
FORM 10-K
U.S. SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549

**ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE
SECURITIES EXCHANGE ACT OF 1934
FOR THE FISCAL YEAR ENDED December 31, 2019**

OR

**TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE
SECURITIES EXCHANGE ACT OF 1934
COMMISSION FILE No. 000-20728**

QUMU CORPORATION
(Exact name of registrant as specified in its charter)

Minnesota

State or other jurisdiction of incorporation or organization

41-1577970

(I.R.S. Employer Identification No.)

510 1st Avenue North, Suite 305, Minneapolis, MN 55403

(Address of principal executive offices)

(612) 638 - 9100

(Registrant's telephone number, including area code)

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

Title of each class	Trading Symbol	Name of each exchange on which registered
Common stock, par value \$0.01	QUMU	The NASDAQ Stock Market LLC

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

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. **Yes** **No**

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. **Yes** **No**

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

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). **Yes** **No**

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company or an emerging growth company.

Large Accelerated Filer Accelerated Filer

Non-Accelerated Filer Smaller Reporting Company Emerging Growth Company

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

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Exchange Act): **Yes** **No**

The aggregate market value of common stock held by non-affiliates of the registrant, computed by reference to the last quoted price at which such stock was sold on such date as reported by the Nasdaq Stock Market as of the last business day of the registrant's most recently completed second fiscal quarter was approximately \$33,451,000.

As of March 2, 2020, the registrant had 13,555,588 outstanding shares of common stock.

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General Information

PART I

Cautionary Note Regarding Forward-Looking Statements

We make statements from time to time regarding our business and prospects, such as projections of future performance, statements of management's plans and objectives, forecasts of market trends, and other matters that are forward-looking statements within the meaning of Section 27A of the Securities Act of 1933 and Section 21E of the Securities Exchange Act of 1934. Statements containing the words or phrases "will likely result," "are expected to," "will continue," "is anticipated," "estimates," "projects," "believes," "expects," "anticipates," "intends," "target," "goal," "plans," "objective," "should" or similar expressions identify forward-looking statements. Forward-looking statements may appear in documents, reports, filings with the Securities and Exchange Commission (SEC), news releases, written or oral presentations made by our authorized officers or other representatives. For such statements, we claim the protection of the safe harbor for forward-looking statements contained in the Private Securities Litigation Reform Act of 1995.

Our future results, including results expressed in or implied by forward-looking statements, involve a number of risks and uncertainties. Forward-looking statements are not guarantees of future actions, outcomes, results or performance. Any forward-looking statement made by us or on our behalf speaks only as of the date on which such statement is made. We do not undertake any obligation to update or keep current any forward-looking statement to reflect events or circumstances arising after the date of such statement.

In addition to the factors identified or described by us from time to time in filings with the SEC, there are many important factors that could cause our future results to differ materially from historical results or trends, results anticipated or planned by us, or the results expressed in or implied by any forward-looking statements. These important factors are described below under Item 1A. Risk Factors.

ITEM 1. BUSINESS

Overview

Qumu Corporation ("Qumu" or the "Company") provides the software solutions to create, manage, secure, distribute and measure the success of live and on-demand video for enterprises. The Qumu platform enables global organizations to drive employee engagement, increase access to video, and modernize the workplace by providing a more efficient and effective way to share knowledge. The world's largest organizations leverage the Qumu platform for a variety of cloud, on-premise and hybrid deployments. Use cases including self-service webcasting, sales enablement, internal communications, product training, regulatory compliance and customer engagement. The Company and its channel partners market Qumu's products to customers primarily in North America, Europe and Asia.

The Company generates revenue through the sale of enterprise video content management software, hardware, maintenance and support, and professional and other services. Software sales may take the form of a perpetual software license, a cloud-hosted software as a service (SaaS) or a term software license. Software licenses and appliances revenue includes sales of perpetual software licenses and hardware. Service revenue includes SaaS, term software licenses, maintenance and support, and professional and other services. Sales can range from a single year agreement for thousands of dollars to a multi-year agreement for over a million dollars.

The table below describes Qumu's revenues by category (dollars in thousands):

	Year Ended December 31,			Increase (Decrease)		Percent Increase (Decrease)	
	2019	2018	2017	2018 to 2019	2017 to 2018	2018 to 2019	2017 to 2018
Software licenses and appliances	\$ 4,903	\$ 5,814	\$ 5,982	\$ (911)	\$ (168)	(16)%	(3)%
Service	20,459	19,199	22,185	1,260	(2,986)	7 %	(13)%
Total revenues	\$ 25,362	\$ 25,013	\$ 28,167	\$ 349	\$ (3,154)	1 %	(11)%

History

The Company was founded in 1978, incorporated as IXI, Inc. in Minnesota in February 1987, and changed its name to Rimage Corporation in April 1988. Until October 2011, the Company focused its business on the development and sale of its CD recordable publishing systems and DVD recordable publishing systems.

In October 2011, the Company acquired Qumu, Inc., a leader in the enterprise video content management software market and changed its name to Qumu Corporation in September 2013. Qumu completed the transition to an enterprise video content management software company in July 2014, when the Company closed on the sale of its disc publishing assets to Equus Holdings, Inc. and Redwood Acquisition, Inc.

In October 2014, the Company acquired Kulu Valley Ltd., a private limited company incorporated and operating in England and Wales, subsequently renamed Qumu Ltd (“Kulu Valley”). The acquisition was made to expand Qumu’s addressable market through the offering of Kulu Valley’s best-in-class video content creation capabilities and easy-to-deploy pure cloud solution, while providing customers with access to industry-leading video content management and delivery capability.

On February 11, 2020, we entered into an Agreement and Plan of Merger and Reorganization (the “Merger Agreement”) for a proposed “merger of equals” transaction with Synacor, Inc. (“Synacor”), and Quantum Merger Sub I, Inc., a direct, wholly owned subsidiary of Synacor (“Merger Sub”). Pursuant to the Merger Agreement, and subject to the conditions in the Merger Agreement, Merger Sub will merge with and into Qumu (the “Merger”), with Qumu surviving the Merger as a wholly owned subsidiary of Synacor. At the effective time of the Merger, by virtue of the Merger and without any action on the part of Synacor, Qumu, Merger Sub or any holder of any of the securities of Synacor, Qumu or Merger Sub, each share of common stock of Qumu issued and outstanding immediately prior to the effective time (other than the shares that are owned by Qumu, Synacor or Merger Sub) will be converted into the right to receive 1.61 newly issued shares of common stock of Synacor.

The consummation of the Merger is subject to customary closing conditions, including, among others, the approval of the Merger Agreement by Qumu shareholders and the approval of the issuance of shares of Synacor common stock pursuant to the Merger Agreement by Synacor stockholders. The parties expect the Merger will be completed in mid-2020.

The foregoing description of the Merger and Merger Agreement does not purport to be complete and is qualified in its entirety by reference to the Merger Agreement, which is filed as Exhibit 2.1 to our Current Report on Form 8-K, filed with the SEC on February 11, 2020. In addition, see Part I – Item 1A – Risk Factors – Risks Relating to the Merger and Note 14 – Subsequent Event of this Form 10-K for further details on the Merger.

Enterprise Video Content Management and Delivery Software

To increase communication, engagement and collaboration between employees and stakeholders, organizations are continuing to focus on technology investments that improve the engagement and connectivity of people across offices, conference rooms, computers, tablets and smart phones. As part of this shift in technology investment, enterprises are quickly moving to video as the primary communication and collaboration medium. We integrate with and extend the reach of video conferencing solutions such as Zoom, WebEx and Skype for Business and support distributing video via collaboration tools such as Slack and Social Chorus.

Qumu is the leading provider of best-in-class tools to create, manage, secure, distribute and measure the success of live and on-demand video for the enterprise. As a trusted adviser to clients and partners, Qumu is the innovation leader when scalability, reliability and security are critical. Backed by the most talented and experienced team in the industry, the Qumu platform enables global organizations to drive employee engagement, increase access to video, and modernize the workplace by providing a more efficient and effective way to share knowledge.

The world’s largest organizations leverage the Qumu platform for a variety of cloud, on-premise or hybrid deployments. Use cases include executive webcasting, corporate communications, training and onboarding, employee collaboration, external sales, marketing communications, IPTV and digital signage.

Qumu provides an end-to-end solution with an intuitive and rich user experience to create, manage and deliver live and on-demand video content both behind and beyond the secure firewall.

Capabilities and Products

The Qumu Enterprise Video Platform

Qumu offers an end-to-end video creation, management and delivery solution for enterprises. The solution can be purchased as a perpetual software license or software as a service (SaaS) for cloud or hybrid deployments. The Qumu platform offers a scalable and extensible platform that organizations can use to improve stakeholders' engagement both internally and externally.

Qumu’s implementations can range in size from thousands to millions of dollars. The Qumu platform integrates with customers' existing video services (e.g., video conferencing systems), business applications (e.g., Zoom, Skype, WebEx, Outlook, Slack) and broader information technology (IT) infrastructures using Qumu's extensive application services or "APIs." Deployments also range from a single customer location to a global infrastructure serving over one hundred thousand

corporate employees. Qumu's solution components are deployed as needed to serve different capabilities of the enterprise video content lifecycle of creating, capturing, managing, delivering and experiencing video content.

The Qumu platform offers a flexible deployment model that can be leveraged by organizations in three different ways:

- Outside the firewall as a cloud-based solution
- As a hybrid solution, providing the flexibility of cloud, combined with Qumu's intelligent delivery technology
- Inside the firewall as an on-premise enterprise-grade solution

The Qumu platform encompasses four distinct elements, each of which is detailed further below:

- Video Capture
- Video Content Management
- Intelligent Delivery
- Extensions and Add-Ons

Video Capture

Qumu's intelligent video capture (sometimes referred to as ingest) dynamically supports unlimited video content sources, accommodating a wide variety of video formats. Video conferencing solutions have emerged as a rapidly growing source of video content. These range from high-end, hardware-intensive conference room systems, such as those provided by Polycom and Cisco, to popular unified communications solutions such as Skype for Business, Zoom and WebEx.

Qumu brings streaming and management to these video communications tools. As video conferencing becomes the de facto form of team communication, organizations can record, manage and broadcast these videos live or on demand to hundreds or thousands of employees. Intelligent video capture allows users to record and broadcast using existing video conferencing tools. With one enterprise-wide video management and delivery platform, IT can extend their existing video conferencing system investment and concurrently move forward with new unified communications strategies.

Video Content Management

Organizations use Qumu to centrally manage all live and on-demand corporate video content through a single interface. Qumu's video content management allows system users to ingest video, create metadata and share content quickly and securely to endpoints with rights and rules management. Some of the platform's notable functionality includes:

Creation & Editing

The Qumu platform provides comprehensive, easy-to-use tools to create and edit video from desktop and mobile devices or using conference room and studio systems. The tools can be used across a wide range of applications from creating a simple mobile phone presentation, to editing a video conference recording, to producing a multi-camera town hall event.

Closed Captioning

The Qumu platform allows enterprises to extend the reach and engagement of both live and on-demand corporate video assets, via an integration with a service called CaptionHub. Using AI-based transcription and translation technology, CaptionHub adds frame-accurate captions to Qumu enterprise video in real time—and at broadcast quality—in over 50 languages.

Advanced Analytics

Qumu Advanced Analytics provide leaders and communications staff with real-time visibility and insights into employee engagement for both live streaming video and video on demand (VOD). Advanced Analytics also help IT teams monitor and solve issues with buffering, bit rate and latency across internal networks, VPNs and external CDNs.

Automated Workflows

The Qumu platform allows users to automate processes and comply with policies by creating workflows for content approval, management and viewing rights. Automated workflows can be set for specific types of meeting recordings with disclaimers, security, time of life settings, and repurposing parameters.

Security and Access Control

Qumu's access control model can leverage most major enterprise authentication solutions, securing access to videos, channels and administrative functions. In cases where a corporate authentication service is not available, Qumu provides its own user management tools for user creation, self-registration, approvals, and group assignment.

Speech Search

Qumu Speech Search allows organizations to use their video repository for eDiscovery, internal clipping services or simply to find information quickly. Qumu Speech Search can quickly analyze thousands of hours of audio and video, index all spoken words and phrases, and return results beyond what metadata or caption-based searches can provide.

Intelligent Delivery

The Qumu platform provides a diverse, flexible and robust series of solutions for enterprise delivery of live streaming or on-demand video. At the core of Qumu's solution is an intelligent business rules engine and CDN broker. This proprietary technology allows organizations to configure and optimize video for their specific offices, mobile users, and various endpoints.

Qumu's intelligent delivery supports multiple content delivery network configurations, automatically and intelligently selecting the optimal video quality for a given user, delivering video via eCDN, software CDN, and/or public CDNs. Qumu's intelligent delivery technology can be deployed as hardware, software, or Virtual Machine. Intelligent delivery can be centrally monitored, managed, and updated.

Extensions and Add-Ons

The Qumu platform is designed to be customizable, enhancing the customer's enterprise communication and collaboration solution. With its service-based extensible architecture, Qumu's technology can be built upon by third-party developers. Current integrations and extensions from Qumu and its partners include Microsoft Office 365, Zoom, SharePoint, Skype for Business, Social Chorus, Yammer, IPTV, Jive, IBM Connections, Polycom, Pexip and Citrix.

Extensibility is important for meeting customers who have complex and unique digital environments and for Qumu's network of partners. Qumu's open, service-based architecture enables customers to more easily support native apps for iOS, Android, and Windows Mobile platforms. The Qumu platform offers robust REST APIs for both user and administrative functions, allowing customers to develop integrations of their own on top of the Qumu platform. At the present time, Qumu has available extensions and add-ons for live captioning, speech search, advanced analytics, content syndication, WebRTC and several other functions.

Marketing and Distribution

Qumu's solutions serve a growing customer base of medium- and large-sized enterprises across a wide range of vertical and horizontal markets, with the six primary markets being 1) Banking, Finance and Insurance, 2) Manufacturing, 3) Services and Consulting, 4) Telecom and Technology, 5) Biotech and Health Care and 6) Government. Qumu has historically targeted enterprises with 10,000+ employees and a history of video use for corporate communications, although its Qumu Cloud product can service small organizations. Across all deployment types (cloud, on-premise and hybrid) and in all six markets, Qumu's customers are among the largest Fortune 500 and Global 2000 companies in the world.

Qumu serves its customer base primarily via direct sales, and to a lesser extent via channel partners, offering a variety of deployment methodologies and business models to meet customer demand including software, software on server appliances, software-enabled devices, SaaS and managed services.

Qumu has been identified as a leader by multiple industry analysts:

- Gartner named Qumu a leader in the most recent Magic Quadrant for Enterprise Video Content Management.
- Aragon Research named Qumu a leader in the most recent Globe Report for Enterprise Video Content Management, as well as a new contender in the most recent Globe Report for Web and Video Conferencing.
- Frost & Sullivan named Qumu as the industry leader by honoring the company with the *Competitive Strategy Innovation and Leadership Award* over 20 total firms it covers in the Enterprise Video space.
- Wainhouse Research has positioned Qumu as a leader in the Enterprise Streaming Market on multiple occasions.

As indicated by these honors, Qumu is among the leading enterprise video platform vendors in the space.

Qumu sells products and services internationally through its U.S. operation and its subsidiaries in the United Kingdom and Japan. International sales comprised approximately 35%, 33% and 27% of revenues for the years ended December 31, 2019, 2018 and 2017, respectively. During the year ended December 31, 2017, the Company had one customer that accounted for more than 10% of its revenues; no single customer accounted for more than 10% of the Company's revenues for the years ended December 31, 2019 and 2018.

Competition

Major competitors of Qumu include Kaltura, Brightcove, MediaPlatform, Vbrick and Panopto. Qumu competes with these other companies based primarily upon its full-stack, end-to-end solution for a complete video infrastructure that includes support for mobile devices and leverages existing IT infrastructure. Qumu occasionally encounters organizations utilizing Zoom and Microsoft's Skype and Stream technologies for video. While some view Zoom and Microsoft as competitors to Qumu and some customers view their products as a complete alternative to Qumu's technology, we believe that the Zoom, Microsoft and Qumu technologies can be seamlessly integrated and provide the customer with greater flexibility and improved manageability than use of their technologies alone. Further, because some prospective customers may choose to rely upon their own IT infrastructure and resources to manage their video content, we compete with customer-created solutions for video content management.

