated over seven years; and leasehold improvements are depreciated over the shorter of the respective lease term or the estimated useful life of the asset. Maintenance and repairs are charged to expense as incurred.

Goodwill

The Company records goodwill when consideration paid in a business acquisition exceeds the fair value of the net tangible assets and the identified intangible assets acquired. Goodwill is not amortized but instead is subject to an annual impairment test or more frequently if events or changes in circumstances indicate that it may be impaired. The Company evaluates goodwill on an annual basis as of the end of the second quarter of each fiscal year. Management has determined that it operates as a single reporting unit and, therefore, evaluates goodwill impairment at the enterprise level.

In an annual impairment test, the Company first assesses qualitative factors to determine whether it is necessary to perform the two-step quantitative goodwill impairment test. In assessing the qualitative factors, management considers the impact of these key factors: macro-economic conditions, industry and market environment, overall financial performance of the Company, cash flow from operating activities, market capitalization and stock price. If the Company determines as a result of the qualitative assessment that it is more likely than not (that is, a likelihood of more than 50 percent) that the fair value of a reporting unit is less than its carrying amount, then the quantitative test is required. Otherwise, no further testing is required.

In a quantitative test, the Company compares its fair value to its carrying value including goodwill. The Company determines its fair value using both an income approach and a market approach. Under the income approach, the Company determines fair value based on estimated future cash flows, discounted by an estimated weighted-average cost of capital, which reflects the overall level of inherent risk of the Company and the rate of return an outside investor would expect to earn. Under the market-based approach, the Company utilizes information regarding the Company as well as publicly available industry information to determine earnings multiples that are used to value the Company. If the carrying value of the Company exceeds its fair value, the Company will determine the amount of impairment loss by comparing the implied fair value of goodwill with the carrying value of goodwill. An impairment charge is recognized for the excess of the carrying value of goodwill over its implied fair value.

At the end of the second quarter of 2016, the Company completed its annual goodwill impairment test. Based on its assessment of the above qualitative factors, management concluded that the fair value of the Company was more likely than not greater than its carrying amount as of June 25, 2016. As such, it was not necessary to perform the two-step quantitative goodwill impairment test at the time.

There have been no significant events or changes in circumstances subsequent to the 2016 annual impairment test that would more likely than not indicate that the carrying value of goodwill may have been impaired as of December 31, 2016. Therefore, there was no impairment to the carrying value of the Company's goodwill as of December 31, 2016. There were no impairment losses for goodwill in the years ended December 31, 2015 or 2014.

Intangible Assets and Other Long-Lived Assets

Intangible assets with finite useful lives are amortized over their estimated useful life. The Company periodically evaluates long-lived assets, including intangible assets, for impairment whenever events or changes in circumstances indicate that a potential impairment may have occurred. If such events or changes in circumstances arise, the Company compares the carrying amount of the long-lived assets to the estimated future undiscounted cash flows expected to be generated by the long-lived assets. If the estimated aggregate undiscounted cash flows are less than the carrying amount of the long-lived assets, an impairment charge, calculated as the amount by which the carrying amount of the assets exceeds the fair value of the assets, is recorded. The fair value of long-lived assets is determined based on the estimated discounted cash flows expected to be generated from the assets. The Company has reviewed events and changes to its business during the year and has determined that there was no impairment to its intangible assets and other long-lived assets during 2016. The Company did not incur any impairment losses for intangible assets and other long-lived assets in the years ended December 31, 2015 and 2014.

Income Taxes

The Company evaluates its tax positions and estimates its current tax exposure along with assessing temporary differences that result from different book to tax treatment of items not currently deductible for tax purposes. These differences result in deferred tax assets and liabilities on the Company's balance sheets, which are estimated based upon the difference between the financial statement and tax bases of assets and liabilities using the enacted tax rates that will be in effect when these differences reverse. In general, deferred tax assets represent future tax benefits to be received when certain expenses previously recognized in the Company's statements of operations become deductible expenses under applicable income tax laws or loss or credit carryforwards are utilized. Accordingly, realization of the Company's deferred tax assets is dependent on future taxable income against which these deductions, losses and credits can be utilized.

The Company must assess the likelihood that the Company's deferred tax assets will be recovered from future taxable income, and to the extent the Company believes that recovery is not more likely than not, the Company must establish a valuation allowance. Management judgment is required in determining the Company's provision for income taxes, the Company's deferred tax assets and liabilities and any valuation allowance recorded against the Company's net deferred tax assets. Excluding foreign operations, the Company recorded a full valuation allowance at each balance sheet date presented because, based on the available evidence, the Company believes it is more likely than not that it will not be able to utilize all of its deferred tax assets in the future. The Company intends to maintain the full valuation allowances until sufficient evidence exists to support the reversal of the valuation allowances.

Foreign Currency Translation

Assets and liabilities of the Company's wholly owned foreign subsidiaries are translated from their respective functional currencies at exchange rates in effect at the balance sheet date, and revenues and expenses are translated at the monthly average exchanges rates. Translation adjustments are reflected as a separate component of stockholders' equity. Realized foreign currency transaction gains and losses were not significant during the years ended December 31, 2016, 2015, and 2014.

Recent Accounting Pronouncements

Stock-Based Compensation

In March 2016, the Financial Accounting Standards Board ("FASB") issued Accounting Standards Update No. 2016-09, Compensation - Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting ("ASU 2016-09"), which simplifies several aspects of the accounting for employee share-based payment transactions for both public and nonpublic entities, including the accounting for income taxes, forfeitures, and statutory tax withholding requirements, as well as classification in the statement of cash flows. The Company adopted ASU 2016-09 in the first quarter of fiscal 2017 and will have the following impact:

a. Accounting for Income Taxes — The primary impact of the adoption was the recognition of excess tax benefits and tax deficiencies through the statement of operations when the awards vest or are settled rather than through paid-in capital. The new guidance eliminates the requirement to delay the recognition of excess tax benefits until it reduces current taxes payable and requires the recognition of excess tax benefits and tax deficiencies in the period they arise. The Company adopted this guidance on a modified retrospective basis beginning on January 1, 2017 and the adoption will have a cumulative-effect adjustment to the beginning balance of deferred tax asset and corresponding valuation allowance as of January 1, 2017. The adoption will have no cumulative-effect adjustment on January 1, 2017 accumulated deficit balance as the Company's net operating loss carryforwards are offset by a full valuation allowance.

b. Classification of Excess Tax Benefits on the Statement of Cash Flows — ASU 2016-09 requires all tax-related cash flows resulting from share-based payments to be reported as operating activities on the statement of cash flows, a change from the current requirement to present windfall tax benefits as an inflow from financing activities and an outflow from operating activities. The Company adopted this guidance prospectively beginning on January 1, 2017.

c. Forfeitures — The Company has historically recognized stock-based compensation expense net of estimated forfeitures on all unvested awards and elected to continuously do so with the adoption of this new guidance. Hence, the adoption of ASU 2016-09 as it relates to this matter will have no impact to the Company's consolidated financial statements.

d. Minimum Statutory Tax Withholding Requirements — ASU 2016-09 allows companies to withhold an amount up to the employees' maximum individual tax rate in the relevant jurisdiction without resulting in liability classification of the award. The Company adopted this guidance using a modified retrospective approach. The adoption will have no impact on the January 1, 2017 accumulated deficit as the Company had no outstanding liability awards that would otherwise qualify for equity classification under this new guidance.

e. Classification of Employee Taxes Paid on the Statement of Cash Flows When an Employer Withholds Shares for Tax-Withholding Purposes — ASU 2016-09 clarifies that all cash payments made to taxing authorities on the employees' behalf for withheld shares should be presented as financing activities on the statement of cash flows. The Company has historically presented the taxes paid related to net share settlement of equity awards as a financing activity on the statements of cash flows. Hence, the adoption of ASU 2016-09 as it relates to this matter will have no impact to the Company's consolidated financial statements.

Leases

In February 2016, the FASB issued Accounting Standards Update No. 2016-02, Leases (Topic 842) ("ASU 2016-02"), which requires recognition of an asset and liability for lease arrangements longer than twelve months. ASU 2016-02 will be effective for the Company beginning in the first quarter of fiscal 2019. Early application is permitted, and it is required to recognize and measure leases at the beginning of the earliest period presented using a modified retrospective approach. The Company expects its assets and liabilities to increase as a result of the adoption of this standard. The Company is currently assessing the potential impact of adopting this new guidance on its consolidated financial statements.

Inventory

In July 2015, the FASB issued Accounting Standards Update No. 2015-11, Inventory (Topic 330): Simplifying the Measurement of Inventory ("ASU 2015-11"), which requires measurement of inventory at lower of cost and net realizable value, versus lower of cost or market. Net realizable value is the estimated selling price in the ordinary course of business, less reasonably predictable costs of completion, disposal, and transportation. The Company adopted ASU 2015-11 prospectively beginning on January 1, 2017. The adoption of this standard will have no material impact on the Company's consolidated financial statements.

Revenue from Contracts with Customers

In May 2014, the FASB issued Accounting Standards Update No. 2014-09, Revenue from Contracts with Customers (Topic 606) ("ASU 2014-09"), which provides guidance for revenue recognition. ASU 2014-09 supersedes the revenue recognition requirements in Topic 605, Revenue Recognition, and most industry-specific guidance. Additionally, it supersedes some cost guidance included in Subtopic 605-35, Revenue Recognition-Construction-Type and Production-Type Contracts, and creates new Subtopic 340-40, Other Assets and Deferred Costs-

Contracts with Customers. The standard's core principle is that a company will recognize revenue when it transfers promised goods or services to customers in an amount that reflects the consideration to which the company expects to be entitled in exchange for those goods or services. In doing so, companies will need to use more judgment and make more estimates than under the previous guidance. These may include identifying performance obligations in the contract, estimating the amount of variable consideration to include in the transaction price and allocating the transaction price to each separate performance obligation. On August 12, 2015, the FASB issued Accounting Standards Update No. 2015-14, Revenue from Contracts with Customers (Topic 606), Deferral of the Effective Date ("ASU 2015-14") to defer the effective date of ASU 2014-09 by one year. ASU 2015-14 permits early adoption of the new revenue standard, but not before its original effective date. In April 2016, the FASB issued Accounting Standards Update No. 2016-10, Revenue from Contracts with Customers (Topic 606): Identifying Performance Obligations and Licensing ("ASU 2016-10") which further clarifies guidance related to identifying performance obligations and licensing implementation guidance contained in ASU 2014-09. In May 2016, the FASB issued Accounting Standards Update No. 2016-12, Revenue from Contracts with Customers (Topic 606): Narrow-Scope Improvements and Practical Expedients ("ASU 2016-12") which addresses narrow-scope improvements to the guidance on collectibility, non-cash consideration, and completed contracts at transition and provides a practical expedient for contract modifications at transition and an accounting policy election related to the presentation of sales taxes and other similar taxes collected from customers.