Qumu also differentiates itself from competitors through its agnostic video delivery technology, as well as its flexible deployment models—on-premise, cloud and hybrid—which Qumu customers can choose from and customize based on their own unique organizational needs for video.

Research and Development

Qumu develops its software internally and licenses or purchases software from third parties. Research and development expense was \$7.4 million, \$7.0 million and \$7.3 million for the years ended December 31, 2019, 2018 and 2017, respectively.

As of December 31, 2019, the Company employed 36 employees in research and development. This staff engages in research and development of new products and enhancements to existing products. In addition, Qumu partners with third parties to utilize their competencies in creating products to enhance its product offerings.

Intellectual Property

Qumu currently maintains four U.S. patents. Further, Qumu protects the proprietary nature of its software primarily through copyright and license agreements. It is Qumu's policy to protect the proprietary nature of its newly developed products whenever they are likely to become significant sources of revenue. No assurance can be given that Qumu will be able to obtain patent or other protection for its products. In addition, Qumu has registered and may in the future register trademarks and other marks used in its business.

Qumu also licenses or purchases the intellectual property ownership rights of programs developed by others with license or technology transfer agreements that may obligate Qumu to pay a flat license fee or royalties, typically based on a dollar amount per unit shipped or a percentage of the revenue generated by the software using those programs. Contractual obligations with respect to such licenses will require cash payments of \$400,000 in 2020.

As the number of Qumu's products increases and the functionality of those products expand, Qumu believes that it may become increasingly subject to attempts by others to duplicate its proprietary technology and to the possibility of infringement of its intellectual property. In addition, although Qumu does not believe that any of its products infringe on the rights of others, third parties have claimed, and may in the future claim, Qumu's products infringe on their rights and these third parties may assert infringement claims against Qumu in the future. Qumu may litigate to enforce its intellectual property rights and to defend against claimed infringement of the rights of others or to determine the ownership, scope, or validity of Qumu's proprietary rights and the rights of others. Any claim of infringement against Qumu could involve significant liabilities to third parties, could require Qumu to seek licenses from third parties and could prevent Qumu from developing, selling or using its products.

The Company is the owner of various trademarks and trade names referenced in this Annual Report on Form 10-K including: "Qumu," "Enterprise Video as a Service (EVaaS)", "VideoNet Edge," "Pathfinder" and "How Business Does Video." Solely for convenience, the trademarks and trade names in this Report are referred to without the ® and TM symbols, but such references should not be construed as any indicator that the Company or the other respective owners will not assert, to the fullest extent under applicable law, its or their rights thereto.

Employees

As of December 31, 2019, the Company had 105 employees, all of which were full-time employees and of which 36 were involved in research and development, 32 in sales and marketing, 19 in service and support and 18 in administration and management. None of Qumu's employees are represented by a labor union or covered by a collective bargaining agreement.

Available Information

The SEC maintains a website that contains reports, proxy and information statements, and other information regarding issuers, like Qumu, that file electronically with the SEC. The SEC's website is www.sec.gov.

Qumu also maintains a website at www.qumu.com. Qumu's annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, and other reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act are available on Qumu's website as soon as reasonably practicable after these documents are filed electronically with the SEC. To obtain copies of these reports, go to www.qumu.com and click on "About," then click on "Investor Relations," then "SEC Filings" to view all of Qumu's current EDGAR reports.

ITEM 1A. RISK FACTORS

If any of the following risks actually occur, our business, results of operations, and financial condition and the market price of our common stock could be negatively impacted. Although we believe that we have identified and discussed below the most significant risk factors affecting our business, there may be additional risks and uncertainties that are not presently known or that are not currently believed to be significant that may adversely affect our performance or financial condition. Any forecast regarding our future performance, including, but not limited to, forecasts regarding future revenue, product mix, cash flow and cash balances, are forward-looking statements. These forward-looking statements reflect various assumptions and are subject to significant uncertainties and risks that could cause the actual results to differ materially from those described in the forward-looking statement, including the risks reflected in the risk factors set forth below. Consequently, the future results expressed or implied by any forward-looking statement are not guaranteed and the variation of actual results or events from such statements may be material and adverse.

RISKS RELATING TO THE MERGER

Our shareholders will receive a fixed ratio of 1.61 shares of Synacor common stock for each share of Qumu common stock regardless of any changes in market value of Qumu common stock or Synacor common stock before the completion of the merger.

At the effective time of the merger, each share of Qumu common stock will be converted into the right to receive 1.61 shares of Synacor common stock. There will be no adjustment to the exchange ratio (except for adjustments to reflect the effect of any stock split, reverse stock split, stock dividend, reorganization, recapitalization, reclassification or other like change with respect to Synacor common stock or Qumu common stock), and the parties do not have a right to terminate the merger agreement based upon changes in the market price of either Synacor common stock or Qumu common stock. The respective market value of Qumu's and Synacor's common stock since the announcement of the merger has fluctuated and may continue to fluctuate as a result of a variety of factors, including general market and economic conditions and changes in Qumu's or Synacor's businesses, operations and prospects. Many of these factors are outside the control of Qumu and Synacor.

The market value of Synacor common stock at the time of completion of the merger may be lower or higher than the closing price of Synacor common stock on the last full trading day preceding the public announcement of the proposed merger on February 11, 2020 (the date that Qumu and Synacor entered into the merger agreement), the last full trading day prior to the date that the joint proxy statement/prospectus is filed with the SEC, or the last full trading day prior to the date of Qumu's and Synacor's shareholder meetings. Moreover, completion of the merger may occur some time after the requisite shareholder approvals have been obtained. Consequently, at the time Qumu shareholders must decide whether to approve the merger agreement, they will not know the market price of the Synacor common stock they will receive and the market price of the Qumu common stock they will surrender when the merger is actually consummated. The value of the Synacor common stock received by Qumu shareholders will depend on the market price of the Synacor common stock at that time the merger occurs, and the value of the Qumu common stock surrendered by Qumu shareholders will depend on the market price of the Qumu common stock at that time.

Whether or not the merger is completed, the announcement and pendency of the merger could impact or cause disruptions in the businesses of Qumu and Synacor, which could have an adverse effect on the businesses and operating results of Qumu and Synacor.

Whether or not the merger is completed, the announcement and pendency of the merger could cause disruptions in or otherwise negatively impact the businesses and operating results of Qumu and Synacor, including among others:

- Qumu and Synacor employees may experience uncertainty about their future roles with the combined company, which might adversely affect Qumu's and Synacor's ability to retain and hire key personnel and other employees;
- the attention of Qumu's and Synacor's management may be directed toward completion of the merger and transaction-related considerations and may be diverted from the day-to-day operations and pursuit of other opportunities that could have been beneficial to the businesses of Qumu and Synacor; and
- customers, channel partners, vendors or suppliers may seek to modify or terminate their business relationships with Qumu or Synacor, or delay or defer decisions concerning Qumu's or Synacor's products or services or seek alternatives to the products or services offered by Qumu or Synacor.

These disruptions could be exacerbated by a delay in the completion of the merger or termination of the merger agreement and could have an adverse effect on the businesses, operating results or prospects of Qumu and Synacor if the merger is not completed or the business, operating results or prospects of the combined company if the merger is completed.

Customer uncertainties related to the merger could adversely affect Qumu's business, operating results and prospects.

In response to the announcement of the merger or due to ongoing uncertainty about the merger, customers of Qumu may delay or defer purchasing decisions or elect to switch to other providers of enterprise video content management software solutions or develop internal capabilities for video communications within their enterprise. In particular, prospective customers could be reluctant to purchase the products and services of Qumu due to uncertainty about the direction of the combined company's product offerings and willingness to support existing Qumu products. To the extent that the proposed merger creates uncertainty among customers or prospective customers such that they delay, defer or change purchases in response to the proposed merger, Qumu's revenues would be adversely affected. Qumu may make customer assurances to address their uncertainty about the direction of the combined company's product and support for Qumu products, which may result in additional obligations of Qumu or the combined company. As a result of any of these actions, Qumu revenues and other operating results or the operating results of the combined company could be substantially below expectations of market analysts and a decline in Qumu's, Synacor's or the combined company's stock prices could result.

Certain directors and executive officers of Qumu have interests in the merger that may be different from, or in addition to, the interests of Qumu shareholders.

Executive officers of Qumu negotiated the terms of the merger agreement under the direction of our board of directors. Our board of directors unanimously approved the merger agreement and the transactions contemplated thereby and unanimously recommended that Qumu shareholders vote in favor of the merger agreement. These directors and executive officers may have interests in the merger that are different from, or in addition to, or may be deemed to conflict with, the interests of Qumu shareholders. These interests include the continued employment of certain executive officers of Qumu by Synacor, the continued positions of certain directors of Qumu as directors of the combined company and the indemnification of former Qumu directors and officers by the combined company. With respect to our directors and executive officers, these interests also include the treatment in the merger of change of control, severance and retention agreements, stock options, restricted stock units, and restricted stock held by these directors and executive officers, including the right to vesting acceleration upon or following a change of control under various equity awards and agreements. Our shareholders should be aware of these interests when they consider the recommendation of our board of directors that they vote in favor of the merger agreement.

Provisions of the merger agreement may deter alternative business combinations and could negatively impact Qumu's stock price if the merger agreement is terminated in certain circumstances.

In connection with the execution and delivery of the merger agreement, each of Qumu and Synacor agreed to immediately cease all existing activities, discussions or negotiations with any persons previously conducted with respect to certain acquisition proposals and acquisition transactions relating to Qumu and Synacor. The merger agreement prohibits each of Qumu and Synacor from soliciting, initiating, or knowingly encouraging or facilitating certain acquisition proposals with any third party, subject to exceptions set forth in the merger agreement. The merger agreement allows neither Qumu nor Synacor to terminate the merger agreement solely due to the receipt of an alternative acquisition proposal. The merger agreement also

provides for the payment by Synacor of a termination fee of \$2.0 million if the merger agreement is terminated in certain circumstances (relating to, among other things, certain breaches of Synacor's no-shop obligations, failure by the Synacor board of directors to recommend the merger, and failure by Synacor to bring the merger before a vote to its stockholders) in connection with a competing third party acquisition proposal for Synacor and for the payment by Qumu of a termination fee of \$2.0 million if the merger agreement is terminated in certain circumstances (relating to, among other things, certain breaches of Qumu's no-shop obligations, failure by the Qumu board to recommend the merger, and failure by Qumu to bring the merger before a vote to its shareholders) in connection with a competing third party acquisition proposal for Qumu. These provisions limit our ability to pursue offers from third parties that could result in greater value to Qumu shareholders. The obligation to pay the termination fee also may discourage a third party from pursuing an acquisition proposal. If the merger agreement is terminated and we determine to seek another business combination, we cannot assure our shareholders that we will be able to negotiate a transaction with another acquiror on terms comparable to the terms of the merger, or that we will avoid the termination fee associated with the termination of the merger agreement. Additionally, in the event the merger agreement is terminated by either Synacor or Qumu, our stock price may decline, even if we are not required to pay the termination fee.

We are subject to business uncertainties and contractual restrictions while the proposed transactions are pending, which could adversely affect our business and operations.

Under the terms of the merger agreement, we are subject to certain restrictions on the conduct of our business prior to the completion of the merger, which may adversely affect our ability to execute certain of our business strategies, including the ability in certain cases to enter into contracts, incur indebtedness or incur capital expenditures, or otherwise pursue actions that are not in the ordinary course of business, even if such actions would be beneficial to Qumu. Synacor is subject to comparable restrictions on the conduct of its business prior to the completion of the merger. Such limitations could negatively affect each party's respective business, operating results and financial condition prior to the completion of the merger.

If the proposed merger is not completed, we will have incurred substantial costs that may adversely affect our financial results and operations and the market price of Qumu common stock.

We have incurred and will incur substantial costs in connection with the proposed merger, even if the merger is not completed. These costs are primarily associated with the fees of our attorneys, accountants, transaction advisors, and financial advisors. Also, if the merger agreement is terminated under specified circumstances, we may be required to pay a termination fee to Synacor of \$2.0 million. In the event that the proposed merger is not completed, these merger related costs may adversely affect our business, operating results and financial condition, as well as the price of Qumu common stock.

RISKS RELATING TO OUR BUSINESS

The markets for video content and software to manage video content are each in early stages of development. If this market does not develop or develops more slowly than we expect, our revenues may decline or fail to grow.

The use of video as a mainstream communication and collaboration platform and the market for video content management software is in an early stage of development, and it is uncertain whether this use of video will achieve high levels of acceptance. Widespread adoption and use of video in the enterprise is critical to our future growth and success. Likewise, it is uncertain whether video content management software will achieve high levels of demand and market adoption. Our success will depend on enterprises adopting video as a platform and upon enterprise demand for software to help them capture, organize and distribute this content.

Some customers may be reluctant or unwilling to use video as a medium within the enterprise for a number of reasons, including lack of perceived benefit of this new method of communication and existing investments in other enterprise-wide communications tools. Further, even if customers are using video as a medium, these customers may choose to rely upon their own IT infrastructure and resources to manage their video content. Because many companies generally are predisposed to maintaining control of their IT systems and infrastructure, there may be resistance to using software as a service provided by a third party. Privacy concerns and transition costs are also factors that may affect a potential customer's decision to subscribe to an external solution.

Additional factors that may limit market acceptance of our video content management software include:

- competitive dynamics may cause pricing levels to change as the market matures and cause customers to seek out lower priced alternatives to our video content management software or force us to reduce the prices we charge for our products or services; or
- existing and new market participants may introduce new types of solutions and different approaches to enable enterprises to address their enterprise communications or video communications needs and these disruptive technologies may reduce demand for our video content management software.

If customers do not perceive the benefits of our video content management software, or if customers are unwilling to accept video content as an alternative to other more traditional forms of enterprise communication, the market for our software might not continue to develop or might develop more slowly than we expect, either of which would significantly adversely affect our financial results and prospects.

If we are unable to attract new customers, retain existing customers and sell additional products and services to our existing and new customers, our revenue growth and profitability will be adversely affected.

To increase our revenues and achieve profitability, we must regularly add new customers, retain our existing customers, ensure high rates of renewals among our existing customers, sell additional products and services to new and existing customers, or convert existing customers to our latest SaaS solution.

We intend to grow our business by developing and improving our product offerings, ensuring high levels of customer satisfaction, competing effectively with products and services offered by others, retaining and attracting talent, developing relationships with channel partners and increasing our marketing activities.

If we fail to add new customers or lose existing customers, or if our existing customers do not renew their subscriptions at the same levels or do not increase their purchases of products and services, we will not grow our revenue as expected and our operating results will suffer.

We have a history of losses, and while our goal is to become cash flow breakeven in late 2020, we may not achieve that goal or achieve or sustain cash flows or profitability in the future.

We experienced consolidated net losses of \$6.4 million, \$3.6 million and \$11.7 million for the years ended December 31, 2019, 2018 and 2017, respectively. Moreover, we have historically not generated sufficient operating cash flow to fund our operations and expect to incur additional operating losses through at least the first half of 2020. Over the last several years, including into 2019, we have implemented an ongoing expense reduction program that, when combined with expected revenue performance in 2020, we believe will allow us to attain our goal of becoming cash flow breakeven in late 2020.

In order to achieve our goal of becoming cash flow breakeven and to achieve cash flow positivity and profitability in the future, we must increase the revenues received from the sale of our enterprise video content management software solutions, hardware, maintenance and support, and professional and other services, as well as achieve and maintain an expense structure that is aligned with our forecasted revenue and cash flows. Our ability to increase revenues depends upon increasing the number of new customers and expanding our sales to existing customers, maintaining high renewal rates among our existing customers, and maintaining our prices (despite pricing pressure due to competition).

We cannot assure you that we will achieve our goal of becoming cash flow breakeven in late 2020. We cannot assure you that we will generate increases in our revenues, attain a level of profitable operations, or successfully implement our business plan or future business opportunities. Our business plan and financing needs are subject to change depending on, among other things, success of our efforts to grow revenue and our efforts to continue to effectively manage expenses. If we are ultimately unable to generate sufficient revenue to meet our financial targets, become profitable and have sustainable positive cash flows, we may be required to further reduce expenses, which could have a further negative effect on our ability to generate revenue.

We encounter long sales cycles with our enterprise video solutions, which could adversely affect our operating results in a given period.

Our ability to increase revenues and achieve profitability depends, in large part, on widespread adoption of our enterprise video content management software products by large businesses and other organizations. As we target our sales efforts at these customers, we face greater costs, longer sales cycles and less predictability in completing sales. In the large enterprise market, the customer's decision to use our products may be an enterprise-wide decision and, therefore, these types of sales require us to provide greater levels of education regarding the use and benefits of our applications. Further, given the constant innovation with our industry and our products, customers may delay purchasing decisions until certain features or products in development are brought to market. Longer sales cycles could cause our operating and financial results to suffer in a given period.

To compete effectively, we must continually improve existing products and introduce new products that achieve market acceptance.

In order to remain competitive and increase sales to customers, we must anticipate and adapt to the rapidly changing technologies in the enterprise video content management market, enhance our existing products and introduce new products to address the changing demands of our customers. If we fail to anticipate or respond to technological developments or customer requirements, or if we are significantly delayed in developing and introducing products, our revenues will decline.

If we fail to accurately predict customers' changing needs and emerging technological trends, our business could be harmed. We must commit significant resources and may incur obligations (such as royalty obligations) to develop new products and features before knowing whether our investments will result in products the market will accept and without knowing the levels of revenue, if any, that may be derived from these products. Some of our competitors have greater engineering and product development resources than we have, allowing them to develop a greater number of products or improvements or to develop them more quickly.

If we fail to anticipate or respond in a cost-effective and timely manner to technological developments, changes in industry standards or customer requirements, or if we experience any significant delays in the development or introduction of new products or improvements to existing products, our business, operating results and financial condition could be affected adversely.

We face intense competition and such competition may result in price reductions, lower gross profits and loss of market share.

Our products face intense competition, both from other products and from other technologies, both in the U.S. and in international markets. We compete with others such as Kaltura, Brightcove, MediaPlatform, Vbrick and Panopto who deliver video solutions to businesses. Qumu occasionally encounters organizations utilizing Zoom and Microsoft's Skype and Stream technologies. While some view Zoom and Microsoft as competitors to Qumu and some customers view their products as a complete alternative to Qumu's technology, we believe that the Zoom, Microsoft and Qumu technologies can be seamlessly integrated and provide the customer with greater flexibility and improved manageability than use of their technologies alone. Further, because some prospective customers may choose to rely upon their own IT infrastructure and resources to manage their video content, we compete with customer-created solutions for video content management. We expect the intensity of competition we face to increase in the future from other established and emerging companies.

Many of our competitors have greater resources than we do, including greater sales, product development, marketing, financial, technical or engineering resources. In addition, because our enterprise video content management software business is operating within an evolving marketplace, our target customers may prefer to purchase software products that are critical to their business from one of our larger, more established competitors.

To remain competitive, we believe that we must continue to provide:

- technologically advanced products and solutions that anticipate and satisfy the demands of end-users;
- continuing advancements or innovations in our product offerings, including products with price-performance advantages or value-added features in security, reliability or other key areas of customer interest;
- innovations in video content creation, management, delivery and user experience;
- a responsive and effective sales force;
- a dependable and efficient sales distribution network;
- superior customer service;
- and
- high levels of quality and reliability.

We cannot assure you that we will be able to compete successfully against our current or future competitors. Competition may result in price reductions, lower gross profit margins, increased discounts to customers and loss of market share, and could require increased spending by us on research and development, sales and marketing and customer support.

Economic and market conditions, particularly those affecting our customers, have harmed and may continue to harm our business.

Unfavorable changes in economic conditions, including recession, inflation, lack of access to capital, lack of consumer confidence or other changes have resulted and may continue to result in lower spending among our customers and target customers.

Further, we sell our products throughout the United States, as well as in several international countries to commercial and government customers. Our business may be adversely affected by factors in the United States and other countries such as disruptions in financial markets, reductions in government spending, or downturns in economic activity in specific countries or regions, or in the various industries in which we operate; social, political, or labor conditions in specific countries or regions; or adverse changes in the availability and cost of capital, interest rates, tax rates, or regulations. These factors are beyond our control but may result in further decreases in spending among customers and softening demand for our products.

Further, challenging economic conditions also may impair the ability of our customers to pay for products and services they have purchased. As a result, our cash flow may be negatively impacted and our allowance for doubtful accounts and write-offs of accounts receivable may increase.

Our sales will decline, and our business will be materially harmed, if our sales and marketing efforts are not effective.

We will need to continue to optimize our sales infrastructure in order to grow our customer base and our business. Identifying and recruiting qualified personnel and training them in the use and functionality of our software requires significant time, expense and attention. It can take six months or longer before our sales representatives are fully trained and productive. If we are unable to hire, develop and retain talented sales personnel or if new sales personnel are unable to achieve desired productivity levels in a reasonable period of time, we may not be able to realize the expected benefits of this investment or increase our revenues. We also intend to expand new sales models that focus on different sales strategies tailored to different customer types. Our business may be adversely affected if our efforts to train our internal sales force or execute our selling strategies do not generate a corresponding increase in revenues.

For sales that are made to customers through our channel partners, we depend on these businesses to provide effective sales and marketing support to our products. Our channel partners are independent businesses that we do not control. Our agreements with channel partners do not contain requirements that a certain percentage of such parties' sales are of our products. These channel partners may choose to devote their efforts to other products in different markets or reduce or fail to devote the resources to provide effective sales and marketing support of our products, any of which could harm our business by reducing sales to customers.

We believe that our future growth and success will depend upon the success of our internal sales and marketing efforts as well as those of our channel partners.

Competition for highly skilled personnel is intense, and if we fail to attract and retain talented employees, we may fail to compete effectively.

Our future success depends, in significant part, on our continuing ability to identify, hire, develop, motivate, and retain highly skilled personnel for all areas of our organization. Competition in our industry for qualified employees, particularly in senior management, product development and sales, is intense. In addition, our compensation arrangements may not be successful in attracting new employees and retaining and motivating our existing employees given the high demand for these employees from other employers. Our ability to compete effectively depends on our ability to attract new employees and to retain and motivate our existing employees.

Our enterprise video content management software products must be successfully integrated into our customers' information technology environments and workflows, and changes to these environments, workflows or unforeseen combinations of technologies may harm our customers' experience in using our software products.

A significant portion of our sales are made into applications that require our enterprise video content management software products to be integrated into other enterprise workflows, enterprise information technology environments or software functionalities. Any significant changes to enterprise workflows, IT environments or software programs may limit the use or functionality of or demand for our products. As our customers advance technologically, we must be able to effectively integrate our products to remain competitive. Further, current and potential customers may choose to use products offered by our competitors or may not purchase our products if our products would require changes in their existing enterprise workflows, IT environments or software.

The growth and functionality of our enterprise video content management software products depend upon the solution's effective operation with mobile operating systems and computer networks.

Our products are currently compatible with various mobile operating systems including the iOS, Windows Mobile and Android operating systems. The functionality of our products depends upon the continued interoperability of these products with popular mobile operating systems. Any changes in these systems that degrade our products' functionality or give preferential treatment to competitive offerings could adversely affect the operability and usage of our video management software products on mobile devices. Additionally, in order to deliver a high-quality user experience, it is important that our products work well with a range of mobile technologies, systems, and networks. We may not be successful in keeping pace with changes in mobile technologies, operating systems, or networks or in developing products that operate effectively within existing or future technologies, systems, and networks. Further, any significant changes to mobile operating systems by their respective developers may prevent our products from working properly or at all on these systems. In the event that it is more difficult for users to access content delivered by our solutions to their mobile devices, if our products do not operate effectively within the most popular operating systems or if popular mobile devices do not offer a high-quality user experience, sales of and customer demand for our software products could be harmed.

Any failure of major elements of our products could lead to significant disruptions in our ability to serve customers, which could damage our reputation, reduce our revenues or otherwise harm our business.

Our business is dependent upon providing customers with fast, efficient and reliable services. A reduction in the performance, reliability or availability of required network infrastructure may harm our ability to distribute content to our customers, as well as our reputation and ability to attract and retain customers. Our content management software solutions and operations are susceptible to, and could be damaged or interrupted by, outages caused by fire, flood, power loss, telecommunications failure, Internet or mobile network breakdown, earthquake and similar events. Our solutions are also subject to human error, security breaches, power losses, computer viruses, break-ins, “denial of service” attacks, sabotage, intentional acts of vandalism and tampering designed to disrupt our computer systems and network communications. Our failure to protect our network against damage from any of these events could have a material adverse effect on our business, results of operations and financial condition.

Our operations also depend on web browsers, ISPs (Internet service providers) and mobile networks to provide our customers’ end-users with access to websites, streaming and mobile content. Many of these providers have experienced outages in the past, and could experience outages, delays and other difficulties due to system failures unrelated to our solutions. Any such outage, delay or difficulty could adversely affect our ability to effectively provide our products and services, which would harm our business.

If we lose access to third-party licenses, our software product development and production may be delayed or we may incur additional expense to modify our products or products in development.

Some of our solutions contain software licensed from third parties. Third-party licensing arrangements are subject to a number of risks and uncertainties, including:

- undetected errors or unauthorized use of another person’s code in the third-party’s software;
- disagreement over the scope of the license and other key terms, such as royalties payable;
- infringement actions brought by third-party licensees;
- that third parties will create solutions that directly compete with our products; and
- termination or expiration of the license.

Because of these risks, some of these licenses may not be available to us in the future on terms that are acceptable to us or allow our products to remain competitive. The loss of these licenses or the inability to maintain any of them on commercially acceptable terms could delay development of future products or impair the functionality or enhancement of existing products, leading to increased expense associated with licenses of third-party software or development of alternative software to provide comparable functionality for our existing products and modification of our existing products. Further, if we lose or are unable to maintain any of these third-party licenses or are required to modify software obtained under third-party licenses, it could delay the release of new products, delay enhancements to our existing products or delay sales of our existing products. Any delays could result in loss of competitive position, loss of sales and loss of customer confidence, which could have a material adverse effect on our business, results of operations and financial condition.

If the limited amount of open source software that is incorporated into our products were to become unavailable or if we violate the terms of open source licenses, it could adversely affect sales of our products, which could disrupt our business and harm our financial results.

Our products incorporate a limited amount of “open source” software. Open source software is made available to us and to the public by its authors or other third parties under licenses that impose certain obligations on licensees that re-distribute or make derivative works of the open source software. We may not be able to replace the functionality provided by the open source software currently incorporated in our products if that software becomes unavailable, obsolete or incompatible with future versions of our products. In addition, we must carefully monitor our compliance with the licensing requirements applicable to that open source software. If we have failed or if in the future we fail to comply with the applicable license requirements, we might lose the right to use the subject open source software. The terms of some open source licenses would require us to give our customers significant rights to open source software that is subject to those licenses and is incorporated in our products. This would include the right to obtain from us the source code form of that open source software, and the right to use, modify and distribute that open source software to others. We may be required to provide these rights to customers on a royalty-free basis. Those rights might also extend to modifications and additions we make to the subject open source software. That open source software, and those modifications and additions, also might be obtained by our competitors and used in competing products.

The enforceability and interpretation of open source licenses remains uncertain under applicable law. Unfavorable court decisions could require us to replace open source software incorporated in our products. In some cases, this might require us to obtain licenses to commercial software under terms that restrict our use of that commercial software and require us to pay

royalties. In some cases, we might need to redesign our software products, or to discontinue the sale of our software products if a redesign could not be accomplished on a timely basis. These same consequences result if our use of any open source software or commercial software is found to infringe any intellectual property right of another party. Any of these occurrences would harm our business, operating results and financial condition.

We sell a significant portion of our products internationally, which exposes us to risks associated with international operations.

We sell a significant amount of our products to customers outside the United States, particularly in Europe and Asia. We expect that sales to international customers, including customers in Europe and Asia, will continue to account for a significant portion of our net sales. Sales outside the United States involve the following risks, among others:

- international governments may impose tariffs, quotas and taxes;
- the demand for our products will depend, in part, on local economic health;
- political and economic instability may reduce demand for our products;
- public health emergencies, such as the recent coronavirus outbreak and the subsequent public health measures, may affect our employees, suppliers, customers and our ability to provide services and maintenance in the affected regions;
- restrictions on the export or import of technology may reduce or eliminate our ability to sell in certain markets;
- potentially limited intellectual property protection in certain countries may limit our recourse against infringing products or cause us to refrain from selling in certain markets;
- potential difficulties in managing our international operations;
- the burden and cost of complying with a variety of international laws, including those relating to data security and privacy;
- we may decide to price our products in foreign currency denominations;
- our contracts with international channel partners cannot fully protect us against political and economic instability;
- potential difficulties in collecting receivables; and
- we may not be able to control our international channel partners' efforts on our behalf.

The financial results of our non-U.S. subsidiaries are translated into U.S. dollars for consolidation with our overall financial results. Currency translations and fluctuations may adversely affect the financial performance of our consolidated operations. Currency fluctuations may also increase the relative price of our product in international markets and thereby could also cause our products to become less affordable or less price competitive than those of international manufacturers. These risks associated with international operations may have a material adverse effect on our revenue from or costs associated with international sales.

If our domestic or international intellectual property rights are not adequately protected, others may offer products similar to ours or independently develop the same or similar technologies or otherwise obtain access to our technology and trade secrets, which could depress our product selling prices and gross profit or result in loss of market share.

We believe that protecting our proprietary technology is important to our success and competitive positioning. In addition to common law intellectual property rights, we rely on patents, trade secrets, trademarks, copyrights, know-how, license agreements and contractual provisions to establish and protect our intellectual property rights. However, these legal means afford us only limited protection and may not adequately protect our rights or remedies to gain or keep any advantages we may have over our competitors.

Our competitors, who may have or could develop or acquire significant resources, may make substantial investments in competing technologies, or may apply for and obtain patents that will prevent, limit or interfere with our ability to develop or market our products. Further, although we do not believe that any of our products infringe on the rights of others, third parties have claimed, and may claim in the future, that our products infringe on their rights, and these third parties may assert infringement claims against us in the future.

Costly litigation may be necessary to enforce patents issued to us, to protect trade secrets or "know-how" we own, to defend us against claimed infringement of the rights of others or to determine the ownership, scope, or validity of our proprietary rights and the rights of others. Any claim of infringement against us may involve significant liabilities to third parties, could require us to seek licenses from third parties, and could prevent us from manufacturing, selling, or using our products. The occurrence of this litigation, or the effect of an adverse determination in any of this type of litigation, could have a material adverse effect on our business, financial condition and results of operations. Further, the laws of some of the countries in which our products are or may be sold may not protect our products and intellectual property to the same extent as the United States or at all. Our failure to protect or enforce our intellectual property rights could have a material adverse effect on our business, results of operations and financial condition.

Changes in laws and regulations related to the Internet or changes in the Internet infrastructure itself may diminish the demand for our products, and could have a negative impact on our business.

The future success of our business depends in part upon the continued use of the Internet as a primary medium for commerce, communication and business applications. Federal, state or international government bodies or agencies have in the past adopted, and may in the future adopt, laws or regulations affecting the use of the Internet as a commercial medium. Changes in these laws or regulations could require us to modify our products in order to comply with these changes. In addition, government agencies or private organizations may begin to impose taxes, fees or other charges for accessing the Internet or commerce conducted via the Internet. These laws or charges could limit the growth of Internet-related commerce or communications generally, or result in reductions in the demand for Internet-based applications such as ours. The adoption of any laws or regulations that adversely affect the growth, popularity or use of the Internet could limit the growth of the video as a mainstream communication and collaboration tool, limit the market for video content management software generally, and limit the demand for our products.