The new standard permits adoption either by using (i) a full retrospective approach for all periods presented in the period of adoption or (ii) a modified retrospective approach with the cumulative effect of initially applying the new standard recognized at the date of initial application and providing certain additional disclosures. The Company has not yet determined which transition method it will adopt. Its determination will depend on a number of factors, such as the significance of the impact of the new standard on its financial results, system readiness and its ability to accumulate and analyze the information necessary to assess the impact on prior period financial statements, as necessary. The standard will be effective for the Company in the first quarter of fiscal 2018, with early adoption permitted for annual reporting period beginning in the first quarter of fiscal 2017. The Company is not planning to early adopt, and accordingly, it will adopt the new standard effective January 1, 2018.

The Company is in the initial stages of its evaluation of the impact of the new standard on its accounting policies, processes, and system requirements. The Company has assigned internal resources in addition to the engagement of third party service providers to assist in its evaluation. Additionally, the Company expects to make investments in new systems or enhancement of existing systems to enable timely and accurate reporting under the new standard. While the Company continues to perform further assessment of all potential impacts under the new standard, the Company expects the timing of revenue recognition to be accelerated for certain performance obligations related to certain revenue arrangements which are currently deferred until customer acceptance. Depending on the outcome of the Company's final evaluation, the timing of when revenue is recognized could change significantly for those revenue arrangements under the new standard.

As part of its preliminary evaluation, the Company also considered the impact of the guidance in ASC 340-40, Other Assets and Deferred Costs - Contracts with Customers with respect to capitalization and amortization of incremental costs of obtaining a contract. As a result of this new guidance, the Company may need to capitalize additional costs of obtaining the contract, including sales commissions, as the new cost guidance requires the capitalization of all incremental costs incurred to obtain a contract with a customer that it would not have incurred if the contract had not been obtained, provided it expects to recover the costs. Accordingly, the Company may need to defer certain sales commissions and amortize them over the period that the related revenue is recognized.

While the Company continues to assess all the potential impacts of the new standard, including the areas described above, and anticipates this standard could have a material impact on its consolidated financial statements, the Company is not able to quantify or cannot reasonably estimate quantitative information related to the impact of the new standard on its consolidated financial statements at this time.

2. Cash, Cash Equivalents and Marketable Securities

Cash, cash equivalents and marketable securities consisted of the following (in thousands):

	December 31, 2016	December 31, 2015
Cash and cash equivalents:		
Cash	$ 34,340	$ 13,378
Money market funds	15,020	10,248
Commercial paper	999	—
Total cash and cash equivalents	50,359	23,626
Marketable securities:		
Corporate debt securities	17,272	35,799
Commercial paper	6,275	3,645
U.S. government agency securities	4,201	10,520
Total marketable securities	27,748	49,964
Total cash, cash equivalents and marketable securities	$ 78,107	$ 73,590

The carrying amounts of our money market funds approximate their fair values due to their nature, duration and short maturities.

The amortized cost and fair value of marketable securities as of December 31, 2016 were as follows (in thousands):

	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Corporate debt securities	$ 17,279	$ 1	$ (8)	$ 17,272
Commercial paper	6,275	—	—	6,275
U.S. government agency securities	4,200	1	—	4,201
Total marketable securities	$ 27,754	$ 2	$ (8)	$ 27,748

The amortized cost and fair value of marketable securities as of December 31, 2015 were as follows (in thousands):

	Amortized Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Corporate debt securities	$ 35,869	$ 2	$ (72)	$ 35,799
Commercial paper	3,645	—	—	3,645
U.S. government agency securities	10,544	—	(24)	10,520
Total marketable securities	$ 50,058	$ 2	$ (96)	$ 49,964

As of December 31, 2016 and December 31, 2015, there were no marketable securities, classified and accounted for as available-for-sale securities that have been in a continuous unrealized loss position in excess of twelve months.

As of December 31, 2016, the amortized cost and fair value of marketable securities by contractual maturity were as follows (in thousands):

	Amortized Cost	Fair Value
Due in 1 year or less	$ 27,754	$ 27,748

3. Fair Value Measurements

The Company measures its cash equivalents and marketable securities at fair value on a recurring basis. Fair value is an exit price, representing the amount that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants. As such, fair value is a market-based measurement that should be determined based on assumptions that market participants would use in pricing an asset or liability. The Company utilizes the following three-tier value hierarchy which prioritizes the inputs used in measuring fair value:

Level 1 – Observable inputs that reflect quoted prices (unadjusted) for identical assets or liabilities in active markets.

Level 2 – Observable inputs other than quoted prices included in Level 1 for similar instruments in active markets, quoted prices for identical or similar instruments in markets that are not active, and model-driven valuations in which all significant inputs and significant value drivers are observable in active markets.

Level 3 – Unobservable inputs to the valuation derived from fair valuation techniques in which one or more significant inputs or significant value drivers are unobservable. The fair value hierarchy also requires the Company to maximize the use of observable inputs, when available, and to minimize the use of unobservable inputs when determining inputs and determining fair value.

The following table sets forth the Company's financial assets measured at fair value as of December 31, 2016 and 2015, based on the three-tier fair value hierarchy (in thousands):

As of December 31, 2016	Level 1	Level 2	Total
Money market funds	$ 15,020	$ —	$ 15,020
Corporate debt securities	—	17,272	17,272
Commercial paper	—	7,274	7,274
U.S. government agency securities	—	4,201	4,201
Total	$ 15,020	$ 28,747	$ 43,767

As of December 31, 2015	Level 1	Level 2	Total
Money market funds	$ 10,248	$ —	$ 10,248
Corporate debt securities	—	35,799	35,799
Commercial paper	—	3,645	3,645
U.S. government agency securities	—	10,520	10,520
Total	$ 10,248	$ 49,964	$ 60,212

The fair values of money market funds classified as Level 1 were derived from quoted market prices as active markets for these instruments exist. The fair values of corporate debt securities, commercial paper and U.S. government agency securities classified as Level 2 were derived from quoted market prices for similar instruments indexed to prevailing market yield rates. The Company has no level 3 financial assets. The Company did not have any transfers between Level 1 and Level 2 of the fair value hierarchy during the twelve months ended December 31, 2016 and 2015.

4. Goodwill and Intangible Assets

Goodwill

Goodwill was recorded as a result of the Company's acquisitions of Occam Networks, Inc. ("Occam") in February 2011 and Optical Solutions, Inc. ("OSI") in February 2006. This goodwill is not deductible for tax purposes, and there have been no adjustments or impairment to goodwill since the acquisition dates.

Intangible Assets

Intangible assets are carried at cost, less accumulated amortization. The details of intangible assets as of December 31, 2016 and 2015 are disclosed in the following table (in thousands):

	December 31, 2016			December 31, 2015		
	Gross Carrying Amount	Accumulated Amortization	Net	Gross Carrying Amount	Accumulated Amortization	Net
Core developed technology	$ 68,964	$ (68,151)	$ 813	$ 68,964	$ (64,047)	$ 4,917
Customer relationships	54,740	(54,740)	—	54,740	(53,039)	1,701
Total intangible assets, excluding goodwill	$ 123,704	$ (122,891)	$ 813	$ 123,704	$ (117,086)	$ 6,618

Amortization expense for intangible assets was $5.8 million, $18.6 million, and $18.6 million for the years ended December 31, 2016, 2015, and 2014, respectively. Expected future amortization expense for the fiscal year indicated is as follows (in thousands):

Period	Expected Amortization Expense
2017	$ 813

5. Balance Sheet Details

Accounts receivable, net consisted of the following (in thousands):

	December 31, 2016	December 31, 2015
Accounts receivable	$ 52,792	$ 48,319
Allowance for doubtful accounts	(518)	(501)
Product return reserve	(938)	(663)
Accounts receivable, net	$ 51,336	$ 47,155

The table below summarizes the changes in allowance for doubtful accounts and product return reserve for the periods indicated (in thousands):

	Balance at Beginning of Year	Additions Charged to Costs or Expenses or Revenue	Deductions and Write Offs	Balance at End of Year
Year Ended December 31, 2016				
Allowance for doubtful accounts	$ 501	$ 232	$ (215)	$ 518
Product return reserve	663	3,679	(3,404)	938
Year Ended December 31, 2015				
Allowance for doubtful accounts	$ 241	$ 405	$ (145)	$ 501
Product return reserve	508	4,224	(4,069)	663
Year Ended December 31, 2014				
Allowance for doubtful accounts	$ 358	$ 154	$ (271)	$ 241
Product return reserve	764	4,805	(5,061)	508

Inventory consisted of the following (in thousands):

	December 31, 2016	December 31, 2015
Raw materials	$ 1,827	$ 2,209
Finished goods	42,718	45,458
Total inventory	$ 44,545	$ 47,667

Property and equipment, net consisted of the following (in thousands):

	December 31, 2016	December 31, 2015
Test equipment	$ 43,580	$ 39,035
Computer equipment and purchased software	30,306	27,736
Furniture and fixtures	2,831	1,833
Leasehold improvements	6,898	6,554
Total	83,615	75,158
Accumulated depreciation and amortization	(65,631)	(58,009)
Property and equipment, net	$ 17,984	$ 17,149

Depreciation and amortization expense was $8.3 million, $10.3 million, $9.3 million for the years ended December 31, 2016, 2015, and 2014, respectively.

Accrued liabilities consisted of the following (in thousands):

	December 31, 2016	December 31, 2015
Advance customer payments	$ 20,726	$ 1,094
Accrued compensation and related benefits	19,541	13,809
Accrued warranty and retrofit	12,214	9,564
Accrued professional and consulting fees	8,205	2,813
Accrued customer rebates	1,931	784
Accrued excess and obsolete inventory at contract manufacturers	1,327	1,011
Accrued freight	1,198	486
Accrued insurance	804	—
Accrued non-income related taxes	699	905
Accrued business travel expenses	463	580
Accrued rent	421	381
Accrued hosting services	240	466
Income taxes payable	231	322
Accrued other	1,715	3,297
Total accrued liabilities	$ 69,715	$ 35,512

As of December 31, 2016, in conjunction with a revenue contract, the Company received $20 million as payments in advance of providing products and services to a customer.

Deferred revenue consisted of the following (in thousands):

	December 31, 2016	December 31, 2015
Current:		
Product and services	$ 24,472	$ 8,937
Extended warranty	3,382	3,187
	27,854	12,124
Non-current:		
Product and services	22	58
Extended warranty	20,215	19,511
	20,237	19,569
Total deferred revenue	$ 48,091	$ 31,693

Deferred cost of revenue consisted of costs incurred for products and services for which revenues have been deferred or not yet earned.