Expanding laws, regulations and customer requirements relating to data security and privacy may adversely affect sales of our products and result in increased compliance costs.

Our customers can use our products to collect, use and store personal or identifying information regarding their employees, customers and suppliers. Federal, state and international government bodies and agencies have adopted, are considering adopting, or may adopt laws and regulations regarding data security, privacy and the collection, use, storage and disclosure of personal information obtained from consumers and individuals. These laws and regulations could reduce the demand for our software products if we fail to design or enhance our products to enable our customers to comply with the privacy and security measures required by the legislation.

We also must comply with the policies, procedures and business requirements of our customers relating to data privacy and security, which can vary based upon the customer, the customer's industry or location, and the product the customer selects, and which may be more restrictive than the privacy and security measures required by law or regulation. In particular, the European Union and many countries in Europe have stringent privacy laws and regulations, which may impact our ability to profitably operate in certain European countries or to offer products that meet the needs of customers subject to European Union privacy laws and regulations. Likewise, the California Consumer Privacy Act is a state statute intended to enhance privacy rights and consumer protection that may impact our ability to profitably operate across the United States given that our customers' employees may be resident in California or to offer products that meet the needs of customers subject to California privacy laws and regulations.

The costs of compliance with, and other burdens imposed by, our customers' own requirements and the privacy and security laws and regulations that are applicable to our customers' businesses may limit the use and adoption of our products and reduce overall demand. Non-compliance with our customers' specific requirements may lead to termination of contracts with these customers or liabilities to the customers; non-compliance with applicable laws and regulations may lead to significant fines, penalties or liabilities.

Furthermore, privacy concerns may cause our customers' workers to resist providing the personal data necessary to allow our customers to use our products effectively. If a customer experiences a significant data security breach involving our software products, our customers could lose confidence in our software's ability to protect the personal information of their employees, customers and suppliers, which could cause our customers to discontinue use of our products. The loss of confidence from a significant data security breach involving our software products could hurt our reputation, cause sales and marketing challenges to existing and new customers, cause loss of market share or exacerbate competitive pressures, result in an increase in our development costs to address any potential vulnerabilities in our software products, and may result in reduced demand and revenue. Even the perception of privacy concerns, whether or not valid, may inhibit market adoption of our products in certain industries.

Domestic and international legislative and regulatory initiatives and our customers' privacy policies and practices may adversely affect our customers' ability to process, handle, store, use and transmit demographic and personal information from their employees, customers and suppliers, which could reduce demand for our products.

In addition to government activity, privacy advocacy groups and the technology and other industries are considering various new, additional or different self-regulatory standards that may place additional burdens on our software products. If the processing of personal information were to be curtailed in this manner, our software products would be less effective, which may reduce demand for our products and adversely affect our business.

Computer malware, viruses, hacking, phishing attacks, spamming, and other cyber-threats could harm our business and cause customers to lose confidence in us and our products, which could significantly impact our business and results of operations.

Computer malware, viruses, computer hacking, phishing attacks, social engineering, and other electronic threats have become more prevalent, have occurred on our systems in the past, and may occur on our systems in the future. While we are taking measures to safeguard our solutions and services from cybersecurity threats and vulnerabilities, cyber-attacks and other security incidents continue to evolve in sophistication and frequency. The connection of our software solutions to our customers and their information technology environments could present the opportunity for an attack on our systems to serve as a way to obtain access into our customers' systems, which could have a material adverse effect on our financial condition and growth prospects. Our security measures may also be breached due to employee or other error, intentional malfeasance and other third-party acts, and system errors or vulnerabilities, including vulnerabilities of our third-party vendors, customers, or otherwise. Businesses have experienced material sales declines after discovering data breaches, and our business could be similarly impacted. The costs to continuously improve the security of our solutions and reduce the likelihood of a successful attack are high and may continue to increase. Furthermore, some U.S. states and international jurisdictions have enacted laws requiring companies to notify consumers of data security breaches involving their personal data. These mandatory disclosures regarding a security breach often lead to widespread negative publicity, which may cause our customers to lose confidence in the effectiveness of the data security measures of our solutions. Any negative incidents can quickly erode trust and confidence, particularly if they result in adverse mainstream and social media publicity, governmental investigations or litigation. Though it is difficult to determine what, if any, harm may directly result from any specific interruption or attack, any failure to maintain performance, reliability, security and availability of our products and technical infrastructure to the satisfaction of our customers may harm our reputation, impair our ability to retain existing customers and attract new customers and expose us to legal claims and government action, each of which could have a material adverse impact on our business, results of operations and financial condition.

We may face circumstances in the future that could result in impairment charges, including, but not limited to, significant goodwill impairment charges.

If the fair value of any of our long-lived assets decreases as a result of an economic slowdown, a downturn in the markets where we sell products and services or a downturn in our financial performance and/or future outlook, we may be required to record an impairment charge on such assets, including goodwill.

We are required to test intangible assets with indefinite life periods for potential impairment annually and on an interim basis if there are indicators of a potential impairment. We also are required to evaluate amortizable intangible assets and fixed assets for impairment if there are indicators of a possible impairment. One potential indicator of impairment is the value of our market capitalization, or enterprise value, as compared to our net book value.

As of December 31, 2019, the Company's market capitalization, without a control premium, was greater than its book value, and the Company concluded there was no goodwill impairment. Declines in the Company's market capitalization or a downturn in our future financial performance and/or future outlook could require the Company to record goodwill and other impairment charges. While a goodwill impairment charge is a non-cash charge, it would have a negative impact on our results of operations.

We may experience significant quarterly and annual fluctuations in our results of operations due to a number of factors, and these fluctuations may negatively impact the market price of our common stock.

Our quarterly and annual results of operations may fluctuate significantly due to a variety of factors, many of which are outside of our control. This variability may lead to volatility in our stock price as research analysts and investors respond to quarterly fluctuations and this volatility may be exacerbated by the relatively illiquid nature of our common stock. In addition, comparing our results of operations on a period-to-period basis, particularly on a sequential quarterly basis, may not be meaningful. You should not rely on our past results as an indication of our future performance.

Factors that may affect our results of operations include:

- the number and mix of products and solutions sold in the period;
- the timing and amount of our recorded revenue, which will depend upon the mix of products and solutions selected by our customers with revenue from paid-up perpetual software licenses being recognized upon delivery, revenue from term software licenses recognized over the term of the contract, and revenue from cloud-hosted services recognized over the term of the subscription agreement;
- timing of customer purchase commitments, including the impact of long sales cycles and seasonal buying patterns;
- variability in the size of customer purchases and the impact of large customer orders on a particular period;

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- the timing of major development projects and market launch of new products or improvements to existing products;
- reductions in our customers' budgets for information technology purchases and delays in their purchasing cycles, due to changing global economic or market conditions;
- the impact to the marketplace of competitive products and pricing;
- the timing and level of operating expenses;
- the impact on revenue and expenses of acquisitions by us or by our competitors;
- future accounting pronouncements or changes in our accounting policies; and
- the impact of a recession or any other adverse global economic conditions on our business, including uncertainties that may cause a delay in entering into or a failure to enter into significant customer agreements.

The foregoing factors are difficult to forecast, and these, as well as other factors, could adversely affect our quarterly and annual results of operations. Failure to achieve our quarterly or annual forecasts or to meet or exceed the expectations of research analysts or investors may cause our stock price to decline abruptly and significantly.

The limited liquidity for our common stock could affect your ability to sell your shares at a satisfactory price.

Our common stock is relatively illiquid. As of December 31, 2019, we had 13,553,409 shares of common stock outstanding. The average daily trading volume in our common stock, as reported by the Nasdaq Stock Market, for the 64 trading days beginning October 1, 2019 and ending December 31, 2019 was approximately 35,400 shares. A more active public market for our common stock may not develop, which could adversely affect the trading price and liquidity of our common stock. Moreover, a thin trading market for our stock could cause the market price for our common stock to fluctuate significantly more than the stock market as a whole. Without a larger float, our common stock is less liquid than the stock of companies with broader public ownership. As a result, the trading prices of our common stock have been and may continue to be more volatile. In addition, in the absence of an active public trading market, shareholders may be unable to liquidate their shares of our common stock at a satisfactory price.

ITEM 1B. UNRESOLVED STAFF COMMENTS

None.

ITEM 2. PROPERTIES

Location of Property	Use of Property	Approximate Monthly Rent (USD)	Approximate Leased Square Footage	Lease Expiration Date
Minneapolis, Minnesota (Headquarters)	Engineering, service, sales, marketing and administration	\$ 20,000 ⁽¹⁾	13,000	January 2023
Burlingame, California	Engineering, service, sales, marketing and administration	\$ 16,000 ⁽²⁾	3,800	September 2022
London, England	Engineering, service, sales, marketing and administration	\$ 21,000	2,900	July 2024
Hyderabad, India	Software development and testing	\$ 2,000 ⁽³⁾	3,300	July 2024

⁽¹⁾ The agreement has escalating lease payments ranging from approximately \$20,000 to \$21,000 per month during the course of the lease.

⁽²⁾ The agreement has escalating lease payments ranging from approximately \$16,000 to \$17,000 per month during the course of the lease.

⁽³⁾ The agreement has escalating lease payments ranging from approximately \$2,000 to \$3,000 per month during the course of the lease.

ITEM 3. LEGAL PROCEEDINGS

The Company is exposed to a number of asserted and unasserted legal claims encountered in the ordinary course of its business. Although the outcome of any such legal actions cannot be predicted, management believes that there are no pending legal proceedings against or involving the Company for which the outcome is likely to have a material adverse effect upon its financial position or results of operations.

ITEM 4. MINE SAFETY DISCLOSURES

Not applicable.

PART II**ITEM 5. MARKET FOR COMMON EQUITY, RELATED STOCKHOLDER MATTERS AND ISSUER PURCHASES OF EQUITY SECURITIES****Market Information**

Qumu's common stock is traded on the Nasdaq Capital Market under the symbol "QUMU."

Shareholders

As of March 2, 2020, there were 101 shareholders of record of Qumu's common stock.

Issuer Purchases of Equity Securities

The Company's Board of Directors has approved common stock repurchases of up to 3,500,000 shares of the Company's common stock. The Company has implemented a Rule 10b5-1 plan in connection with the repurchase program in order to give the Company the ability to repurchase its shares at times when it otherwise might be prevented from doing so under insider trading laws or because of self-imposed blackout periods. Shares may be purchased at prevailing market prices in the open market or in private transactions, subject to market conditions, share price, trading volume and other factors. The repurchase program may be discontinued at any time. The repurchase program has been funded to date using cash on hand. During the three months ended December 31, 2019, no repurchases were made under the repurchase program. While the current authorization remains in effect, the Company expects its primary use of cash will be to fund operations in support of the Company's goals for revenue growth and operating margin improvement. Under the Company's Merger Agreement with Synacor, Inc., the Company is prohibited from repurchasing or redeeming its stock, subject to certain exceptions relating to the exercise or vesting of equity awards.

In addition to shares purchased under the Board authorization, the Company purchases shares of common stock held by employees who wish to tender owned shares to satisfy the exercise price or tax withholding on stock option exercises or vesting of restricted stock awards. All of the share repurchase activity included in the table below for the three months ended December 31, 2019 was associated with satisfaction of employee tax withholding requirements on vesting of restricted stock awards.

Information on the Company's repurchases of its common stock during each month of the fourth quarter ended December 31, 2019, is as follows:

Monthly Period	Total Number of Shares Purchased	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Maximum Number of Shares That May Yet Be purchased Under the Plans or Programs (at end of period)
October 2019	—	\$ —	—	778,365
November 2019	—	\$ —	—	778,365
December 2019	7,723	\$ 2.62	—	778,365

Securities Authorized for Issuance Under Equity Compensation Plans

See Part III, Item 12 "Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters" for information regarding common stock authorized for issuance under equity compensation plans.

ITEM 6. SELECTED FINANCIAL DATA

As a smaller reporting company, the Company is not required to provide information typically disclosed under this item.

ITEM 7. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis of our financial condition and results of operations should be read together with the section titled "Selected Financial Data" and our audited financial statements and related notes which are included elsewhere in this Annual Report on Form 10-K. Our actual results could differ materially from those anticipated in the forward-looking statements included in this discussion as a result of certain factors, including, but not limited to, those discussed in "Risk Factors" included in Item 1A in this Annual Report on Form 10-K.

Overview

The Company generates revenue through the sale of enterprise video content management software, hardware, maintenance and support, and professional and other services. Software sales may take the form of a perpetual software license, a cloud-hosted software as a service (SaaS) or a term software license. Software licenses and appliances revenue includes sales of perpetual software licenses and hardware. Service revenue includes SaaS, term software licenses, maintenance and support, and professional and other services.

For the years ended December 31, 2019, 2018 and 2017, the Company generated revenues of \$25.4 million, \$25.0 million and \$28.2 million, respectively.

Critical Accounting Policies

The discussion of the Company's financial condition and results of operations is based upon its financial statements, which are prepared in accordance with accounting principles generally accepted in the United States of America, or GAAP. The preparation of these financial statements requires management to make estimates, judgments and assumptions that affect the reported amounts of assets, liabilities, revenues, costs and expenses and related disclosures. On an ongoing basis, management evaluates its estimates and assumptions. Management bases its estimates of the carrying value of certain assets and liabilities on historical experience and on various other assumptions that management believes to be reasonable. The Company's actual results may differ from these estimates under different assumptions or conditions.

Management believes that of the Company's significant accounting policies, which are described in the notes to our financial statements, the following accounting policies involve a greater degree of judgment, complexity and effect on materiality. A critical accounting policy is one that is both material to the presentation of our financial statements and requires management to make difficult, subjective or complex judgments for uncertain matters that could have a material effect on the Company's financial condition and results of operations. Accordingly, these are the policies management believes are the most critical to aid in fully understanding and evaluating the Company's financial condition and results of operations.

Revenue Recognition

The Company adopted ASC 606, *Revenue from Contracts with Customers*, as of January 1, 2018. The Company generates revenue through the sale of enterprise video content management software, hardware, maintenance and support, and professional and other services. Software sales may take the form of a perpetual software license, a cloud-hosted software as a service (SaaS) or a term software license. Software licenses and appliances revenue includes sales of perpetual software licenses and hardware. Service revenue includes SaaS, term software licenses, maintenance and support, and professional and other services. Sales can range from a single year agreement for thousands of dollars to a multi-year agreement for over a million dollars.

The Company follows a five-step model to assess a sale to a customer: identify the legally binding contract, identify the performance obligations, determine the transaction price, allocate the transaction price, and determine whether revenue will be recognized at a point in time or over time.

Revenue is recognized upon transfer of control of promised products or services (i.e., performance obligations) to customers in an amount that reflects the consideration to which the Company expects to be entitled in exchange for promised goods or services. The Company's performance obligations are satisfied either over time (for cloud-hosted software as a service, maintenance and support, and other services) or at a point in time (for software licenses and hardware).

The Company enters into contracts that can include various combinations of software licenses, appliances, maintenance and services, some of which are distinct and are accounted for as separate performance obligations. For contracts with multiple performance obligations, the Company allocates the transaction price of the contract to each distinct performance obligation, on a relative basis using its standalone selling price.

The Company determines the standalone selling price (SSP) for software-related elements, including professional services and software maintenance and support contracts, based on the price charged for the deliverable when sold separately. The Company estimates SSP by maximizing use of observable prices such as the prices charged to customers on a standalone basis, established prices lists, contractually stated prices, profit margins and other entity-specific factors, or by using information such as market conditions and other observable inputs. However, the selling prices of its software licenses and cloud-hosted SaaS arrangements are highly variable. Thus, the Company estimates SSP for software licenses and cloud-hosted SaaS arrangements using the residual approach, determined based on total transaction price less the SSP of other goods and services promised in the contract.