6. Commitments and Contingencies

Lease Commitments

The Company leases office space under non-cancelable operating leases. Certain of the Company's operating leases contain renewal options and rent acceleration clauses. Future minimum payments under the non-cancelable operating leases consisted of the following as of December 31, 2016 (in thousands):

Period	Minimum Future Lease Payments
2017	$ 3,103
2018	2,774
2019	1,061
2020	717
2021	283
Thereafter	19
Total	$ 7,957

The Company leases its primary office space in Petaluma, California under a lease agreement ("Petaluma Lease") that extended through February 2014. On January 28, 2013, the Company entered into an amendment to its Petaluma Lease ("Amendment") to extend the lease term to February 2019. In connection with the Petaluma Lease and the Amendment, the Company received lease incentives of $1.2 million and $0.4 million, respectively, which can be used for leasehold improvements or be applied as credits to rent payments. The Company capitalized the full amount of the lease incentives upon inception of the respective agreement and these incentives are being amortized to reduce rent expense over the extended lease term. As of December 31, 2016, total unamortized lease incentive was $0.2 million of which $0.1 million and $0.1 million were included in "Accrued liabilities" and "Other long-term liabilities," respectively, in the Consolidated Balance Sheet as of December 31, 2016. Payments under the Company's operating leases that escalate over the term of the lease are recognized as rent expense on a straight-line basis.

The above table also includes future minimum lease payments primarily for our facilities in Minneapolis, Minnesota; Acton, Massachusetts; Nanjing, China; Richardson, Texas; and San Jose, and Santa Barbara, California, which expire at various dates through 2022.

For the years ended December 31, 2016, 2015, and 2014, total rent expense of the Company, net of sublease income, was $3.7 million, $3.5 million, and $4.1 million, respectively.

Purchase Commitments

The Company's primary contract manufacturers place orders for component inventory in advance based upon the Company's build forecasts in order to reduce manufacturing lead times and ensure adequate component supply. The components are used by the contract manufacturers to build the products included in the build forecasts. The Company does not take ownership of the components and any outstanding orders do not represent firm purchase commitments pursuant to the Company's agreement with the contract manufacturer. The Company will provide purchase orders to its contract manufacturers in order to fulfill its monthly finished product inventory requirements. The Company incurs a liability when the contract manufacturer has converted the component inventory to a finished product and takes ownership of the inventory when transferred to the designated shipping warehouse. However, historically, the Company has reimbursed its primary contract manufacturer for component inventory purchases when this inventory has been rendered excess or obsolete, for example

due to manufacturing and engineering change orders resulting from design changes, manufacturing discontinuation of parts by its suppliers, or in cases where inventory levels greatly exceed projected demand. The estimated excess and obsolete inventory liabilities related to such manufacturing and engineering change orders and other factors, which are included in accrued liabilities in the accompanying balance sheets, were $1.3 million and $1.0 million as of December 31, 2016 and 2015, respectively. The Company records these amounts in cost of products and services in its Consolidated Statements of Comprehensive Loss.

As of December 31, 2016, the Company had non-cancelable outstanding purchase orders of $19.0 million for inventories to be delivered by its suppliers, including contract manufacturers, within one year.

Contingencies

The Company evaluates the circumstances regarding outstanding and potential litigation and other contingencies on a quarterly basis to determine whether there is at least a reasonable possibility that a loss exists requiring accrual or disclosure, and if so, whether an estimate of the possible loss or range of loss can be made, or whether such an estimate cannot be made. When a loss is probable and reasonably estimable, the Company accrues for such amount based on its estimate of the probable loss considering information available at the time. When a loss is reasonably possible, the Company discloses the estimated possible loss or range of loss in excess of amounts accrued if material. Except as otherwise disclosed below, the Company does not believe that there was a reasonable possibility that a material loss may have been incurred during the period presented with respect to the matters disclosed.

Accrued Warranty and Retrofit

The Company provides a standard warranty for its hardware products. Hardware generally has a one-, three-, or five-year standard warranty from the date of shipment. Under certain circumstances, the Company also provides fixes on specifically identified performance failures for products that are outside of the standard warranty period and recognizes estimated costs related to retrofit activities upon identification of such product failures. The Company accrues for potential warranty and retrofit claims based on the Company's historical product failure rates and historical costs incurred in correcting product failures along with other relevant information related to any specifically identified product failures. The Company's warranty and retrofit accruals are based on estimates of losses that are probable based on information available. The adequacy of the accrual is reviewed on a periodic basis and adjusted, if necessary, based on additional information as it becomes available.

Changes in the Company's warranty and retrofit reserves in the periods as indicated were as follows (in thousands):

	Years Ended December 31,		
	2016	2015	2014
Balance at beginning of period	$ 9,564	$ 9,553	$ 10,856
Provision for warranty and retrofit charged to cost of revenue	9,898	4,661	3,394
Utilization of reserve	(6,816)	(4,115)	(3,328)
Adjustments to pre-existing reserve	(432)	(535)	(1,369)
Balance at end of period	$ 12,214	$ 9,564	$ 9,553

Litigation

From time to time, the Company is involved in various legal proceedings arising from the normal course of business activities.

Steinhardt v. Howard-Anderson, et al.

As previously disclosed, in connection with the Company's February 22, 2011 merger transaction with Occam Networks, Inc. ("Occam") a complaint was filed on October 6, 2010 by stockholders of Occam in the Delaware Court of Chancery styled as *Steinhardt v. Howard-Anderson, et al.* (Case No. 5878-VCL). The complaint, as initially amended, sought injunctive relief rescinding the merger transaction and an award of damages in an unspecified amount, as well as plaintiffs' costs, attorneys' fees, and other relief, and also alleged that Occam (which has since merged into Calix), each Occam director and the Occam CFO breached their fiduciary duties by failing to attempt to obtain the best purchase price for Occam and failing to disclose certain allegedly material facts about the merger transaction in the preliminary proxy statement and prospectus included in the Registration Statement on Form S-4 for the transaction. In July 2015, the complaint was amended to add Wilson Sonsini Goodrich & Rosati, P.C. ("Wilson Sonsini"), Occam's counsel and former defense counsel in this lawsuit. Trial on the matter commenced on April 11, 2016 before the Delaware Court of Chancery.

On April 14, 2016, the parties entered into a memorandum of understanding of a settlement in principle ("Settlement") to resolve all of the claims pending before the Delaware Court of Chancery and related claims for a total settlement consideration of $35.0 million. The Settlement was made without any admission of any wrongdoing on the part of the Company or its officers and directors. Further, the Settlement terms provide that neither the Company nor any of its officers or directors would be required to make any contribution to the settlement consideration of $35 million to be paid for the benefit of the plaintiff class. On May 31, 2016, the parties signed a global settlement agreement reflecting the terms of the Settlement and filed the agreement for court approval. The court approved the global settlement at a hearing held on August 26, 2016 and, on September 7, 2016, issued its Order and Final Judgment, terminating the case before the Delaware Court of Chancery.

Under the terms of the Settlement (and separate from the settlement consideration), the Company was to receive a cash payment of $4.5 million in partial recovery of its out-of-pocket expenses incurred in the litigation, payable to the Company within 45 days of the court's order entering judgment in the litigation unless an appeal is timely filed. No appeals were filed and, in November 2016, the Company received the $4.5 million cash payment. Accordingly, the Company recognized $4.5 million as "Litigation settlement gain" in the

year ended December 31, 2016, presented as a reduction to operating expenses in the accompanying Consolidated Statements of Comprehensive Loss.

The Company did not previously accrue any estimated loss in connection with this action and, as a result of the Settlement, will not recognize any loss related to this action. The Company incurred defense costs related to this litigation in connection with its obligations, under certain circumstances, to hold harmless and indemnify each of the former Occam directors and officers named as defendants in this action against judgments, fines, settlements and expenses related to claims against such directors and officers to the fullest extent permitted under Delaware law and Occam's bylaws and certificate of incorporation. In addition, the Company has paid fees and expenses incurred by Jefferies in connection with this matter pursuant to Jefferies indemnity demand under the engagement letter between Occam and Jefferies. Defense costs that were in excess of available insurance coverage or for which the Company's insurance carriers denied coverage were recorded as operating expense in the Company's Consolidated Statement of Comprehensive Loss in the periods incurred. Until the Settlement was reached, the Company continued to incur significant litigation expenses, including expenses that were not covered by insurance, to defend and litigate this matter. The Company recorded litigation defense costs and expenses in excess of its insurance coverage of $6.4 million, $3.7 million, and $1.0 million for the years ended December 31, 2016, 2015, and 2014, respectively, as operating expense in the accompanying Consolidated Statements of Comprehensive Loss.

The Company is not currently a party to any other legal proceedings that, if determined adversely to the Company, in management's opinion, are currently expected to individually or in the aggregate have a material adverse effect on the Company's business, operating results or financial condition taken as a whole.

Guarantees

The Company from time to time enters into contracts that require it to indemnify various parties against claims from third parties. These contracts primarily relate to (i) certain real estate leases, under which the Company may be required to indemnify property owners for environmental and other liabilities, and other claims arising from the Company's use of the applicable premises, (ii) agreements with the Company's officers, directors, and certain employees, under which the Company may be required to indemnify such persons for liabilities arising out of their relationship with the Company, (iii) contracts under which the Company may be required to indemnify customers against third-party claims that a Company product infringes a patent, copyright, or other intellectual property right and (iv) procurement or license agreements, under which the Company may be required to indemnify licensors or vendors for certain claims that may be brought against them arising from the Company's acts or omissions with respect to the supplied products or technology.

Because any potential obligation associated with these types of contractual provisions are not quantified or stated, the overall maximum amount of the obligation cannot be reasonably estimated. Historically, the Company has not been required to make payments under these obligations, and no liabilities have been recorded for these obligations in the accompanying Consolidated Balance Sheets.

7. Net Loss per Share

The following table sets forth the computation of basic and diluted net loss per share for the periods indicated (in thousands, except per share data):

	Years Ended December 31,		
	2016	**2015**	**2014**
Numerator:			
Net loss	$ (27,402)	$ (26,333)	$ (20,814)
Denominator:			
Weighted-average common shares outstanding	48,730	51,489	50,808
Basic and diluted net loss per common share	$ (0.56)	$ (0.51)	$ (0.41)
Potentially dilutive shares, weighted-average	5,890	6,120	5,020

For the years ended December 31, 2015 and 2014, unvested restricted stock awards are included in the calculation of basic weighted-average shares because such shares are participating securities; however, the impact was immaterial. All restricted stock awards completed their vesting on July 20, 2015.

Potentially dilutive shares have been excluded from the computation of diluted net loss per common share when their effect is antidilutive. These antidilutive shares were primarily from stock options, restricted stock units and performance restricted stock awards. For each of the periods presented where the Company reported a net loss, the effect of all potentially dilutive securities would be antidilutive, and as a result diluted net loss per common share is the same as basic net loss per common share.

8. Stockholders' Equity

Common Stock

Holders of our common stock are entitled to receive dividends, if any, as may be declared from time to time by our board of directors out of legally available funds. No dividends have been declared or paid as of December 31, 2016. In the event of our liquidation, dissolution or winding up, holders of our common stock will be entitled to share ratably in the net assets legally available for distribution to stockholders after the payment of all of our debts and other liabilities and the satisfaction of any liquidation preference granted to the holders of any then outstanding shares of preferred stock.

Preferred Stock

The board of directors has the authority, without action by stockholders with the exception of stockholders who hold board positions, to designate and issue up to 5.0 million shares of preferred stock in one or more series and to fix the rights, preferences, privileges and restrictions thereof. These rights, preferences and privileges could include dividend rights, conversion rights, voting rights, terms of redemption, liquidation preferences, sinking fund terms and the number of shares constituting any series or the designation of such series, any or all of which may be greater than the rights of common stock. The issuance of the Company's preferred stock could adversely affect the voting power of holders of common stock and the likelihood that such holders will receive dividend payments and payments upon liquidation. In addition, the issuance of preferred stock could have the effect of delaying, deferring or preventing a change in control of the Company or other corporate action. Subsequent to the Company's initial public offering and the conversion of all preferred stock outstanding at that date, the board of directors has not designated any rights, preference or powers of any preferred stock and no shares of preferred stock have been issued.

Equity Incentive Plans

The Company currently maintains two equity incentive plans, the 2002 Stock Plan ("2002 Plan") and the 2010 Equity Incentive Award Plan ("2010 Plan"). These plans were approved by the stockholders. Under the 2002 Plan, the Company may grant incentive stock options at a price not less than 100% of the fair market value of the common stock on the date of grant and non-statutory stock options at a price not less than 100% of the fair market value of the common stock on the date of grant. Before April 2004, certain options could be granted with the right to exercise those options before vesting. The majority of the stock options granted under the 2002 Plan vest over 4 years and expire in 10 years.

The 2010 Plan allows the Company to grant stock options, restricted stock awards ("RSA"), restricted stock units ("RSU"), performance restricted stock units ("PRSU"), stock appreciation rights, dividend equivalents, deferred stock, and stock payments to employees, directors and consultants of the Company. A total of 4,666,666 shares of common stock were reserved for future issuance under the 2010 Plan, which became effective upon the completion of the Company's initial public offering of common stock. In addition, on the first day of each year beginning in 2011 and ending in 2020, the 2010 Plan provides for an annual automatic increase to the shares reserved for issuance and no more than 17,150,494 shares of Common Stock may be issued upon the exercise of Incentive Stock Options. Pursuant to the automatic annual increase, a total of 3,999,996 additional shares had been reserved under the 2010 Plan since 2011.

Upon the effectiveness of the 2010 Plan, equity awards were granted only under the 2010 Plan and shares of common stock previously reserved for issuance under the prior plans became available for issuance under the 2010 Plan. To date, awards granted under the 2010 Plan consist of stock options, RSAs, RSUs and PRSUs.

Stock options granted under the 2010 Plan are granted in general at a price not less than 100% of the fair market value of the common stock on the date of grant. Prior to 2016, stock options issued under the 2010 Plan generally vest 25% on the first anniversary of the vesting commencement date and on a monthly basis thereafter for a period of an additional three years. Stock options granted during fiscal 2016 vest 25% on the first anniversary of the vesting commencement date and on a quarterly basis thereafter for a period of an additional three years. The options have a maximum term of ten years.

Each RSU granted under the 2010 Plan represents a right to receive one share of the Company's common stock (subject to adjustment for certain specified changes in the capital structure of the Company) upon the completion of a specific period of continued service. The majority of RSUs granted vest over four years.

In July 2011, the Company granted 423,000 RSAs to executives under the 2010 Plan, which vest 25% per year for 4 years from the grant date. Upon issuance of RSA, the holder is entitled to have all the rights of a stockholder, subject to the restrictions in his or her Award Agreement, including the right to receive all dividends and other distributions paid or made with respect to the shares. All RSAs completed their vesting on July 20, 2015.

In 2012, the Company commenced granting PRSUs to its executives with two-year and three-year performance periods. The performance criterion is based on the relative total shareholder return ("TSR") of Calix common stock as compared to the TSR of the Company's peer group. The TSR is calculated by dividing (a) the average closing trading price for the 90-day period ending on the last day of the applicable performance period by (b) the average closing trading price for the 90-day period immediately preceding the first day of the applicable performance period. This TSR is then used to derive the achievement ratio, which is then multiplied by the number of units in the grant to derive the common stock to be issued for each performance period, which may equal from zero percent (0%) to two hundred percent (200%) of the target award.

In 2016, the Company granted 550,000 PRSUs to its executives. These particular performance-based awards contain a one-year performance period and a subsequent two-year service period. The performance target is based on the Company's revenue during the performance period and accounted for as a performance condition. After the one-year performance period, if the performance target is met and subject to certification by the Compensation Committee, each PRSU award shall vest in respect to 50% of the PRSUs subject to the award in February 2017, 25% in February 2018 and 25% in February 2019, subject to the executive's continuous service with the Company from the grant date through the respective vesting dates. If the performance target is not met, all PRSUs granted under this award shall be immediately forfeited and canceled without vesting of any shares.

Stock Options

The following table summarizes the activity of stock options under the Company's equity incentive plans (in thousands, except per share data):

Stock Options	Number of Shares	Weighted-Average Exercise Price Per Share	Weighted-Average Remaining Contractual Life (in years)	Aggregate Intrinsic Value [(1)]
Outstanding as of December 31, 2015	2,655	$ 11.81		
Granted	680	6.96		
Exercised	(3)	5.77		
Forfeited	(3)	7.97		
Expired	(120)	29.31		
Outstanding as of December 31, 2016	3,209	$ 10.14	6.3	$ 703
Vested and expected to vest as of December 31, 2016	3,113	$ 10.23	6.1	$ 652
Options exercisable as of December 31, 2016	2,125	$ 11.47	4.9	$ 201

(1) Amounts represent the difference between the exercise price and the fair market value of common stock at December 31, 2016 for all in the money options outstanding.

During the years ended December 31, 2016, 2015, and 2014, total intrinsic value of stock options exercised was $5.0 thousand, $0.3 million, and $0.6 million, respectively. Total cash received from employees as a result of stock option exercises in 2016, 2015, and 2014 was $17.0 thousand, $0.6 million, and $1.7 million, respectively. Total fair values of stock options vested during 2016, 2015, and 2014 were $1.9 million, $2.8 million, and $3.7 million, respectively.

Restricted Stock Units and Performance Restricted Stock Units

The following table summarizes the activities of the Company's RSUs and PRSUs under the Company's equity incentive plans (in thousands, except per share data):

	RSUs		PRSUs	
	Number of Shares	Weighted-Average Grant Date Fair Value Per Share	Number of Shares	Weighted-Average Grant Date Fair Value Per Share
Outstanding at December 31, 2015	2,469	$ 8.64	184	$ 9.21
Granted	1,287	6.91	550	7.42
Vested	(919)	8.46	(45)	11.71
Canceled	(239)	8.45	(124)	8.09
Outstanding at December 31, 2016	2,598	$ 7.86	565	$ 7.51

Upon vesting of certain RSUs and PRSUs, the Company withheld shares with value equivalent to the employees' minimum statutory obligation for the applicable income and other employment taxes, and remitted the cash to the appropriate taxing authorities. The number of shares withheld was based on the value of the RSUs or PRSUs on their vesting date as determined by the Company's closing stock price. The withheld shares are reserved for future grant and issuance under the 2010 Plan.

Employee Stock Purchase Plan

The Company's 2010 Employee Stock Purchase Plan, as amended ("2010 ESPP") allows employees to purchase shares of the Company's common stock through payroll deductions of up to 15 percent of their annual compensation subject to certain Internal Revenue Code limitations. In addition, no participant may purchase more than 2,000 shares of common stock in each offering period.

Prior to 2015, the offering periods under the 2010 ESPP are six-month periods commencing on June 1 and December 1 of each year. In January 2015, the Compensation Committee of the Company's board of directors approved the change in those six-month period commencement dates to November 2 and May 2 of each year, effective November 2, 2015. In July 2016, the Compensation Committee of the Company's board of directors approved a change in those six-month period commencement dates to May 15 and November 15 of each year, effective May 15, 2017. The ending date of the ESPP offering period commencing on November 2, 2016 will be extended until May 14, 2017 as a result of this change. The price of common stock purchased under the plan is 85 percent of the lower of the fair market value of the common stock on the commencement date and exercise date of each six-month offering period.

The 2010 ESPP, as amended in 2012, provides for the issuance of a maximum of 4.3 million shares of common stock. During the twelve months ended December 31, 2016, 1,009,911 shares were purchased and issued. As of December 31, 2016, there were 0.1 million shares available for issuance.

Stock Based Compensation

Stock-based compensation expense associated with stock options, RSUs, PRSUs, RSAs, and purchase rights under the ESPP is measured at the grant date based on the fair value of the award, and is recognized, net of forfeitures, as expense over the remaining requisite service period on a straight-line basis. During the years ended December 31, 2016, 2015, and 2014, the Company recorded stock-based compensation expense of $14.3 million, $13.8 million, and $16.0 million, respectively.

The following table summarizes the weighted-average grant date fair values of the Company's stock-based awards granted in the periods indicated:

	Years Ended December 31,		
	2016	2015	2014
Stock options	$ 3.58	$ 4.56	$ 4.79
RSUs	$ 6.91	$ 8.59	$ 8.72
PRSUs	$ 7.42	N/A	$ 9.16
ESPP	$ 1.92	$ 2.03	$ 2.46

The Company values the RSUs at the closing market price of the Company's common stock on the date of grant.

Stock-based compensation expense associated with PRSUs with graded vesting features and which contain both a performance and a service condition is measured based on the closing market price of the Company's common stock on the date of grant, and is recognized, net of forfeitures, as expense over the requisite service period using the graded vesting attribution method. Compensation expense is only recognized if the Company has determined that it is probable that the performance condition will be met. The Company reassesses the probability of vesting at each reporting period and adjusts compensation expense based on its probability assessment. Based on the Company's actual revenue recognized during fiscal 2016, the performance condition related to PRSUs granted to executives in 2016 was determined to be met as of December 31, 2016. Accordingly, the corresponding stock-based compensation expense from the grant date to December 31, 2016 of $2.4 million was recorded in fiscal 2016.