Other items relating to charges collected from customers include reimbursable expenses, shipping and handling charges and sales taxes charges. Charges collected from customers as part of the Company's sales transactions are included in revenues and the associated costs are included in cost of revenues. Sales taxes charged to and collected from customers as part of the Company's sales transactions are excluded from revenues and recorded as a liability to the applicable governmental taxing authority.

Perpetual software licenses

The Company's perpetual software license arrangements grant customers the right to use the software indefinitely as it exists at the time of purchase. The Company recognizes revenue for distinct software licenses once the license period has begun and the software has been made available to the customer. Payments for perpetual software license contracts are generally received upon fulfillment of the software product.

Term software licenses

The Company's term software licenses differ from perpetual software licenses in that the customer's right to use the licensed product has a termination date. Term software licenses are recognized upon transfer of control, which is typically at fulfillment, resulting in up-front revenue recognition. The Company categorizes revenue from term software licenses as subscription, maintenance and support revenue in service revenues. Payments are generally received quarterly or annually in equal or near equal installments over the term of the agreement.

Cloud-hosted software as a service

Cloud-hosted software as a service (SaaS) arrangements grant customers the right to access and use the licensed products at the outset of an arrangement via third-party cloud providers. Updates are generally made available throughout the entire term of the arrangement, which is generally one to three years. The Company provides an online library and technical support resources in these cloud-hosted SaaS arrangements, which in conjunction with the SaaS license constitute a single, combined performance obligation, and revenue is recognized over the term of the license. Payments are generally received annually in advance of the service period.

Hardware

The Company sells appliances that are typically drop shipped from third-party suppliers selected by the Company. The transaction price allocated to the appliance is generally recognized as revenue at fulfillment when the customer obtains control of the product. Payments for appliances are generally received upon delivery of the hardware product.

Maintenance and support

Maintenance and support arrangements grant customers the right to software updates and technical support over the term of the maintenance and support contract. Revenue from maintenance and support is generally recognized ratably over the contract term beginning on the commencement date of each contract, which is upon fulfillment of the software obligation. Payments are generally received annually in advance of the service period.

Professional services and training

Professional services and training generally consist of software implementation, on-boarding services and best practices consulting. Revenue from professional services contracts is typically recognized as performed, generally using hours expended to measure progress. Services are generally invoiced monthly for work performed.

Leases

The Company is a lessee in several non-cancellable (1) operating leases, primarily for office space, and (2) finance leases, for certain IT equipment. The Company determines if an arrangement is or contains a lease at contract inception and recognizes a right of use (ROU) asset and a lease liability at the lease commencement date.

For operating leases, the lease liability is initially and subsequently measured at the present value of the unpaid lease payments at the lease commencement date. For finance leases, the lease liability is initially measured in the same manner and at the same date as for operating leases, and is subsequently measured at amortized cost using the effective interest method. The ROU asset is initially measured at cost, which comprises the initial amount of the lease liability adjusted for lease payments made at or before the lease commencement date, plus any initial direct costs incurred less any lease incentives received. Lease expense for lease payments is recognized on a straight-line basis over the earlier of the useful life or the lease term.

Key estimates and judgments in accounting for leases under Topic 842 include how the Company determines (1) the discount rate it uses to discount the unpaid lease payments to present value, (2) lease term and (3) lease payments. The Company has elected not to recognize ROU assets and lease liabilities for short-term leases that have a lease term of 12 months or less. The Company recognizes the lease payments associated with its short-term leases as an expense on a straight-line basis over the lease term.

Derivative Liability

In conjunction with the debt financings completed in October 2016 and January 2018, the Company issued two warrants for the purchase of up to an aggregate of 239,286 shares of the Company's common stock and on August 31, 2018, issued a separate warrant to a sales partner for the purchase of up to 100,000 shares of the Company's common stock. All warrants remained unexercised and outstanding at December 31, 2019. The Company accounts for the warrants, which are derivative financial instruments, as a current liability based upon the characteristics and provisions of the instruments. The warrants were determined to be ineligible for equity classification because of provisions that allow the holder under certain circumstances, essentially the sale of the Company as defined in the warrant agreements, to receive cash payment or other consideration at the option of the holder in lieu of the Company's common shares. See Note 14—"Subsequent Event" of the accompanying consolidated financial statements for a discussion of the Company's merger agreement with Synacor, Inc., which impacts the cash settlement feature of the Hale warrant and ESW warrant.

A warrant liability is recorded in the Company's consolidated balance sheets at its fair value on the date of issuance and is revalued on each subsequent balance sheet date until such instrument is exercised or expires, with any changes in the fair value between reporting periods recorded as other income or expense. The Company estimates the fair value of this liability using option pricing models that are based on the individual characteristics of the warrants on the valuation date, which include the Company's stock price and assumptions for expected volatility, expected life and risk-free interest rate, as well as the present value of the minimum cash payment component of the instrument for the warrants, when applicable. Changes in the assumptions used could have a material impact on the resulting fair value of each warrant. The primary inputs affecting the value of the warrant liability are the Company's stock price and volatility in the Company's stock price, as well as assumptions about the probability and timing of certain events, such as a change in control or future equity offerings. Increases in the fair value of the underlying stock or increases in the volatility of the stock price generally result in a corresponding increase in the fair value of the warrant liability; conversely, decreases in the fair value of the underlying stock or decreases in the volatility of the stock price generally result in a corresponding decrease in the fair value of the warrant liability.

Results of Operations

The percentage relationships to revenues of certain income and expense items for the years ended December 31, 2019, 2018 and 2017, and the percentage changes in these income and expense items between years, are contained in the following table:

	Percentage of Revenues			Percent Increase (Decrease)	
	2019	2018	2017	2018 to 2019	2017 to 2018
Revenues	100.0 %	100.0 %	100.0 %	1 %	(11)%
Cost of revenues	(27.8)	(34.0)	(36.4)	(17)	(17)
Gross profit	72.2	66.0	63.6	11	(8)
Operating expenses:					
Research and development	29.0	27.9	25.9	5	(4)
Sales and marketing	34.3	33.6	35.6	4	(16)
General and administrative	26.8	28.5	30.4	(5)	(17)
Amortization of purchased intangibles	3.0	3.6	3.2	(16)	—
Total operating expenses	93.1	93.6	95.1	1	(12)
Operating loss	(20.9)	(27.6)	(31.5)	(23)	(22)
Other income (expense), net	(5.3)	14.3	(11.4)	(137)	(212)
Loss before income taxes	(26.2)	(13.3)	(42.9)	100	(73)
Income tax expense (benefit)	(0.8)	1.2	(1.3)	(165)	(183)
Net loss	(25.4)%	(14.5)%	(41.6)%	78 %	(69)%

Revenues

The Company generates revenue through the sale of enterprise video content management software, hardware, maintenance and support, and professional and other services. Software sales may take the form of a perpetual software license, a cloud-hosted software as a service (SaaS) or a term software license. Software licenses and appliances revenue includes sales of perpetual software licenses and hardware. Service revenue includes SaaS, term software licenses, maintenance and support, and professional and other services.

The table below describes Qumu's revenues by product category (dollars in thousands):

	Year Ended December 31,			Increase (Decrease)		Percent Increase (Decrease)	
	2019	2018	2017	2018 to 2019	2017 to 2018	2018 to 2019	2017 to 2018
Software licenses and appliances	\$ 4,903	\$ 5,814	\$ 5,982	\$ (911)	\$ (168)	(16)%	(3)%
Service							
Subscription, maintenance and support	18,249	17,132	19,374	1,117	(2,242)	7	(12)
Professional services and other	2,210	2,067	2,811	143	(744)	7	(26)
Total service	20,459	19,199	22,185	1,260	(2,986)	7	(13)
Total revenues	\$ 25,362	\$ 25,013	\$ 28,167	\$ 349	\$ (3,154)	1 %	(11)%

Revenues can vary year to year based on the type of contract the Company enters into with each customer. The \$349,000 increase in total revenues from 2018 to 2019 reflects a \$1.3 million increase in service revenues and a \$911,000 decrease in software licenses and appliances revenues. The \$1.3 million increase in service revenues from 2018 to 2019 resulted from a \$1.1 million increase in subscription, maintenance and support revenues and a \$143,000 increase in professional services revenues. The decrease in software licenses and appliances revenues in 2019 compared to 2018 was driven by a decrease in perpetual software license and appliance sales to both new and existing customers. The increase in subscription, maintenance and support revenues in 2019 compared to 2018 primarily resulted from significant first quarter 2019 term software license sales for which revenue is recognized up front, as well as the revenue attributable to new subscription, maintenance and support agreements from new and existing customers.

The \$3.2 million decrease in total revenues from 2017 to 2018 reflects a \$3.0 million decrease in service revenues and a \$168,000 decrease in software licenses and appliances revenues. The \$3.0 million decrease in service revenues from 2017 to 2018 resulted from a \$2.2 million decrease in subscription, maintenance and support revenues and a \$744,000 decrease in professional services revenues. The decrease in subscription, maintenance and support revenues was driven primarily by approximately \$2.4 million of decreased recurring revenue resulting from the loss of a large customer in the fourth quarter of 2017 and a \$212,000 decrease in revenue related to the Company's adoption of Topic 606 effective January 1, 2018, partially offset by subscription, maintenance and support growth from new and existing customers. The \$0.7

million decrease in professional services revenues, which generally move directionally with changes in perpetual license sales and are impacted by custom work and the timing of customer acceptance, was primarily due to the inclusion of a large former customer in 2017 revenues and to lower utilization and reduced size of the Company's global professional services team in 2018.

Future consolidated revenues will be dependent upon many factors, including the rate of adoption of the Company's software solutions in its targeted markets and whether arrangements with customers are structured as a perpetual, term or SaaS licenses, which impacts the timing of revenue recognition. Other factors that will influence future consolidated revenues include the timing of customer orders and renewals, the product and service mix of customer orders, the impact of changes in economic conditions and the impact of foreign currency exchange rate fluctuations.

Gross Profit and Gross Margin

A comparison of gross profit and gross margin by revenue category is as follows (dollars in thousands):

	Year Ended December 31,			Increase (Decrease)		Percent Increase (Decrease)	
	2019	2018	2017	2018 to 2019	2017 to 2018	2018 to 2019	2017 to 2018
Gross profit:							
Software licenses and appliances	\$ 2,992	\$ 3,537	\$ 3,575	\$ (545)	\$ (38)	(15)%	(1)%
Service	15,311	12,983	14,330	2,328	(1,347)	18	(9)
Total gross profit	\$ 18,303	\$ 16,520	\$ 17,905	\$ 1,783	\$ (1,385)	11 %	(8)%
Gross margin:							
Software licenses and appliances	61.0%	60.8%	59.8%	0.2%	1.0%		
Service	74.8%	67.6%	64.6%	7.2%	3.0%		
Total gross margin	72.2%	66.0%	63.6%	6.2%	2.4%		

For the years ended December 31, 2019, 2018 and 2017, gross margins are inclusive of the impact of approximately \$455,000, \$1.0 million and \$1.2 million, respectively, in amortization expense associated with intangible assets acquired as a result of the acquisition of Qumu, Inc. in the fourth quarter of 2011 and Kulu Valley in the fourth quarter of 2014. The Company had 19, 18 and 26 service personnel at December 31, 2019, 2018 and 2017, respectively.

Gross margin percentages by category and in total increased for both 2019 and 2018, compared to the respective prior years. The 6.2% improvement in gross margin in 2019, compared to 2018, was primarily driven by a 7.2% improvement in service gross margin due to an increase in term software license revenue, decreased amortization expense as certain purchased intangible assets became fully amortized during 2018, and lower royalty expense associated with third-party software licenses.

The 2.4% improvement in gross margin in 2018, compared to 2017, was primarily driven by a 3.0% improvement in service gross margin due to lower royalty expense associated with third-party software licenses, fewer service personnel in 2018 as compared to 2017 and decreased amortization expense as certain purchased intangible assets became fully amortized during 2018.

Future gross profit margins will fluctuate quarter to quarter and will be impacted by the rate of growth and mix of the Company's product and service offerings and foreign currency exchange rate fluctuations. Cost of software licenses and appliances revenues in 2020 is expected to include approximately \$0.3 million of amortization expense for purchased intangibles.

Operating Expenses

The following is a summary of operating expenses (dollars in thousands):

	Year Ended December 31,			Increase (Decrease)		Percent Increase (Decrease)	
	2019	2018	2017	2018 to 2019	2017 to 2018	2018 to 2019	2017 to 2018
Operating expenses:							
Research and development	\$ 7,360	\$ 7,013	\$ 7,279	\$ 347	\$ (266)	5 %	(4)%
Sales and marketing	8,709	8,394	10,026	315	(1,632)	4	(16)
General and administrative	6,787	7,122	8,567	(335)	(1,445)	(5)	(17)
Amortization of purchased intangibles	757	904	904	(147)	—	(16)	—
Total operating expenses	\$ 23,613	\$ 23,433	\$ 26,776	\$ 180	\$ (3,343)	1 %	(12)%

While operating expenses for 2019 increased 1% compared to 2018, operating expenses as a percent of revenue decreased slightly to 93.1% for 2019 compared to 93.6% for 2018 and 95.1% for 2017, reflecting continued year-over-year improvement in the Company's operational efficiency. Operating expenses for 2019, 2018 and 2017 included severance expense of \$152,000, \$237,000 and \$256,000, respectively, relating to the cost reduction initiatives and personnel transitions.

Research and development

Research and development expenses were as follows (dollars in thousands):

	Year Ended December 31,			Increase (Decrease)		Percent Increase (Decrease)	
	2019	2018	2017	2018 to 2019	2017 to 2018	2018 to 2019	2017 to 2018
Compensation and employee-related	\$ 5,123	\$ 5,215	\$ 5,475	\$ (92)	\$ (260)	(2)%	(5)%
Overhead and other expenses	1,516	1,211	1,064	305	147	25	14
Outside services and consulting	589	409	473	180	(64)	44	(14)
Depreciation and amortization	2	28	133	(26)	(105)	(93)	(79)
Equity-based compensation	130	150	134	(20)	16	(13)	12
Total research and development expenses	\$ 7,360	\$ 7,013	\$ 7,279	\$ 347	\$ (266)	5 %	(4)%

Total research and development expenses for the years ended December 31, 2019, 2018 and 2017 represented 29%, 28% and 26% of revenues, respectively. The Company had 36, 34 and 41 research and development personnel at December 31, 2019, 2018 and 2017, respectively.

The \$347,000 increase in total expenses in 2019, compared to 2018, was primarily due to transition costs related to the Company's in-process migration and consolidation of cloud hosting providers during 2019, impacting outside services and consulting expenses, as well as overhead and other expenses. The \$266,000 decrease in total expense in 2018, compared to 2017, was driven primarily by less utilization of contractors and lower employee costs due to fewer research and development personnel in 2018 as compared to 2017, partially offset by increased hosting service expense included in overhead and other expenses. Depreciation and amortization expense decreased during 2019 and 2018 as certain fixed assets became fully depreciated.

Sales and marketing

Sales and marketing expenses were as follows (dollars in thousands):

	Year Ended December 31,			Increase (Decrease)		Percent Increase (Decrease)	
	2019	2018	2017	2018 to 2019	2017 to 2018	2018 to 2019	2017 to 2018
Compensation and employee-related	\$ 6,822	\$ 6,199	\$ 7,806	\$ 623	\$ (1,607)	10 %	(21)%
Overhead and other expenses	1,022	1,230	1,046	(208)	184	(17)	18
Outside services and consulting	781	802	935	(21)	(133)	(3)	(14)
Depreciation and amortization	11	12	58	(1)	(46)	(8)	(79)
Equity-based compensation	73	151	181	(78)	(30)	(52)	(17)
Total sales and marketing expenses	\$ 8,709	\$ 8,394	\$ 10,026	\$ 315	\$ (1,632)	4 %	(16)%

Total sales and marketing expenses for the years ended December 31, 2019, 2018 and 2017 represented 34%, 34% and 36% of revenues, respectively. The Company had 32, 27 and 33 sales and marketing personnel at December 31, 2019, 2018 and 2017, respectively.