The fair value of the PRSU with a market condition is estimated on the date of award, using a Monte Carlo simulation model to estimate the TSR of the Company's stock in relation to the peer group over each performance period. Compensation cost on PRSUs with a market condition is not adjusted for subsequent changes in the Company's stock performance or the level of ultimate vesting.

The Company estimates the fair value of stock options and purchase rights under the ESPP at the grant date using the Black-Scholes option-pricing model. This model requires the use of the following assumptions:

(i) Expected volatility of the Company's common stock - The Company computes its expected volatility assumption based on a blended volatility (50% historical volatility and 50% implied volatility from traded options on the Company's common stock). The selection of a blended volatility assumption was based upon the Company's assessment that a blended volatility is more representative of the Company's future stock price trend as it weighs the historical volatility with the future implied volatility.

(ii) Expected life of the option award - Represents the weighted-average period that the stock options are expected to remain outstanding. The Company's computation of expected life utilizes the simplified method in accordance with Staff Accounting Bulletin No. 110 ("SAB 110") due to the lack of sufficient historical exercise data to provide a reasonable basis upon which to estimate expected term. The mid-point between the vesting date and the expiration date is used as the expected term under this method.

(iii) Expected dividend yield - Assumption is based on the Company's history of not paying dividends and no future expectations of dividend payouts.

(iv) Risk-free interest rate - Based on the U.S. Treasury yield curve in effect at the time of grant with maturities approximating the grant's expected life.

The following table summarizes the weighted-average assumptions used in estimating the grant-date fair value of stock options and of each employee's purchase right under the ESPP in the periods indicated:

	Years Ended December 31,		
Stock Options	2016	2015	2014
Expected volatility	53%	52%	52%
Expected life (years)	6.25	6.25	6.21
Expected dividend yield	—	—	—
Risk-free interest rate	1.60%	1.56%	1.87%

ESPP	Years Ended December 31, 2016	2015	2014
Expected volatility	46%	46%	45%
Expected life (years)	0.52	0.46	0.50
Expected dividend yield	—	—	—
Risk-free interest rate	0.47%	0.18%	0.07%

In addition, the Company applies an estimated forfeiture rate to awards granted and records stock-based compensation expense only for those awards that are expected to vest. Forfeiture rates are estimated at the time of grant based on the Company's historical experience. Further, to the extent the Company's actual forfeiture rate is different from management's estimate, stock-based compensation is adjusted accordingly.

As of December 31, 2016, unrecognized stock-based compensation expenses by award type, net of estimated forfeitures, and their expected weighted-average recognition periods are summarized in the following table (in thousands).

	As of December 31, 2016			
	Stock Option	RSU	PRSU	ESPP
Unrecognized stock-based compensation expense	$ 3,661	$ 13,380	$ 1,328	$ 721
Weighted-average amortization period (in years)	2.9	2.5	0.9	0.4

Common Stock Warrants

Warrants to purchase convertible preferred stock that did not expire at the close of the Company's initial public offering, in March 2010, converted to warrants to purchase common stock at the applicable conversion rate for the related preferred stock. As of December 31, 2016, the following warrants to purchase common stock were outstanding (in thousands, except per share data):

Expiration Date	Exercise Price Per Share	Number of Warrants Outstanding
September 4, 2017	$ 19.56	15

Shares Reserved for Future Issuance

The Company had common shares reserved for future issuance as follows (in thousands):

	As of December 31, 2016	2015	2014
Stock options outstanding	3,209	2,655	3,701
Restricted stock units outstanding	2,598	2,469	1,734
Performance restricted stock units outstanding	565	184	362
Shares available for future grant under 2010 Plan	1,603	2,749	2,283
Shares available for future issuance under ESPP	119	1,129	1,891
Common stock warrants	15	15	15
Total	8,109	9,201	9,986

Stock Repurchase

On April 26, 2015, the Company's board of directors approved a program to repurchase up to $40 million of its common stock from time to time. This stock repurchase program commenced in May 2015 and was completed in March 2016.

Under this program, stock was purchasable in open market or private transactions, through block trades, and/or pursuant to any trading plan adopted in accordance with Rule 10b5-1 of the Exchange Act and any open market purchases were to be made in accordance with the limitations set out in Rule 10b-18 of the Exchange Act. Further, decisions to consummate repurchases (including any decision to adopt a 10b5-1 plan for this purpose) were to be made at management's discretion at prices management considers to be attractive and in the best interests of the Company and its stockholders.

During the year ended December 31, 2016, the Company repurchased 1,789,287 shares of common stock for $12.8 million at an average price of $7.16 per share. During the year ended December 31, 2015, the Company repurchased 3,540,530 shares of common stock for $27.2 million at an average price of $7.68 per share. In March 2016, the Company completed the $40 million stock repurchase program and has repurchased a total of 5,329,817 shares of common stock from May 2015 to March 2016 at an average price of $7.50 per share. The Company uses the cost method to account for common stock repurchases held in treasury. The price paid for the stock is charged to the treasury stock account shown separately within stockholders' equity as a contra-equity account.

9. Employee Benefit Plan

The Company sponsors a 401(k) tax-deferred savings plan for all employees who meet certain eligibility requirements. Participants may contribute, on a pre-tax basis, a percentage of their annual compensation, but not to exceed a maximum contribution amount pursuant to Section 401(k) of the Internal Revenue Code. The Company, at the discretion of the board of directors, may make additional matching contributions on behalf of the participants. The Company made matching contributions totaling $2.1 million, $1.8 million, and $1.5 million in 2016, 2015, and 2014, respectively.

10. Accumulated Other Comprehensive Income (Loss)

The table below summarizes the changes in accumulated other comprehensive income (loss) by component for the periods indicated (in thousands).

	Year Ended December 31, 2016		
	Unrealized Gains and Losses on Available-for-Sale Marketable Securities	Foreign Currency Translation Adjustments	Total
Balance at beginning of period	$ (94)	$ (101)	$ (195)
Other comprehensive income (loss)	88	(549)	(461)
Balance at end of period	$ (6)	$ (650)	$ (656)

	Year Ended December 31, 2015		
	Unrealized Gains and Losses on Available-for-Sale Marketable Securities	Foreign Currency Translation Adjustments	Total
Balance at beginning of period	$ (58)	$ 138	$ 80
Other comprehensive loss	(36)	(239)	(275)
Balance at end of period	$ (94)	$ (101)	$ (195)

	Year Ended December 31, 2014		
	Unrealized Gains and Losses on Available-for-Sale Marketable Securities	Foreign Currency Translation Adjustments	Total
Balance at beginning of period	$ —	$ 190	$ 190
Other comprehensive loss before reclassification adjustment	(57)	(52)	(109)
Reclassification adjustment for realized gains on marketable securities included in net loss	(1)	—	(1)
Other comprehensive loss	(58)	(52)	(110)
Balance at end of period	$ (58)	$ 138	$ 80

Realized gains and losses on sales of available-for-sale marketable securities, if any, are reclassified from accumulated other comprehensive income (loss) to "Other income (expense)" in our Consolidated Statements of Comprehensive Loss.

11. Credit Facility

The Company had a revolving credit facility ("Prior Credit Facility") of $30.0 million with Silicon Valley Bank based upon a percentage of eligible accounts receivable, which matured on June 30, 2013. After the Prior Credit Facility matured on June 30, 2013, the Company cash collateralized the outstanding letters of credit with Silicon Valley Bank. During the first quarter of 2015, Silicon Valley Bank subsequently released the $0.3 million cash restricted for collateralizing the outstanding letters of credit reported as "restricted cash" in the Company's Consolidated Balance Sheet as of December 31, 2014.

The Company entered into a credit agreement with Bank of America, N.A. on July 29, 2013 (as amended on December 23, 2015, the "Credit Agreement"). The Credit Agreement is structured such that other financial institutions can at a later time become party to the Credit Agreement through an amendment via a syndication process (collectively, together with Bank of America, N.A., the "Lenders"). The Credit

Agreement provides for a revolving facility in the aggregate principal amount of up to $50.0 million, with any borrowings limited to a maximum consolidated leverage ratio of consolidated funded indebtedness to consolidated EBITDA (as defined in the Credit Agreement). In addition, the Credit Agreement includes a $20.0 million sublimit for the issuance of letters of credit and a $10.0 million sublimit for a swingline facility. Subject to customary conditions, up to $25.0 million of the revolving facility may be converted to a term loan facility at any time prior to the maturity of the revolving facility. The revolving facility matures on September 30, 2018. The credit facility is secured by substantially all of the assets of the Company, including its intellectual property. Proceeds of the credit facility may be used for general corporate purposes and permitted acquisitions.

Loans under the credit facility bear interest at an annual rate equal to the base rate plus 0.75% to 1.25% or LIBOR plus 2.00% to 2.50% based on a consolidated leverage ratio of consolidated funded indebtedness to consolidated EBITDA (as defined in the Credit Agreement). Interest on the revolving facility is due quarterly, and any outstanding interest and principal is due on the maturity date of the revolving facility. The Company is required to repay principal on a term loan in twenty equal quarterly payments from the date the Company enters into a term loan, and all outstanding principal and accrued interest is due on the revolving facility maturity date. Swingline loans must be repaid on the earlier of (i) ten business days after a loan is made and (ii) the revolving facility maturity date. The Company is also required to pay commitment fees of 0.25% per year on any unused portions of this facility.

The credit facility includes affirmative and negative covenants applicable to the Company that are typical for credit facilities of this type. Furthermore, the Credit Agreement requires us to maintain certain financial covenants, including a maximum consolidated leverage ratio, and a minimum consolidated liquidity ratio of cash, cash equivalents and accounts receivable to consolidated funded indebtedness. As of December 31, 2016, the Company was in compliance with these requirements. The credit facility also includes customary events of default, the occurrence and continuation of which would provide the Lenders with the right to demand immediate repayment of any principal and unpaid interest under the credit facility, and to exercise remedies against us and the collateral securing the loans under the credit facility.

As of December 31, 2016, no revolving loans were drawn under the Credit Agreement, as amended.

The Company incurred debt issuance costs that were directly attributable to the original issuance and extension of this credit facility of $0.3 million in 2013 and $0.1 million in 2015, respectively. These costs are amortized over the extended term of the credit facility. As of December 31, 2016, the unamortized balance of debt issuance costs was $127.0 thousand, of which $72.6 thousand were included within "Prepaid expenses and other current assets" and $54.4 thousand were included within "Other assets" in the Company's Consolidated Balance Sheets.

12. Income Taxes

The domestic and foreign components of loss before provision for incomes taxes were as follows (in thousands):

	Years Ended December 31,		
	2016	2015	2014
Domestic	$ (28,931)	$ (27,674)	$ (21,495)
Foreign	1,876	1,876	1,262
Loss before provision for income taxes	$ (27,055)	$ (25,798)	$ (20,233)

The Company recorded a provision for income taxes of $0.3 million, $0.5 million, and $0.6 million, in 2016, 2015, and 2014, respectively. The income tax provision for 2016 primarily consisted of state and foreign income taxes.

Provision for income taxes consisted of the following for the periods indicated (in thousands):

	Years Ended December 31,		
	2016	2015	2014
Current:			
State	$ 102	$ 90	$ 104
Foreign	673	493	469
Current income tax	775	583	573
Deferred:			
Foreign	(428)	(48)	8
Deferred income tax	(428)	(48)	8
Provision for income taxes	$ 347	$ 535	$ 581

The differences between the statutory tax rate and the effective tax rate, expressed as a percentage of loss before income taxes, were as follows:

	Years Ended December 31,		
	2016	2015	2014
Federal statutory rate	34.0 %	34.0 %	34.0 %
State statutory rate	6.1 %	2.6 %	2.5 %
Foreign operations	0.6 %	1.1 %	(0.1)%
R&D tax credits	6.4 %	11.2 %	9.2 %
Foreign income inclusion	(0.7)%	(2.4)%	(0.3)%
Non-deductible stock compensation	(5.1)%	(1.9)%	(0.9)%
Other permanent items	(1.4)%	(2.0)%	(1.5)%
Tax true-up	21.0 %	(1.3)%	(0.2)%
Valuation allowance	(62.2)%	(43.4)%	(45.6)%
Effective tax rate	(1.3)%	(2.1)%	(2.9)%

The significant components of the Company's deferred tax assets and liabilities were as follows (in thousands):

	As of December 31,	
	2016	2015
Deferred tax assets:		
Net operating loss carryforwards	$ 167,668	$ 167,387
Tax credit carryforwards	36,026	27,654
Depreciation and amortization	2,538	1,947
Accruals and reserves	13,462	12,427
Deferred revenue	12,954	9,822
Stock-based compensation	6,159	5,198
Other	1,124	528
Gross deferred tax assets	239,931	224,963
Valuation allowance	(239,238)	(222,410)
Net deferred tax assets	693	2,553
Deferred tax liabilities:		
Intangible assets	(157)	(2,229)
Other	—	(130)
Gross deferred tax liabilities	(157)	(2,359)
Net deferred tax assets reflected in balance sheet	$ 536	$ 194

The Company elected to early adopt Accounting Standards Update No. 2015-17, Balance Sheet Classification of Deferred Taxes ("ASU 2015-17") prospectively on September 27, 2015, the beginning of its 2015 fourth fiscal quarter. In accordance with ASU 2015-17, all deferred tax assets, along with any related valuation allowance, and net of all deferred tax liabilities are classified in the consolidated balance sheet as long-term. Accordingly, the Company classified the net deferred tax assets of $0.5 million and $0.2 million as of December 31, 2016 and 2015, in the consolidated balance sheet as long-term.

Management reviews the recognition of deferred tax assets to determine if realization of such assets is more likely than not. The realization of the Company's deferred tax assets is dependent upon future earnings. The Company has been in a cumulative loss position since inception, which represents a significant piece of negative evidence. Using the more likely than not criteria specified in the applicable accounting guidance, this negative evidence cannot be overcome by positive evidence currently available to the Company and as a result the Company has established a full valuation allowance against its deferred tax assets with the exception of certain foreign deferred tax assets. The Company's valuation allowance increased by $16.8 million and $9.7 million for the years ended December 31, 2016 and 2015, respectively. As of December 31, 2016 and 2015, respectively, the valuation allowance included $0.1 million related to excess tax benefits of stock option deductions prior to the adoption of ASC Topic 718.

As of December 31, 2016, the Company had U.S. federal and state net operating losses of approximately $520.6 million and $132.2 million, respectively. The U.S. federal net operating loss carryforwards will expire at various dates beginning in 2019 and through 2036 if not utilized. The state net operating loss carryforwards will expire at various dates beginning in 2017 and through 2036, if not utilized. In addition, as of December 31, 2016 and 2015, the Company had $37.8 million and $37.8 million in federal deductions, respectively, and $34.4 million and $34.2 million in state deductions, respectively, related to excess tax benefits from stock options which are not included in the net operating loss carryforward amounts in the table above since they have not met the realization criteria of ASC Topic 718. The tax benefits from these deductions will be recognized in the statement of operations as benefit from income taxes when realized as a result of the adoption of ASU 2016-19 beginning on January 1, 2017. Additionally, the Company has U.S. federal, California, and other U.S. states research and development credits of approximately $27.9 million, $30.3 million, and $3.0 million, respectively, as of December 31, 2016. The U.S. federal research and development credits will begin to expire in 2020 and through 2036, and the California research and development credits have no

expiration date. The credits related to other various U.S. states will begin to expire in 2017 and through 2031. Based on current activity during 2016, the Company does not anticipate to have further adjustments or limitations to the Company's net operating loss carryforwards.

In December 2015, President Barack Obama signed into law the Protecting Americans from Tax Hikes (PATH) Act of 2015, which makes the Section 41 research credit, which expired on December 31, 2014, a permanent provision of the Internal Revenue Code. The benefit of the reinstated credit did not impact the income statement in the period of enactment, which was the fourth quarter of 2015, as the research and development credit carryforwards are offset by a full valuation allowance.

The Company recognizes deferred tax liabilities associated with outside basis differences on investments in foreign subsidiaries, unless the difference is considered essentially permanent in duration. Thus, the Company has not recorded deferred taxes on approximately $4.8 million of undistributed earnings, as they are intended to be permanently reinvested. As of December 31, 2016, the determination of the unrecorded deferred tax liability related to these earnings is not practicable. If circumstances change and it becomes apparent that some or all of the undistributed earnings will not be invested indefinitely, or will be remitted in the foreseeable future, an additional deferred tax liability will be recorded for some or all of the outside basis difference.

Uncertain Tax Positions

ASC Topic 740, "Income Taxes," prescribes a recognition threshold and measurement attribute to the financial statement recognition and measurement of a tax position taken or expected to be taken in a tax return. The guidance also provides guidance on derecognition, classification, accounting in interim periods and disclosure requirements for uncertain tax positions. The standard requires the Company to recognize the financial statement effects of an uncertain tax position when it is more likely than not that such position will be sustained upon audit. The Company recognizes accrued interest and penalties related to unrecognized tax benefits as interest expense and income tax expense, respectively, in statements of comprehensive loss.

The following table reconciles the Company's unrecognized tax benefits for the years ended December 31, 2016 and 2015 (in thousands):

	Years Ended December 31,	
	2016	2015
Balance at beginning of period	$ 16,597	$ 15,421
Additions for tax positions related to prior year	420	56
Reductions for tax positions related to prior year	(145)	(59)
Additions for tax positions related to current year	1,477	1,179
Balance at end of period	$ 18,349	$ 16,597

As of December 31, 2016 and 2015, the Company had unrecognized tax benefits of $18.3 million and $16.6 million, respectively, none of which would affect the Company's effective tax rate if recognized. There were no accrued interest or penalties for uncertain income tax as of December 31, 2016.

The Company files tax returns in the United State and various state jurisdictions, the United Kingdom, China and Brazil. The tax years 1999 through 2016 remain open and subject to examination by the appropriate governmental agencies in the U.S. due to tax attribute carryforwards.

13. Segment Information

The Company develops, markets and sells communications access systems and software, and there are no segment managers who are held accountable for operations, operating results and plans for levels or components below the Company unit level. Accordingly, the Company is considered to be in a single reporting segment and operating unit structure. The Company's chief operating decision maker is the Company's Chief Executive Officer, who reviews financial information presented on a Company-wide basis, for purposes of allocating resources and evaluating financial performance.

Geographic Information:

The following is a summary of revenues by geographic region based upon the location of the customers (in thousands):

	Years Ended December 31,		
	2016	2015	2014
United States	$ 415,629	$ 360,077	$ 352,458
Caribbean	12,934	13,358	18,725
Canada	9,064	10,198	9,995
Europe	6,334	11,090	5,948
Other	14,826	12,740	14,101
Total	$ 458,787	$ 407,463	$ 401,227

The Company's property and equipment, net of accumulated depreciation, are located in the following geographical areas (in thousands):

	As of December 31,		
	2016	2015	2014
United States	$ 15,321	$ 15,362	$ 17,852
China	2,663	1,787	2,292
Total	$ 17,984	$ 17,149	$ 20,144

14. Quarterly Financial Data—Unaudited

The Company's fiscal year begins on January 1st and ends on December 31st. Quarterly periods are based on a 4-4-5 fiscal calendar with the first, second and third fiscal quarters ending on the 13th Saturday of each fiscal period. As a result, the Company had one fewer day in the first quarter of 2016 and two more days in the fourth quarter of 2016 than in the respective 2015 periods.

The following table presents selected unaudited quarterly financial data of the Company (in thousands, except per share data). The Company's quarterly results of operations for these periods are not necessarily indicative of future results of operations.

	Fiscal Year 2016 Quarter Ended			
	March 26	June 25	September 24	December 31
Revenue	$ 98,375	$ 107,425	$ 121,187	$ 131,800
Gross profit	45,482	50,006	53,544	52,186
Operating income (loss)	(10,738)	(5,881)	735	(12,235)
Net income (loss)	(10,729)	(5,826)	636	(11,483)
Net income (loss) per common share, basic	$ (0.22)	$ (0.12)	$ 0.01	$ (0.23)
Net income (loss) per common share, diluted	$ (0.22)	$ (0.12)	$ 0.01	$ (0.23)

	Fiscal Year 2015 Quarter Ended			
	March 28	June 27	September 26	December 31
Revenue	$ 91,038	$ 99,129	$ 112,297	$ 104,999
Gross profit	42,490	48,289	53,113	46,537
Operating income (loss)	(11,887)	(5,765)	877	(9,735)
Net income (loss)	(11,930)	(5,779)	922	(9,546)
Net income (loss) per common share, basic	$ (0.23)	$ (0.11)	$ 0.02	$ (0.19)
Net income (loss) per common share, diluted	$ (0.23)	$ (0.11)	$ 0.02	$ (0.19)

ITEM 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

Effective on February 29, 2016, the Audit Committee (the "Audit Committee") of the Company's board of directors approved the appointment of KPMG LLP to serve as the Company's independent registered public accounting firm, and determined not to re-engage Ernst & Young LLP ("EY"), the Company's former independent registered public accounting firm in that role. Incorporated herein by reference is Item 4.01 from the Current Report on Form 8-K, including the letter of EY filed as Exhibit 16.1 thereto, filed by the Company with the Commission on March 4, 2016. There were no disagreements with accountants on accounting principles or practices, financial statement disclosure, auditing scope or procedures, or other reportable events requiring disclosure pursuant to Item 304(b) of Regulation S-K.