The \$315,000 increase in total sales and marketing expense in 2019 as compared to 2018 was driven primarily driven by increased compensation and employee-related costs due to higher commissions expense and the mix and number of sales and marketing personnel, partially offset by a decrease in overhead and other expenses impacted by continued cost reduction initiatives. The \$1.6 million decrease in total sales and marketing expense in 2018 as compared to 2017 was driven primarily by lower employee costs due to fewer sales and marketing personnel in 2018. Sales and marketing expenses for 2019, 2018 and 2017 included severance expense of \$152,000, \$111,000 and \$234,000, respectively, relating to cost reduction initiatives and personnel transitions.

General and administrative

General and administrative expenses were as follows (dollars in thousands):

	Year Ended December 31,			Increase (Decrease)		Percent Increase (Decrease)	
	2019	2018	2017	2018 to 2019	2017 to 2018	2018 to 2019	2017 to 2018
Compensation and employee-related	\$ 3,147	\$ 2,797	\$ 3,525	\$ 350	\$ (728)	13 %	(21)%
Overhead and other expenses	1,127	1,028	1,078	99	(50)	10	(5)
Outside services and consulting	1,584	2,159	2,404	(575)	(245)	(27)	(10)
Depreciation and amortization	301	391	724	(90)	(333)	(23)	(46)
Equity-based compensation	628	747	836	(119)	(89)	(16)	(11)
Total general and administrative expenses	\$ 6,787	\$ 7,122	\$ 8,567	\$ (335)	\$ (1,445)	(5)%	(17)%

Total general and administrative expenses for the years ended December 31, 2019, 2018 and 2017 represented 27%, 29% and 30% of revenues, respectively. The Company had 18, 18 and 21 general and administrative personnel at December 31, 2019, 2018 and 2017, respectively.

The \$335,000 decrease in total expenses in 2019 as compared to 2018 was driven primarily by lower outside services costs resulting from lower expenses associated with legal professional services, a reduction in audit fees and lower contractor costs. The \$1.4 million decrease in total expenses in 2018 compared to 2017 was driven primarily by lower employee costs due to fewer general and administrative personnel in 2018.

Amortization of Purchased Intangibles

Operating expenses include \$757,000, \$904,000 and \$904,000 in 2019, 2018 and 2017, respectively, for the amortization of intangible assets acquired as part of the Company's acquisition of Qumu, Inc. in October 2011 and Kulu Valley in October 2014. Operating expenses in 2020 are expected to include approximately \$0.7 million of amortization expense associated with purchased intangibles, exclusive of the portion classified in cost of revenue.

Other Income (Expense), Net

Other income (expense), net was as follows (dollars in thousands):

	Year Ended December 31,			Increase (Decrease)		Percent Increase (Decrease)	
	2019	2018	2017	2018 to 2019	2017 to 2018	2018 to 2019	2017 to 2018
Interest expense, net	\$ (754)	\$ (1,809)	\$ (2,852)	\$ 1,055	\$ 1,043	(58)%	(37)%
Decrease (increase) in fair value of warrant liability	(141)	368	74	(509)	294	(138)	397
Gain on sale of BriefCam, Ltd.	41	6,602	—	(6,561)	6,602	(99)	n/a
Loss on extinguishment of debt	(348)	(1,189)	—	841	(1,189)	(71)	n/a
Other expense, net	(125)	(378)	(433)	253	55	(67)	(13)
Total other income (expense), net	\$ (1,327)	\$ 3,594	\$ (3,211)	\$ (4,921)	\$ 6,805	(137)%	(212)%

Interest expense, net

The Company recognized interest expense of \$754,000, \$1.8 million and \$2.9 million in 2019, 2018 and 2017, respectively, primarily related to its term loans and capital leases, including the amortization of deferred financing costs. The decrease in interest expense in 2019, compared to 2018, was primarily due to a decrease in term loan debt resulting from the Company's \$6.0 million principal balance repayment in July 2018 on the \$10.0 million credit agreement with ESW Holdings, Inc., and resulting from the Company's \$4.0 million remaining principal balance payment which the Company paid on November 12, 2019.

The decrease in interest expense in 2018, compared to 2017, was primary due to the inclusion in 2017 of expense related to the accelerated amortization of deferred financing costs in connection with a modification to the Company's term loan agreement on November 6, 2017 with Hale Capital Partners, LP. At that time the Company commenced a plan to refinance the term loan, which it completed upon the closing of its \$10.0 million credit agreement with ESW Holdings, Inc. on January 12, 2018. As a result of the loan modification, the Company recognized \$1.6 million of interest expense for the amortization of deferred financing costs through December 31, 2017, resulting in unamortized debt discount and debt issuance costs of \$395,000 as of December 31, 2017. The balance of unamortized deferred financing costs was amortized in 2018 during the year-to-date period ending January 12, 2018, to coincide with the extinguishment of the term note under the Hale credit agreement.

Change in fair value of warrant liability

In conjunction with the debt financings completed in October 2016 and January 2018, the Company issued two warrants for the purchase of up to an aggregate of 1,239,286 shares of the Company's common stock, which remained unexercised and outstanding at December 31, 2019. The warrant issued in conjunction with the October 21, 2016 debt financing (Hale warrant) for the purchase of up to 314,286 shares of the Company's common stock expires on October 21, 2026, has an exercise price of \$2.80 per share and is transferable. The warrant issued in conjunction with the January 12, 2018 debt financing (ESW warrant) for the purchase of up to 925,000 shares of the Company's common stock expires on January 12, 2028, has an exercise price of \$1.96 per share and is transferable. Additionally, on August 31, 2018, the Company issued a warrant to a sales partner, iStudy Co., Ltd., (iStudy warrant) for the purchase of up to 100,000 shares of the Company's common stock; the warrant expires on August 31, 2028, has an exercise price of \$2.43 per share and is transferable. The Hale warrant and ESW warrant contain a cash settlement feature upon the occurrence of a certain event, essentially the sale of the Company as defined in the warrant agreements. Upon a sale of the Company, the holder of the iStudy warrant may exercise the warrant or may elect to receive the same consideration as it would have been entitled to receive upon the occurrence of such transaction if it had been the holder of the shares then issuable upon such exercise of the warrant. As a result of these features, the warrants are subject to derivative accounting as prescribed under ASC 815. Accordingly, the fair value of the warrants on the dates of issuance was recorded in the Company's consolidated balance sheets as a liability.

The warrant liability was recorded in the Company's consolidated balance sheets at its fair value on the respective dates of issuance and is revalued on each subsequent balance sheet date until such instrument is exercised or expires, with any changes in the fair value between reporting periods recorded as other income or expense. During 2019, 2018 and 2017, the Company recorded a non-cash gain (loss) from the change in fair value of the warrant liability of \$(141,000), \$368,000 and \$74,000, respectively. The gain (loss) for each year resulted from changes in inputs for the Company's stock price, expected volatility, expected life and risk-free interest rates, as well as the present value of the minimum cash payment component of the instrument for the warrants, when applicable, along with management's assumptions including the probability and timing of certain events, such as a change in control or future equity offerings.

Gain on sale of BriefCam, Ltd.

As of December 31, 2017, the Company held an investment reported in other assets, non-current, totaling \$3.1 million in convertible preferred stock of BriefCam, Ltd. (BriefCam), a privately-held Israeli company that develops video synopsis technology to augment security and surveillance systems to facilitate review of surveillance video. On May 7, 2018, BriefCam, Canon Inc. (Canon), and the shareholders of BriefCam, including the Company, entered into a stock purchase agreement by which Canon would acquire all of the outstanding shares of BriefCam. On July 3, 2018, BriefCam announced that Canon had completed its acquisition of BriefCam and, on July 6, 2018, the Company received \$9.7 million from the closing proceeds for its shares of BriefCam, as well as received \$100,000 on October 31, 2018 following the satisfaction of a contingency, resulting in a gain on sale of \$6.6 million during 2018. Additionally, during 2019, the Company recognized a gain of \$41,000 related to the release of cash from escrow in connection with the sale.

Loss on extinguishment of debt

On July 19, 2018, the Company paid \$6.5 million on its outstanding term loan from ESW Holdings, Inc. under its term loan credit agreement dated January 12, 2018. The payment was comprised of principal of \$6.0 million and accrued interest of \$463,000 for the period January 12, 2018 to the payment date of July 19, 2018. The Company used a portion of the net proceeds from the sale of its investment in BriefCam to fund the prepayment. The Company determined that the prepayment of principal constituted a partial extinguishment of debt and, as such, recognized a \$1.2 million loss related to the write down of unamortized debt discount and issuance costs in 2018.

On November 12, 2019, the Company paid the remaining \$4.8 million due on its outstanding term loan from ESW Holdings, Inc. The payment was comprised of principal of \$4.0 million and accrued interest of \$528,000 for the period July 19, 2018 to the payment date of November 12, 2019. The Company used a portion of the \$8.2 million in net proceeds from the issuance of common stock on November 7, 2019 to fund the payment. The Company determined that the payment of principal constituted an extinguishment of debt and, as such, recognized a \$348,000 loss related to the write down of \$98,000 of unamortized debt discount and issuance costs and recognition of a \$250,000 prepayment fee upon payment of the remaining term loan balance.

Other expense, net

The Company determined that it had excess capacity at its Minneapolis, Minnesota headquarters and effective May 1, 2018 ceased using a portion of its leased space, subsequently making it available for occupancy by a sublessee. The Company entered into a sublease agreement having a term beginning May 1, 2018 and extending through January 2023. Accordingly, the Company recorded a liability at fair value of \$224,000 for the future contractual lease payments, net of expected sublease receipts. Included in other expense, net, for 2018 is the loss related to the leasing-related exit activity of \$177,000, which is net of adjustments for the derecognition of leasehold improvement and deferred rent balances related to the exit activity. On January 17, 2019, the Company terminated the sublease agreement, effective February 15, 2019, and contemporaneously modified the Company's head lease agreement to relinquish to the lessor, and be relieved of future lease payments for, the previously sublet space, effective March 1, 2019.

During 2017, the Company determined that a portion of its leased space in London, England was no longer needed and, in December 2017, ceased using the unneeded space, subsequently making it available for occupancy by a sublessee. Also in December 2017, the Company entered into a sublease agreement, having a term beginning January 1, 2018 and extending through September 2019, and received the first year's sublease payment of \$122,000. The Company recorded a loss related to the exit activity of \$72,000, which is included in other income (expense), net, for the year ended December 31, 2017.

Other expense, net, also includes net losses on foreign currency transactions of \$260,000, \$55,000 and \$356,000 in 2019, 2018 and 2017, respectively. See "Liquidity and Capital Resources" below for a discussion of changes in cash levels.

Income Taxes

The provision for income taxes represents federal, state, and foreign income taxes or income tax benefit on income or loss. Net income tax benefit was \$194,000 and \$358,000 for the years ended December 31, 2019 and 2017, respectively, and net income tax expense was \$298,000 for the year ended December 31, 2018.

On December 22, 2017, the Tax Cuts and Jobs Act (the Tax Act) was enacted, significantly altering U.S. corporate income tax law. The Tax Act establishes new tax laws affecting 2018 and after, including a reduction in the U.S. federal corporate income tax rate from 34% to 21%, repeal of the corporate AMT system, limitations on the deductibility of interest expense and executive compensation, and changes to net operating loss carryforward rules. The Tax Act also includes various international provisions, including a one-time deemed mandatory repatriation of accumulated foreign earnings and a new tax referred to as Global Intangible Low-Tax Income (GILTI). For further discussion of the Tax Act and its impact on the Company's consolidated financial statements, see Note 11—"Income Taxes" of the accompanying consolidated financial statements. All future impacts of future issued guidance will be appropriately accounted for in the period in which the law is enacted.

The net income tax benefit for 2019 was impacted by the tax benefit for refundable research credits from United Kingdom operations. The net income tax expense for 2018 was impacted by an increase in reserves for unrecognized tax benefits, partially offset by a tax benefit for refundable research credits from United Kingdom operations. Income tax benefit for 2017 is primarily attributable to provisional estimates recorded as a result of the Tax Act and to research credits from United Kingdom operations.

Liquidity and Capital Resources

The following table sets forth certain relevant measures of the Company's liquidity and capital resources (in thousands):

	December 31,	
	2019	2018
Cash and cash equivalents	\$ 10,639	\$ 8,636
Working capital	\$ 829	\$ 865
Financing obligations	\$ 240	\$ 209
Term loan	—	3,431
Financing obligations and term loan	\$ 240	\$ 3,640

The Company expects it will be able to maintain current operations and anticipated capital expenditure requirements for at least the next 12 months through its cash reserves, as well as any cash flows that may be generated from current operations.

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At December 31, 2019, the Company had aggregate positive working capital of \$829,000, down \$36,000 from working capital of \$865,000 at December 31, 2018. Working capital includes current deferred revenue of \$10.1 million and \$9.7 million at December 31, 2019 and 2018, respectively. The primary contributor to the change in working capital was a \$2.0 million increase in cash and cash equivalents resulting from \$8.2 million of net proceeds from the issuance of common stock in November 2019, offset by a payment of \$4.8 million for principal, accrued interest and prepayment fee on the Company's term loan with ESW Holdings, Inc., as well as \$5.3 million operating loss for the year ended December 31, 2019.

The term loan balance of \$3.4 million as of December 31, 2018 consisted of the carrying value of the Company's term loan credit agreement with ESW Holdings, Inc. as lender and administrative agent, dated January 12, 2018. On November 12, 2019, the Company paid the outstanding balance due on the term loan. The payment was comprised of principal of \$4.0 million, accrued interest of \$528,000 for the period July 19, 2018 to the payment date of November 12, 2019, and prepayment fee of \$250,000. The Company used a portion of the \$8.2 million in net proceeds from the issuance of common stock, as described in Note 6—"Stockholders Equity" of the accompanying consolidated financial statements to fund the payment.

Financing obligations of \$240,000 as of December 31, 2019 consist of capital leases related to the acquisition of computer and network equipment and furniture and other financing obligations.

The Company's primary source of cash from operating activities has been cash collections from sales of products and services to customers. The Company expects cash inflows from operating activities to be affected by increases or decreases in sales and timing of collections. The Company's primary use of cash for operating activities has been for personnel costs and outside service providers, payment of royalties associated with third-party software licenses and purchases of equipment to fulfill customer orders. The Company expects cash flows from operating activities to be affected by fluctuations in revenues, personnel costs, outside service providers, and the amount and timing of royalty payments and equipment purchases as the Company continues to support the growth of the business. In addition, the Company expects cash flows to be negatively impacted in the first quarter 2020 by approximately \$0.6 million in professional fees, costs and other expenses associated with the Merger Agreement that was signed on February 11, 2020 and the Company anticipates additional transaction related expenses in future quarters. See Part I – Item 1A – Risk Factors – Risks Relating to the Merger. The amount of cash and cash equivalents held by the Company's international subsidiaries that is not available to fund domestic operations unless repatriated was \$2.8 million as of December 31, 2019. The repatriation of cash and cash equivalents held by the Company's international subsidiaries would not result in an adverse tax impact on cash given that the future tax consequences of repatriation are expected to be insignificant as a result of the Tax Act.

Summary of Cash Flows. A summary of cash flows is as follows (in thousands):

	Year Ended December 31,		
	2019	2018	2017
Cash flows from (used in):			
Operating activities	\$ (1,538)	\$ (2,843)	\$ (2,012)
Investing activities	(127)	9,651	(24)
Financing activities	3,602	(5,743)	(747)
Effect of exchange rate changes on cash	66	(119)	109
Net change in cash and cash equivalents	\$ 2,003	\$ 946	\$ (2,674)

Operating activities

Net cash used in operating activities was \$1.5 million for 2019 compared to \$2.8 million in 2018. The change in operating cash flows for 2019 as compared to 2018 was impacted by changes in operating assets and liabilities, including the favorable impacts of changes in receivables and accounts payable and other accrued liabilities, offset by unfavorable changes in contract assets and accrued compensation.

Investing activities

Net cash provided by investing activities from the sale of the Company's investment in BriefCam totaled \$41,000 in 2019 compared to \$9.8 million in 2018. Net cash used in investing activities for the purchases of property and equipment totaled \$168,000 in 2019 compared to \$127,000 in 2018.

Financing activities

Financing activities provided net cash of \$3.6 million in 2019, primarily consisting \$8.2 million in net proceeds from the issuance of common stock, partially offset by cash used for payments on the Company's term note, capital leases and other financing obligations. During 2019, financing cash outflows included a principal payment of \$4.0 million, accrued interest of

\$528,000 for the period July 19, 2018 to the payment date of November 12, 2019, and prepayment fee of \$250,000 on the outstanding term loan with ESW Holdings, Inc. Additionally, during 2019, the Company made principal payments of \$320,000 on capital leases and other financing obligations.

Financing activities used net cash of \$5.7 million in 2018, primarily consisting of a principal payment of \$6.0 million on the outstanding term loan with ESW Holdings, Inc., principal payments of \$402,000 on capital leases and other financing obligations, a principal payment on the term loan credit agreement (Hale credit agreement) with HCP-FVD, LLC as lender and Hale Capital Partners, LP as administrative agent, of \$8.0 million and a prepayment fee of \$800,000, offset by \$10.0 million in proceeds from the term loan with ESW Holdings in January 2018, a portion of which was used to repay the term loan under the Hale credit agreement. Financing activities used net cash of \$747,000 during 2017, primarily consisting of cash used for payments on financing obligations of \$505,000 and payments for fees to amend the Hale credit agreement of \$225,000.

Since October 2010, the Company's Board of Directors has approved common stock repurchases of up to 3,500,000 shares. Shares may be purchased at prevailing market prices in the open market or in private transactions, subject to market conditions, share price, trading volume and other factors. The repurchase program has been funded to date using cash on hand and may be discontinued at any time. The Company did not repurchase any shares of its common stock under the repurchase program during the years ended December 31, 2019, 2018 and 2017. As of December 31, 2019, the Company had 778,365 shares available for repurchase under the authorizations. While the current authorization remains in effect, the Company expects its primary use of cash will be to fund operations in support of the Company's goals for revenue growth and operating margin improvement. Under the Company's Merger Agreement with Synacor, Inc., the Company is prohibited from repurchasing or redeeming its stock, subject to certain exceptions relating to the exercise or vesting of equity awards.

The Company did not declare or pay any dividends during the years ended December 31, 2019, 2018 and 2017. Under the Company's Merger Agreement with Synacor, Inc., the Company is prohibited from making dividends, distributions or payments on its capital stock.

Contractual Obligations. The following table summarizes the Company's contractual cash obligations at December 31, 2019, and the net effect such obligations are expected to have on liquidity and cash flow in future periods. Some of the amounts included in this table are based on management's estimates and assumptions about these obligations, including their duration, the possibility of renewal, anticipated actions by third parties and other factors. Because these estimates and assumptions are necessarily subjective, the amounts the Company will actually pay in future periods may vary from those reflected in the table.

Contractual Obligations	Payments Due by Period						
	2020	2021	2022	2023	2024	Thereafter	Total
Operating leases	\$ 764	\$ 712	\$ 672	\$ 294	\$ 114	\$ —	\$ 2,556
Capital leases and other financing obligations ⁽¹⁾	91	80	5	—	—	—	176
Purchase obligations ⁽²⁾	524	124	70	—	—	—	718
Income tax liabilities under ASC 740 ⁽³⁾	—	—	—	—	—	—	—
Total contractual cash obligations	\$ 1,379	\$ 916	\$ 747	\$ 294	\$ 114	\$ —	\$ 3,450

⁽¹⁾ Amounts include principal and interest.

⁽²⁾ Purchase obligations include all commitments to purchase goods or services that meet one or both of the following criteria: (1) they are non-cancellable or (2) the Company must make specified minimum payments even if it does not take delivery of the contracted products or services. If the obligation is non-cancellable, the entire value of the contract is included in the table.

⁽³⁾ The Company does not currently expect any income tax liabilities accrued under ASC 740 as of December 31, 2019 to be paid to the applicable tax authorities in 2020. The full balance of unrecognized tax benefits under ASC 740 of \$1.8 million at December 31, 2019, has been excluded from the above table as the period of payment or reversal cannot be reasonably estimated. This amount is before reduction for deferred federal benefits of uncertain tax positions and also excludes potential interest and penalties.

Recently Adopted Accounting Standards and Recently Issued Accounting Standards Not Yet Adopted

For information about our recently adopted accounting standards and recently issued accounting standards not yet adopted, see Note 1 of the accompanying Notes to Consolidated Financial Statements in Part II, Item 8 of this Annual Report on Form 10-K.

ITEM 7A. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

As a smaller reporting company, the Company is not required to provide information typically disclosed under this item.

ITEM 8. FINANCIAL STATEMENTS AND SUPPLEMENTARY DATA

Financial Statements

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Report of Independent Registered Public Accounting Firm

Stockholders and Board of Directors
Qumu Corporation

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheet of Qumu Corporation and its subsidiaries (the Company) as of December 31, 2019, the related consolidated statements of operations, comprehensive income (loss), stockholders' equity and cash flows for the year then ended, and the related notes to the consolidated financial statements (collectively, the financial statements). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2019, and the results of its operations and its cash flows for the year then ended in conformity with accounting principles generally accepted in the United States of America.

Change in Accounting Principle

As discussed in Note 1 to the financial statements, the Company has changed its method of accounting for leases in 2019 due to the adoption of *FASB Accounting Standards Codification* Topic 842, Leases.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our audit. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. The Company is not required to have, nor were we engaged to perform, an audit of its internal control over financial reporting. As part of our audit we are required to obtain an understanding of internal control over financial reporting but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control over financial reporting. Accordingly, we express no such opinion.

Our audit included performing procedures to assess the risks of material misstatement of the financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audit also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audit provides a reasonable basis for our opinion.

/s/ RSM US LLP

We have served as the Company's auditor since 2019.

Minneapolis, Minnesota

March 6, 2020

Report of Independent Registered Public Accounting Firm

To the Stockholders and Board of Directors
Qumu Corporation:

Opinion on the Consolidated Financial Statements

We have audited the accompanying consolidated balance sheet of Qumu Corporation and subsidiaries (the Company) as of December 31, 2018, the related consolidated statements of operations, comprehensive income (loss), stockholders' equity, and cash flows for each of the years in the two-year period ended December 31, 2018, and the related notes (collectively, the consolidated financial statements). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2018, and the results of its operations and its cash flows for each of the years in the two-year period ended December 31, 2018, in conformity with U.S. generally accepted accounting principles.

Change in Accounting Principle

As discussed in Note 1 to the financial statements, the Company has changed its method of accounting for revenue in 2018 due to the adoption of ASC 606 *Revenue from Contracts with Customers*.

Basis for Opinion

These consolidated financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on these consolidated financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ KPMG LLP

We served as the Company's auditor from 1989 to 2018.

Minneapolis, Minnesota
March 15, 2019

QUMU CORPORATION AND SUBSIDIARIES
Consolidated Balance Sheets
(In thousands, except share data)

	December 31,	
	2019	2018
Assets		
Current assets:		
Cash and cash equivalents	\$ 10,639	\$ 8,636
Receivables, net	4,586	6,278
Contract assets	1,089	485
Income tax receivable	338	327
Prepaid expenses and other current assets	1,981	2,192
Total current assets	18,633	17,918
Property and equipment, net	596	545
Right of use assets – operating leases	1,746	—
Intangible assets, net	3,075	4,247
Goodwill	7,203	6,971
Deferred income taxes, non-current	21	55
Other assets, non-current	442	544
Total assets	\$ 31,716	\$ 30,280
Liabilities and Stockholders' Equity		
Current liabilities:		
Accounts payable and other accrued liabilities	\$ 2,816	\$ 2,838
Accrued compensation	1,165	1,548
Operating lease liabilities	587	—
Deferred revenue	10,140	9,672
Deferred rent	—	45
Financing obligations	157	152
Warrant liability	2,939	2,798
Total current liabilities	17,804	17,053
Long-term liabilities:		
Deferred revenue, non-current	1,449	1,672
Income taxes payable, non-current	585	563
Deferred tax liability, non-current	—	2
Operating lease liabilities, non-current	1,587	—
Deferred rent, non-current	—	302
Financing obligations, non-current	83	57
Term loan, non-current	—	3,431
Other non-current liabilities	—	195
Total long-term liabilities	3,704	6,222
Total liabilities	21,508	23,275
Commitments and contingencies (Note 4 and Note 14)		
Stockholders' equity:		
Preferred stock, \$0.01 par value, authorized 250,000 shares, no shares issued and outstanding	—	—
Common stock, \$0.01 par value, authorized 29,750,000 shares, issued and outstanding 13,553,409 and 9,624,060, respectively	136	96
Additional paid-in capital	78,061	69,072
Accumulated deficit	(65,128)	(58,875)
Accumulated other comprehensive loss	(2,861)	(3,288)
Total stockholders' equity	10,208	7,005
Total liabilities and stockholders' equity	\$ 31,716	\$ 30,280

See accompanying notes to consolidated financial statements.

QUMU CORPORATION AND SUBSIDIARIES
Consolidated Statements of Operations
(In thousands, except per share data)

	Year Ended December 31,		
	2019	2018	2017
Revenues:			
Software licenses and appliances	\$ 4,903	\$ 5,814	\$ 5,982
Service	20,459	19,199	22,185
Total revenues	<u>25,362</u>	<u>25,013</u>	<u>28,167</u>
Cost of revenues:			
Software licenses and appliances	1,911	2,277	2,407
Service	5,148	6,216	7,855
Total cost of revenues	<u>7,059</u>	<u>8,493</u>	<u>10,262</u>
Gross profit	<u>18,303</u>	<u>16,520</u>	<u>17,905</u>
Operating expenses:			
Research and development	7,360	7,013	7,279
Sales and marketing	8,709	8,394	10,026
General and administrative	6,787	7,122	8,567
Amortization of purchased intangibles	757	904	904
Total operating expenses	<u>23,613</u>	<u>23,433</u>	<u>26,776</u>
Operating loss	<u>(5,310)</u>	<u>(6,913)</u>	<u>(8,871)</u>
Other income (expense):			
Interest expense, net	(754)	(1,809)	(2,852)
Decrease (increase) in fair value of warrant liability	(141)	368	74
Gain on sale of BriefCam, Ltd.	41	6,602	—
Loss on extinguishment of debt	(348)	(1,189)	—
Other expense, net	(125)	(378)	(433)
Total other income (expense), net	<u>(1,327)</u>	<u>3,594</u>	<u>(3,211)</u>
Loss before income taxes	<u>(6,637)</u>	<u>(3,319)</u>	<u>(12,082)</u>
Income tax expense (benefit)	<u>(194)</u>	<u>298</u>	<u>(358)</u>
Net loss	<u>\$ (6,443)</u>	<u>\$ (3,617)</u>	<u>\$ (11,724)</u>
Net loss per share – basic:			
Net loss per share – basic	\$ (0.62)	\$ (0.38)	\$ (1.25)
Weighted average shares outstanding – basic	10,395	9,499	9,347
Net loss per share – diluted:			
Loss attributable to common shareholders	\$ (6,548)	\$ (3,778)	\$ (11,724)
Net loss per share – diluted	\$ (0.63)	\$ (0.39)	\$ (1.25)
Weighted average shares outstanding – diluted	10,414	9,606	9,347

See accompanying notes to consolidated financial statements.

QUMU CORPORATION AND SUBSIDIARIES
Consolidated Statements of Comprehensive Income (Loss)
(In thousands)

	Year Ended December 31,		
	2019	2018	2017
Net loss	\$ (6,443)	\$ (3,617)	\$ (11,724)
Other comprehensive income (loss):			
Net change in foreign currency translation adjustments	427	(543)	1,167
Total other comprehensive income (loss)	427	(543)	1,167
Total comprehensive loss	<u>\$ (6,016)</u>	<u>\$ (4,160)</u>	<u>\$ (10,557)</u>

See accompanying notes to consolidated financial statements.

QUMU CORPORATION AND SUBSIDIARIES
Consolidated Statements of Stockholders' Equity
(In thousands)

	Common Stock		Additional Paid-in Capital	Retained Earnings (Accum Deficit)	Accumulated Other Comprehensive Income (Loss)	Total
	Shares	Amount				
Balance at December 31, 2016	9,227	\$ 92	\$ 66,864	\$ (44,473)	\$ (3,907)	\$ 18,576
Net loss	—	—	—	(11,724)	—	(11,724)
Other comprehensive income, net of taxes	—	—	—	—	1,167	1,167
Issuance of stock under employee stock plan, net of forfeitures	144	2	(2)	—	—	—
Redemption of stock related to tax withholdings on employee stock plan issuances	(6)	—	(17)	—	—	(17)
Stock-based compensation	—	—	1,190	—	—	1,190
Balance at December 31, 2017	9,365	\$ 94	\$ 68,035	\$ (56,197)	\$ (2,740)	\$ 9,192
Adoption of ASC Topic 606	—	—	—	939	(5)	934
Net loss	—	—	—	(3,617)	—	(3,617)
Other comprehensive income, net of taxes	—	—	—	—	(543)	(543)
Issuance of stock under employee stock plan, net of forfeitures	277	2	(12)	—	—	(10)
Redemption of stock related to tax withholdings on employee stock plan issuances	(18)	—	(33)	—	—	(33)
Stock-based compensation	—	—	1,082	—	—	1,082
Balance at December 31, 2018	9,624	\$ 96	\$ 69,072	\$ (58,875)	\$ (3,288)	\$ 7,005
Adoption of ASC Topic 842	—	—	—	190	—	190
Net loss	—	—	—	(6,443)	—	(6,443)
Other comprehensive income, net of taxes	—	—	—	—	427	427
Issuance of common stock, net of issuance costs	3,652	37	8,164	—	—	8,201
Issuance of stock under employee stock plan, net of forfeitures	304	3	43	—	—	46
Redemption of stock related to tax withholdings on employee stock plan issuances	(27)	—	(75)	—	—	(75)
Stock-based compensation	—	—	857	—	—	857
Balance at December 31, 2019	13,553	\$ 136	\$ 78,061	\$ (65,128)	\$ (2,861)	\$ 10,208

See accompanying notes to consolidated financial statements.

QUMU CORPORATION AND SUBSIDIARIES
Consolidated Statements of Cash Flows
(In thousands)

	Year Ended December 31,		
	2019	2018	2017
Operating activities:			
Net loss	\$ (6,443)	\$ (3,617)	\$ (11,724)
Adjustments to reconcile net loss to net cash used in continuing operating activities:			
Depreciation and amortization	1,526	2,366	3,045
Stock-based compensation	857	1,082	1,190
Accretion of debt discount and issuance costs	471	1,321	2,013
Gain on sale of BriefCam, Ltd.	(41)	(6,602)	—
Loss on debt extinguishment	348	1,189	—
Gain on lease modification	(21)	—	—
Loss on lease contract termination	—	177	72
Increase (decrease) in fair value of warrant liability	141	(368)	(74)
Deferred income taxes	31	(131)	(166)
Changes in operating assets and liabilities:			
Receivables	1,720	(786)	2,101
Contract assets	(604)	65	—
Income taxes receivable / payable	13	375	167
Prepaid expenses and other assets	522	449	1,166
Accounts payable and other accrued liabilities	174	(1,196)	1,656
Accrued compensation	(389)	(263)	(574)
Deferred revenue	181	3,092	(573)
Deferred rent	—	(144)	(311)
Other non-current liabilities	(24)	148	—
Net cash used in operating activities	<u>(1,538)</u>	<u>(2,843)</u>	<u>(2,012)</u>
Investing activities:			
Proceeds from sale of BriefCam, Ltd.	41	9,778	—
Purchases of property and equipment	(168)	(127)	(24)
Net cash provided by (used in) investing activities	<u>(127)</u>	<u>9,651</u>	<u>(24)</u>
Financing activities:			
Proceeds from common stock issuance	8,201	—	—
Proceeds from issuance of common stock under employee stock plans	46	—	—
Proceeds from term loan and warrant issuance	—	10,000	—
Principal payments on term loans	(4,000)	(14,000)	—
Payments for term loan, warrant issuance and debt extinguishment costs	(250)	(1,308)	(225)
Principal payments on financing obligations	(320)	(402)	(505)
Common stock repurchases to settle employee tax withholding liability	(75)	(33)	(17)
Net cash provided by (used in) financing activities	<u>3,602</u>	<u>(5,743)</u>	<u>(747)</u>
Effect of exchange rate changes on cash	66	(119)	109
Net increase (decrease) in cash and cash equivalents	2,003	946	(2,674)
Cash and cash equivalents, beginning of year	8,636	7,690	10,364
Cash and cash equivalents, end of year	<u>\$ 10,639</u>	<u>\$ 8,636</u>	<u>\$ 7,690</u>

See accompanying notes to consolidated financial statements.