ITEM 9A. Controls and Procedures

Evaluation of Disclosure Controls and Procedures

As of the end of the period covered by this report, which we refer to as the evaluation date, we carried out an evaluation under the supervision and with the participation of management, including our principle executive officer and principle financial officer, of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act).

The purpose of this evaluation was to determine whether as of the evaluation date our disclosure controls and procedures were effective to provide reasonable assurance that the information we are required to disclose in our filings with the Securities and Exchange Commission, (i) is recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms and (ii) accumulated and communicated to our management, including our principal executive officer and our principal financial officer, as appropriate to allow timely decisions regarding required disclosure. Based upon this evaluation, our principal executive officer and our principal financial officer concluded that our disclosure controls and procedures were effective as of the end of the period covered by this report.

Management's Report on Internal Control Over Financial Reporting

Management is responsible for establishing and maintaining adequate internal control over financial reporting. Our internal control over financial reporting is 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. 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. Management has evaluated the effectiveness of our internal control over financial reporting as of December 31, 2016 using the criteria set forth in the Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO") (2013 framework). Based on our evaluation, management has concluded that we maintained effective control over financial reporting as of December 31, 2016 based on the COSO criteria. The effectiveness of our internal control over financial reporting as of December 31, 2016 has been audited by KPMG LLP, an independent registered public accounting firm, as stated in their report included in this Annual Report on Form 10-K.

Limitations on the Effectiveness of Controls

Our disclosure controls and procedures provide our principal executive officer and our principal financial officer reasonable assurances that our disclosure controls and procedures will achieve their objectives. However, our management, including our principal executive officer and our principal financial officer, does not expect that our disclosure controls and procedures or our internal control over financial reporting can or will prevent all human error. A control system, no matter how well designed and implemented, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Furthermore, the design of a control system must reflect the fact that there are internal resource constraints, and the benefit of controls must be weighed relative to their corresponding costs. Because of the limitations in all control systems, no evaluation of controls can provide complete assurance that all control issues and instances of error, if any, within our company are detected. These inherent limitations include the realities that judgments in decision-making can be faulty, and that breakdowns can occur due to human error or mistake. Additionally, controls, no matter how well designed, could be circumvented by the individual acts of specific persons within the organization. The design of any system of controls is also based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated objectives under all potential future conditions.

Changes in Internal Control over Financial Reporting

There was no change in our internal control over financial reporting identified in connection with the evaluation required by Rule 13a-15(d) and 15d-15(d) of the Exchange Act that occurred during the period covered by this report that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

ITEM 9B. Other Information

None.

PART III

ITEM 10. Directors, Executive Officers and Corporate Governance

Information required by this Item 10 relating to our directors is incorporated by reference to the information set forth under the captions "Proposal No. 1—Election of Directors" and "Director Compensation" and in other applicable sections of the Proxy Statement for the 2017 Annual Meeting of Stockholders to be filed with the Securities and Exchange Commission pursuant to Regulation 14A of the Exchange Act, or the Proxy Statement, to be filed within 120 days of the end of the fiscal year covered by this Report. Information required by this Item 10 relating to our officers is incorporated by reference to the information set forth under the captions "Executive Officers" and "Executive Compensation" and in other applicable sections of the Proxy Statement. Information regarding our Section 16 reporting compliance is incorporated by reference to the information set forth under the captions "Security Ownership of Certain Beneficial Owners and Management" and "Section 16(a) Beneficial Ownership Reporting Compliance" of the Proxy Statement.

We have adopted a code of ethics, which applies to all employees, officers and directors of Calix. The Code of Business Conduct and Ethics meets the requirements of a "code of ethics" as defined by Item 406 of Regulation S-K, and applies to our Chief Executive Officer, Chief Financial Officer, and all other employees, as indicated above. The Code of Business Conduct and Ethics also meets the requirements of a code of conduct under NYSE listing standards. The Code of Business Conduct and Ethics is posted on our website at www.calix.com under the links "About Calix—Investor Relations—Corporate Governance—Code of Conduct." We intend to disclose any amendments to the Code of Business Conduct and Ethics, as well as any waivers for executive officers or directors, on our website at www.calix.com.

ITEM 11. Executive Compensation

Information required by this Item 11 relating to executive compensation and other matters is incorporated by reference to the information set forth under the caption "Compensation Discussion and Analysis" and in other applicable sections of the Proxy Statement.

ITEM 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

Information required by this Item 12 relating to security ownership of certain beneficial owners and management and related stockholder matters is incorporated by reference to the information set forth under the caption "Security Ownership of Certain Beneficial Owners and Management" and in other applicable sections of the Proxy Statement. Information regarding securities authorized for issuance under our equity compensation plans is incorporated by reference to the information set forth under the caption "Equity Compensation Plan Information" of the Proxy Statement.

ITEM 13. Certain Relationships and Related Transactions, and Director Independence

Information required by this Item 13 relating to certain relationships and related transactions and director independence is incorporated by reference to the information set forth under the caption "Certain Relationships and Related Transactions" and in other applicable sections of the Proxy Statement.

ITEM 14. Principal Accountant Fees and Services

Information required by this Item 14 relating to principal account fees and services is incorporated by reference to the information set forth under the caption "Principal Accountant Fees and Services" of the Proxy Statement.

PART IV

ITEM 15. Exhibits, Financial Statement Schedules

(a) The following documents are filed as part of this Report:

1. Consolidated Financial Statements

The consolidated financial statements of Calix and the reports of independent registered public accounting firms thereon are set forth under Part II, Item 8 of this report.

Reports of Independent Registered Public Accounting Firms	51
Consolidated Balance Sheets, As of December 31, 2016 and 2015	53
Consolidated Statements of Comprehensive Loss, Years Ended December 31, 2016, 2015 and 2014	54
Consolidated Statements of Stockholders' Equity, Years Ended December 31, 2016, 2015 and 2014	55
Consolidated Statements of Cash Flows, Years Ended December 31, 2016, 2015 and 2014	56
Notes to Consolidated Financial Statements	57

2. Consolidated Financial Statement Schedules

All schedules have been omitted because they are not applicable, not required, not presently in amounts sufficient to require submission of the schedule, or the information required to be set forth therein is included in the consolidated financial statements or notes thereto.

3. Exhibits.

See the Exhibit Index immediately following the signature page of this Annual Report on Form 10-K. The documents listed in the Exhibit Index are filed with or incorporated by reference in this report. Where such filing is made by incorporation by reference to a previously filed registration statement or report, such registration statement or report is identified in parentheses. We will furnish any exhibit upon request to: Calix Investor Relations, Thomas J. Dinges at Tom.Dinges@calix.com.

ITEM 16. Form 10-K Summary

None.

SIGNATURES

Pursuant to the requirements 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.

CALIX, INC.
(Registrant)

Dated: February 28, 2017

By: /s/ Carl Russo

Carl Russo
Chief Executive Officer
(Principal Executive Officer)

Dated: February 28, 2017

By: /s/ William J. Atkins

William J. Atkins
EVP and Chief Financial Officer
(Principal Financial Officer)

Dated: February 28, 2017

By: /s/ Sheila Cheung

Sheila Cheung
Vice President, Finance and Accounting
(Principal Accounting Officer)

POWER OF ATTORNEY

Each person whose individual signature appears below hereby authorizes and appoints Carl Russo, William J. Atkins and Sheila Cheung, and each of them, with full power of substitution and re-substitution and full power to act without the other, as his true and lawful attorney-in-fact and agent to act in his name, place and stead and to execute in the name and on behalf of each person, individually and in each capacity stated below, and to file any and all amendments to this Annual Report on Form 10-K, and to file the same, with all exhibits thereto, and other documents in connection therewith, with the Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, and each of them, full power and authority to do and perform each and every act and thing, ratifying and confirming all that said attorneys-in-fact and agents or any of them or their or his substitute or substitutes may lawfully do or cause to be done by virtue thereof.

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 indicated on February 28, 2017.

Signature	Title	Date
/s/ Carl Russo Carl Russo	Chief Executive Officer and Director (Principal Executive Officer)	February 28, 2017
/s/ William J. Atkins William J. Atkins	EVP and Chief Financial Officer (Principal Financial Officer)	February 28, 2017
/s/ Sheila Cheung Sheila Cheung	Vice President, Finance and Accounting (Principal Accounting Officer)	February 28, 2017
/s/ Don Listwin Don Listwin	Chairman of the Board of Directors	February 28, 2017
/s/ Christopher Bowick Christopher Bowick	Director	February 28, 2017
/s/ Kevin DeNuccio Kevin DeNuccio	Director	February 28, 2017
/s/ Michael Everett Michael Everett	Director	February 28, 2017
/s/ Michael Flynn Michael Flynn	Director	February 28, 2017
/s/ Michael Matthews Michael Matthews	Director	February 28, 2017
/s/ Thomas Pardun Thomas Pardun	Director	February 28, 2017
/s/ Kevin Peters Kevin Peters	Director	February 28, 2017

EXHIBIT INDEX

Exhibit Number	Description
2.1	Agreement and Plan of Merger and Reorganization, dated as of September 16, 2010, by and among Calix, Inc., Ocean Sub I, Inc., Ocean Sub II, LLC, Occam Networks, Inc. (filed as Exhibit 2.1 to Calix's Registration Statement on Form S-4 originally filed with the Securities and Exchange Commission on November 2, 2010 (File No. 333-170282), as amended by Amendment No. 1 filed December 14, 2010, as amended by Post-Effective Amendment No. 1, filed December 14, 2010 and as amended by Post-Effective Amendment No. 2, filed February 7, 2011 and incorporated by reference).
3.1	Amended and Restated Certificate of Incorporation of Calix, Inc. (filed as Exhibit 3.3 to Amendment No. 7 to Calix's Registration Statement on Form S-1 filed with the Securities and Exchange Commission on March 23, 2010 (File No. 333-163252) and incorporated by reference).
3.2	Amended and Restated Bylaws of Calix, Inc. (filed as Exhibit 3.5 to Amendment No. 7 to Calix's Registration Statement on Form S-1 filed with the Securities and Exchange Commission on March 23, 2010 (File No. 333-163252) and incorporated by reference).
4.1	Form of Calix, Inc.'s Common Stock Certificate (filed as Exhibit 4.1 to Amendment No. 7 to Calix's Registration Statement on Form S-1 filed with the Securities and Exchange Commission on March 23, 2010 (File No. 333-163252) and incorporated by reference).
4.2	Warrant to Purchase Stock, between Calix, Inc. and Greater Bay Venture Banking, a division of Greater Bay Bank N.A., dated September 4, 2007 (filed as Exhibit 4.27 to Calix's Registration Statement on Form S-1 filed with the SEC on November 20, 2009 (File No. 333-163252) and incorporated by reference).
10.1*	Calix Networks, Inc. Amended and Restated 2002 Stock Plan and related documents (filed as Exhibit 10.2 to Amendment No. 6 to Calix's Registration Statement on Form S-1 filed with the SEC on March 8, 2010 (File No. 333-163252) and incorporated by reference).
10.2*	Calix, Inc. 2010 Equity Incentive Award Plan and related documents (filed as Exhibit 10.2 to Amendment No. 6 to Calix's Registration Statement on Form S-1 filed with the SEC on March 8, 2010 (File No. 333-163252) and incorporated by reference).
10.3	Form of Indemnification Agreement made by and between Calix, Inc. and each of its directors, executive officers and some employees (filed as Exhibit 10.5 to Amendment No. 6 to Calix's Registration Statement on Form S-1 filed with the SEC on March 8, 2010 (File No. 333-163252) and incorporated by reference).
10.4	Lease, between RNM Lakeville, LLC and Calix, Inc., dated February 13, 2009 (filed as Exhibit 10.6 to Calix's Registration Statement on Form S-1 filed with the SEC on November 20, 2009 (File No. 333-163252) and incorporated by reference).
10.5	First Amendment to Lease, by and between 1031, 1035, 1039 North McDowell, LLC and Calix, Inc., effective January 28, 2013 (filed as Exhibit 10.25 to Calix's Form 10-K filed with the SEC on February 22, 2013 (File No. 001-34674) and incorporated by reference).
10.6	Credit Agreement, among Calix, Inc., certain of its subsidiaries, Bank of America, N.A. and the other lenders party thereto, dated July 29, 2013 (filed as Exhibit 10.1 to Calix's Form 10-Q filed with the SEC on August 6, 2013 (File No. 001-34674) and incorporated by reference).
10.7	First Amendment to Credit Agreement dated as of December 23, 2015 by and among Calix, Inc. and Bank of America, N.A. as administrative agent and lender (filed as Exhibit 10.1 to Calix's Form 8-K filed with the SEC on December 28, 2015 (File No. 001-34674) and incorporated by reference).
10.8*	Offer Letter, between Calix, Inc. and Carl Russo, dated November 1, 2006 (filed as Exhibit 10.8 to Amendment No. 1 to Calix's Registration Statement on Form S-1 filed with the SEC on December 31, 2009 (File No. 333-163252) and incorporated by reference).
10.9*	Offer Letter, between Calix, Inc. and John Colvin, dated March 3, 2004 (filed as Exhibit 10.11 to Amendment No. 1 to Calix's Registration Statement on Form S-1 filed with the SEC on December 31, 2009 (File No. 333-163252) and incorporated by reference).
10.10*	Employment Agreement, between Calix, Inc. and Andrew Lockhart, dated February 2, 2011 (filed as Exhibit 10.20 to Calix's Form 10-Q filed with the SEC on May 3, 2012 (File No. 001-34674) and incorporated by reference).
10.11*	Offer Letter, between Calix, Inc. and William Atkins, dated December 21, 2013 (filed as Exhibit 10.15 to Calix's Form 10-K filed with the SEC on February 20, 2014 (File No. 001-34674) and incorporated by reference).
10.12*	Calix, Inc. Amended And Restated Employee Stock Purchase Plan (Effective as of May 23, 2012) (filed as Exhibit 10.1 to Calix's Form 10-Q filed with the SEC on August 7, 2012 (File No. 001-34674) and incorporated by reference).
10.13†	Asset Purchase Agreement between Ericsson Inc. and Calix, Inc., dated August 20, 2012 (filed as Exhibit 10.1 to Calix's Form 10-Q/A filed with the SEC on December 18, 2012 (File No. 001-34674) and incorporated by reference).
10.14*	Calix, Inc. Non-Employee Director Restricted Stock Unit Deferred Compensation Plan, effective January 1, 2013 (filed as Exhibit 10.22 to Calix's Form 10-K filed with the SEC on February 22, 2013 (File No. 001-34674) and incorporated by reference).
10.15*	Calix, Inc. Management Bonus Program Under the 2010 Equity Incentive Award Plan (filed as Exhibit 10.1 to Calix's Form 8-K filed with the SEC on February 28, 2012 (File No. 001-34674) and incorporated by reference).
10.16*	Calix, Inc. Long Term Incentive Program Under the 2010 Equity Incentive Award Plan (filed as Exhibit 10.2 to Calix's Form 8-K filed with the SEC on February 28, 2012 (File No. 001-34674) and incorporated by reference).
10.17*	Calix, Inc. Non-Employee Director Cash Compensation Policy, as amended April 22, 2014 (filed as Exhibit 10.1 to Calix's Form 8-K filed with the SEC on July 8, 2014 (File No. 001-34674) and incorporated by reference).

Exhibit Number	Description
10.18*	Calix, Inc. Non-Employee Director Equity Compensation Policy, as amended October 18, 2011, July 25, 2012, April 22, 2014 and April 26, 2016.
10.19*	Offer Letter by and between Calix, Inc. and Michael Weening dated May 20, 2016 (filed as Exhibit 10.1 to Calix's Form 10-Q filed with the SEC on August 3, 2016 (File No. 001-34674) and incorporated by reference).
10.20*	Letter Agreement dated June 22, 2016 amending Employment Agreement by and between Calix, Inc. and Andrew Lockhart (filed as Exhibit 10.2 to Calix's Form 10-Q filed with the SEC on August 3, 2016 (File No. 001-34674) and incorporated by reference).
10.21*	Consulting Agreement by and between Calix, Inc. and Kevin Peters dated July 29, 2016 (filed as Exhibit 10.3 to Calix's Form 10-Q filed with the SEC on August 3, 2016 (File No. 001-34674) and incorporated by reference).
10.22*	Amendment to Consulting Agreement effective as of September 3, 2016 by and between Calix, Inc. and Kevin Peters (filed as Exhibit 10.1 to Calix's Form 10-Q filed with the SEC on November 2, 2016 (File No. 001-34674) and incorporated by reference).
10.23*	Settlement Agreement by and between Calix, Inc. and Andrew Lockhart dated December 7, 2016.
10.24*	Offer Letter by and between Calix, Inc. and Greg Billings dated December 8, 2016.
10.25*	Separation Agreement and General Release of All Claims by and between Calix, Inc. and John Colvin dated January 9, 2017.
16.1	Letter of Ernst & Young dated March 4, 2016 (filed as Exhibit 16.1 to Calix's Form 8-K filed with the SEC on March 4, 2016 (File No. 001-34674) and incorporated by reference).
21.1	Subsidiaries of the Registrant.
23.1	Consent of KPMG LLP, independent registered public accounting firm.
23.2	Consent of Ernst & Young LLP, independent registered public accounting firm.
24.1	Power of Attorney (included on signature page to this Annual Report on Form 10-K).
31.1	Certification of Principal Executive Officer of Calix, Inc. Pursuant to Rule 13a-14(a) of the Securities Exchange Act of 1934.
31.2	Certification of Principal Financial Officer of Calix, Inc. Pursuant to Rule 13a-14(a) of the Securities Exchange Act of 1934.
32.1	Certification of Principal Executive Officer and Principle Financial Officer of Calix, Inc. Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.
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 management contract or compensatory plan or arrangement.

† Confidential treatment has been granted as to certain portions of this agreement.

Exhibit 21.1

SUBSIDIARIES OF THE REGISTRANT

Entity Name	Jurisdiction
Calix Networks Canada, Inc.	Canada
Calix Network Technology Development (Nanjing) Co. Ltd.	China
Calix Networks UK, Ltd	England, UK
Calix Brasil Servicos Ltda	Brazil

Exhibit 23.1

Consent of Independent Registered Public Accounting Firm

The Board of Directors
Calix, Inc.:

We consent to the incorporation by reference in the registration statements on Form S-8 (Nos. 333-209732, 333-202496, 333-194054, 333-185025, 333-172379, and 333-166245) of Calix, Inc. of our report dated February 28, 2017, with respect to the consolidated balance sheet of Calix, Inc. and subsidiaries as of December 31, 2016, and the related consolidated statements of comprehensive loss, stockholders' equity, and cash flows for the year ended December 31, 2016, and the effectiveness of internal control over financial reporting as of December 31, 2016, which report appears in the December 31, 2016 annual report on Form 10-K of Calix, Inc.

/s/ KPMG LLP

San Francisco, California
February 28, 2017

Exhibit 23.2

Consent of Ernst & Young LLP, Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the Registration Statements (Form S-8 Nos. 333-209732, 333-202496, 333-194054, 333-185025, 333-172379, and 333-166245) of Calix, Inc., of our report dated February 25, 2016, with respect to the consolidated financial statements of Calix, Inc. for the year ended December 31, 2015, included in this Annual Report (Form 10-K) for the year ended December 31, 2016.

/s/ Ernst & Young LLP

San Francisco, California
February 28, 2017

Exhibit 31.1

**CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER
PURSUANT TO SECTION 302 OF
THE SARBANES-OXLEY ACT OF 2002**

I, Carl Russo, certify that:

1. I have reviewed this annual report on Form 10-K of Calix, Inc. for the year ended December 31, 2016;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting;

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 28, 2017

/s/ Carl Russo

Carl Russo

Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

CERTIFICATION OF PRINCIPLE FINANCIAL OFFICER
PURSUANT TO SECTION 302 OF
THE SARBANES-OXLEY ACT OF 2002

I, William J. Atkins, certify that:

1. I have reviewed this annual report on Form 10-K of Calix, Inc. for the year ended December 31, 2016;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, 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;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting;

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

   (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

   (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 28, 2017

/s/ William J. Atkins

William J. Atkins

EVP and Chief Financial Officer
(Principal Financial Officer)

Exhibit 32.1

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER AND PRINCIPAL FINANCIAL OFFICER PURSUANT TO 18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002

I, Carl Russo, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that the Annual Report of Calix, Inc. (the "Company") on Form 10-K for the fiscal year ended December 31, 2016 fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and that information contained in such Annual Report on Form 10-K fairly presents in all material respects the financial condition and results of operations of the Company.

Date: February 28, 2017	/s/ Carl Russo
	Carl Russo
	Chief Executive Officer (Principal Executive Officer)

I, William J. Atkins, certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that the Annual Report of Calix, Inc. (the "Company") on Form 10-K for the fiscal year ended December 31, 2016 fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934 and that information contained in such Annual Report on Form 10-K fairly presents in all material respects the financial condition and results of operations of the Company.

Date: February 28, 2017	/s/ William J. Atkins
	William J. Atkins
	EVP and Chief Financial Officer (Principal Financial Officer)

This certification accompanies the Form 10-K to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of Calix, Inc. under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of the Form 10-K), irrespective of any general incorporation language contained in such filing.

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