QUMU CORPORATION AND SUBSIDIARIES
Consolidated Statements of Cash Flows
Supplemental Cash Flow Disclosures
(In thousands)

	Years Ended December 31,		
	2019	2018	2017
Supplemental disclosures of net cash paid (received) during the year:			
Income taxes	\$ (293)	\$ 52	\$ (190)
Interest	\$ 546	\$ 505	\$ 853
Non-cash investing and financing activities:			
Financing obligations related to prepaid expenses and other assets	\$ 203	\$ 264	\$ 73
Financing obligations related to property and equipment	\$ 148	\$ 97	\$ —
Term loan debt issuance costs included in accrued liabilities	\$ —	\$ —	\$ 800

See accompanying notes to consolidated financial statements.

**QUMU CORPORATION AND SUBSIDIARIES
NOTES TO CONSOLIDATED FINANCIAL STATEMENTS**

1) Nature of Business and Summary of Significant Accounting Policies

Nature of Business

Qumu Corporation ("Qumu" or the "Company") provides the software solutions to create, manage, secure, distribute and measure the success of live and on-demand video for the enterprise. The Qumu platform enables global organizations to drive employee engagement, increase access to video, and modernize the workplace by providing a more efficient and effective way to share knowledge. The world's largest organizations leverage the Qumu platform for a variety of cloud, on-premise and hybrid deployments. Use cases including self-service webcasting, sales enablement, internal communications, product training, regulatory compliance and customer engagement. The Company markets its products to customers primarily in North America, Europe and Asia.

The Company views its operations and manages its business as one segment and one reporting unit. Factors used to identify the Company's single operating segment and reporting unit include the financial information available for evaluation by the chief operating decision maker in making decisions about how to allocate resources and assess performance. The Company markets its products and services through regional sales representatives and independent distributors in the United States and international markets.

Principles of Consolidation

The consolidated financial statements include the accounts of the Company and its wholly-owned subsidiaries. All intercompany accounts and transactions have been eliminated.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Fair Value of Financial Instruments

The Company's financial instruments consist primarily of cash and cash equivalents, for which the current carrying amounts approximate fair market values based on quoted market prices or net asset value; warrant liabilities, for which the fair value of \$2.9 million at December 31, 2019 is based on the Company's estimates of assumptions that market participants would use in pricing the liabilities.

Revenue Recognition

The Company adopted ASC 606, *Revenue from Contracts with Customers*, as of January 1, 2018. The Company generates revenue through the sale of enterprise video content management software, hardware, maintenance and support, and professional and other services. Software sales may take the form of a perpetual software license, a cloud-hosted software as a service (SaaS) or a term software license. Software licenses and appliances revenue includes sales of perpetual software licenses and hardware. Service revenue includes SaaS, term software licenses, maintenance and support, and professional and other services. An individual sale can range from a single year agreement for thousands of dollars to a multi-year agreement for over a million dollars.

The Company follows a five-step model to assess each sale to a customer: identify the legally binding contract, identify the performance obligations, determine the transaction price, allocate the transaction price, and determine whether revenue will be recognized at a point in time or over time.

Revenue is recognized upon transfer of control of promised products or services (i.e., performance obligations) to customers in an amount that reflects the consideration to which the Company expects to be entitled in exchange for promised goods or services. The Company's performance obligations are satisfied either over time (for cloud-hosted software as a service, maintenance and support, and other services) or at a point in time (for software licenses and hardware).

The Company enters into contracts that can include various combinations of software licenses, appliances, maintenance and services, some of which are distinct and are accounted for as separate performance obligations. For contracts with multiple

performance obligations, the Company allocates the transaction price of the contract to each distinct performance obligation, on a relative basis using its standalone selling price.

The Company determines the standalone selling price for software-related elements, including professional services and software maintenance and support contracts, based on the price charged for the deliverable when sold separately.

The Company's on-premise term software licenses and technical support for its on-premise term software licenses are distinct from each other. As a result, the software license is recognized upon transfer of control, which is at fulfillment. The revenue allocable to technical support is recognized ratably over the non-cancellable committed term of the agreement.

Other items relating to charges collected from customers include reimbursable expenses, shipping and handling charges and sales taxes charges. Charges collected from customers as part of the Company's sales transactions are included in revenues and the associated costs are included in cost of revenues. Sales taxes charged to and collected from customers as part of the Company's sales transactions are excluded from revenues and recorded as a liability to the applicable governmental taxing authority.

Deferred Revenue

Deferred revenue consists of billings or payments received in advance of revenue recognition and is recognized as the revenue recognition criteria are met. The deferred revenue balance does not represent the total contract value of annual or multi-year, non-cancellable subscription agreements. Deferred revenue that will be recognized during the succeeding 12-month period is recorded as current deferred revenue, and the remaining portion is recorded as non-current deferred revenue.

Deferred Sales Commissions

Sales commissions represent the direct incremental costs related to the acquisition of customer contracts. The Company recognizes commissions as sales and marketing expense at the time the associated product revenue is recognized, requiring establishment of a deferred cost in the event a commission is paid prior to recognition of revenue. The deferred commission amounts are recoverable through the related future revenue streams under non-cancellable customer contracts and commission clawback provisions in the Company's sales compensation plans. Deferred commission costs included in prepaid expenses and other assets were \$380,000 and \$527,000 at December 31, 2019 and 2018, respectively. Deferred commission costs in other assets, non-current were \$138,000 and \$33,000 at December 31, 2019 and 2018, respectively. The Company recognized commissions expense of \$1.9 million and \$1.3 million during the years ended December 31, 2019 and 2018, respectively.

Cash and Cash Equivalents

The Company considers all highly liquid investments purchased with an original maturity of three months or less to be cash equivalents. Cash and cash equivalents are stated at fair value.

Accounts Receivable and Allowance for Doubtful Accounts

Accounts receivable are initially recorded at a selling price, which approximates fair value upon the sale of goods or services to customers. The Company maintains an allowance for doubtful accounts to reflect accounts receivable at net realizable value. In judging the adequacy of the allowance for doubtful accounts, the Company considers multiple factors, including historical bad debt experience, the general economic environment, the need for specific client reserves and the aging of the Company's receivables. A portion of this provision is included in operating expenses as a general and administrative expense and a portion of this provision is included as a reduction of license revenue. A considerable amount of judgment is required in assessing these factors. If the factors utilized in determining the allowance do not reflect future performance, then a change in the allowance for doubtful accounts would be necessary in the period such determination has been made, which would impact future results of operations.

Changes to the allowance for doubtful accounts consisted of the following (in thousands):

	Year Ended December 31,		
	2019	2018	2017
Allowance for Doubtful Accounts:			
Balance at beginning of year	\$ 61	\$ 21	\$ 34
Write-offs	(6)	—	(11)
Change in provision	(10)	40	(2)
Balance at end of year	\$ 45	\$ 61	\$ 21

Inventories

Inventories are stated at the lower of cost or market. Cost is determined on a first-in, first-out basis. The Company records provisions for potential excess, obsolete and slow-moving inventory. Results could be different if demand for the Company's products decreased because of economic or competitive conditions, or if products became obsolete because of technical advancements in the industry or by the Company. Inventory included in prepaid expenses and other current assets was \$350,000 and \$191,000 as of December 31, 2019 and 2018, respectively.

Property and Equipment

Property and equipment are stated at cost and depreciated on a straight-line basis over estimated useful lives ranging from one to seven years for most assets. Leasehold improvements are amortized using the straight-line method over the shorter of the property's useful life or the term of the underlying lease. Repairs and maintenance costs are charged to operations as incurred. The asset cost and related accumulated depreciation or amortization are adjusted for asset retirement or disposal, with the resulting gain or loss, if any, credited or charged to results of operations.

Long-lived Assets

The Company continually monitors events and changes in circumstances that could indicate that carrying amounts of its long-lived assets, including property and equipment and intangible assets may not be recoverable. When such events or changes in circumstances occur, the Company assesses the recoverability of long-lived assets by determining whether the carrying value of such assets will be recovered through their undiscounted expected future cash flows. If the future undiscounted cash flows are less than the carrying amount of these assets, the Company recognizes an impairment loss based on the excess of the carrying amount over the fair value of the assets.

Goodwill

The Company records goodwill when consideration paid in a purchase acquisition exceeds the fair value of the net tangible assets and the identified intangible assets acquired. Goodwill is not amortized, but rather is tested for impairment annually or more frequently if facts and circumstances warrant a review. The Company has determined that there is a single reporting unit for the purpose of goodwill impairment tests. For purposes of assessing the impairment of goodwill, the Company annually, at its fiscal year end, estimates the fair value of the reporting unit and compares this amount to the carrying value of the reporting unit. If the Company determines that the carrying value of the reporting unit exceeds its fair value, an impairment charge is recognized in the amount by which the carrying amount of the asset exceeds its fair value. As of December 31, 2019, the Company completed its annual impairment test of goodwill. Based upon that evaluation, the Company determined that its goodwill was not impaired. See Note 3—"Intangible Assets and Goodwill."

Leases

The Company is a lessee in several non-cancellable operating leases, primarily for office space, and finance leases, for certain IT equipment. Beginning January 1, 2019, the Company accounts for leases in accordance with ASU 2016-02, *Leases*, and the related amendments (collectively, "Topic 842"). The Company determines if an arrangement is or contains a lease at contract inception and recognizes a right of use (ROU) asset and a lease liability at the lease commencement date.

For operating leases, the lease liability is initially and subsequently measured at the present value of the unpaid lease payments at the lease commencement date. For finance leases, the lease liability is initially measured in the same manner and at the same date as for operating leases, and is subsequently measured at amortized cost using the effective interest method.

Key estimates and judgments in accounting for leases under Topic 842 include how the Company determines the discount rate it uses to discount the unpaid lease payments to present value, lease term and lease payments.

- ASC 842 requires a lessee to discount its unpaid lease payments using the interest rate implicit in the lease or, if that rate cannot be readily determined, its incremental borrowing rate. Generally, the Company cannot determine the interest rate implicit in the lease because it does not have access to the lessor's information. Therefore, the Company uses its incremental borrowing rate as the discount rate for the lease. The Company's incremental borrowing rate for a lease is the rate of interest it would have to pay on a collateralized basis to borrow an amount equal to the lease payments under similar terms.
- The lease term for all of the Company's leases includes the non-cancellable period of the lease plus any additional periods covered by either a Company option to extend the lease that the Company is reasonably certain to exercise, or an option to extend the lease controlled by the lessor.

- Lease payments included in the measurement of the lease liability include the fixed payments owed over the lease term, termination penalties, amounts expected to be payable under a residual-value guarantee, and the exercise price of an option to purchase the asset if the Company is reasonably certain to exercise the option.

The ROU asset is initially measured at cost, which comprises the initial amount of the lease liability adjusted for lease payments made at or before the lease commencement date, plus any initial direct costs incurred less any lease incentives received.

For operating leases, the ROU asset is subsequently measured throughout the lease term at the carrying amount of the lease liability, plus initial direct costs, plus any prepaid lease payments, less the unamortized balance of lease incentives received. Lease expense for lease payments is recognized on a straight-line basis over the lease term.

For finance leases, the ROU asset is subsequently amortized using the straight-line method from the lease commencement date to the earlier of the end of its useful life or the end of the lease term.

The Company has elected not to recognize ROU assets and lease liabilities for short-term leases that have a lease term of 12 months or less. The Company recognizes the lease payments associated with its short-term leases as an expense on a straight-line basis over the lease term.

Derivatives Liability

In conjunction with the debt financings completed in October 2016 and January 2018, the Company issued two warrants for the purchase of up to an aggregate of 1,239,286 shares of the Company's common stock, which remained unexercised and outstanding at December 31, 2019. The warrant issued in conjunction with the October 21, 2016 debt financing (Hale warrant) for the purchase of up to 314,286 shares of the Company's common stock expires on October 21, 2026, has an exercise price of \$2.80 per share and is transferable. The warrant issued in conjunction with the January 12, 2018 debt financing (ESW warrant) for the purchase of up to 925,000 shares of the Company's common stock expires on January 12, 2028, has an exercise price of \$1.96 per share and is transferable. Additionally, the Company issued a warrant to a sales partner, iStudy Co., Ltd., for the purchase of up to 100,000 shares of the Company's common stock; the warrant expires on August 31, 2028, has an exercise price of \$2.43 per share and is transferable. The Hale warrant and ESW warrant contain a cash settlement feature upon the occurrence of a certain event, essentially the sale of the Company as defined in the warrant agreements. Upon a sale of the Company, the holder of the iStudy warrant may exercise the warrant or may elect to receive the same consideration as it would have been entitled to receive upon the occurrence of such transaction if it had been the holder of the shares then issuable upon such exercise of the warrant. The Company accounts for the warrants, which are derivative financial instruments, as a current liability based upon the characteristics and provisions of the instruments. The warrants were determined to be ineligible for equity classification because of provisions that allow the holder under certain circumstances, essentially the sale of the Company as defined in the warrant agreements, to receive cash payment or other consideration at the option of the holder in lieu of the Company's common shares. Accordingly, the fair value of the warrants on the dates of issuance was recorded in the Company's consolidated balance sheets as a liability. See Note 14—"Subsequent Event" for a discussion of the Company's merger agreement with Synacor, Inc., which impacts the cash settlement feature of the Hale warrant and ESW warrant.

The Company estimates the fair value of this liability using option pricing models that are based on the individual characteristics of the warrants on the valuation date, which include the Company's stock price and assumptions for expected volatility, expected life and risk-free interest rate, as well as the present value of the minimum cash payment component of the instrument for the warrants, when applicable. Changes in the assumptions used could have a material impact on the resulting fair value of each warrant. The primary inputs affecting the value of the warrant liability are the Company's stock price and volatility in the Company's stock price, as well as assumptions about the probability and timing of certain events, such as a change in control or future equity offerings. Increases in the fair value of the underlying stock or increases in the volatility of the stock price generally result in a corresponding increase in the fair value of the warrant liability; conversely, decreases in the fair value of the underlying stock or decreases in the volatility of the stock price generally result in a corresponding decrease in the fair value of the warrant liability.

Stock-Based Compensation

The Company measures stock-based compensation based on the fair value of the award at the date of grant. For awards subject to time-based vesting, the Company recognizes stock-based compensation on a straight-line basis over the requisite service period for the entire award. Compensation cost is recognized over the vesting period to the extent the requisite service requirements are met, whether or not the award is ultimately exercised. Conversely, when the requisite service requirements are not met and the award is forfeited prior to vesting, any compensation expense previously recognized for the award is reversed.

For awards subject to performance conditions, the Company accounts for compensation expense based upon the grant-date fair value of the awards applied to the best estimate of ultimate performance against the respective targets on a straight-line basis over the requisite vesting period of the awards. The performance conditions require management to make assumptions regarding the likelihood of achieving certain performance goals. Changes in these performance assumptions, as well as differences in actual results from management's estimates, could result in estimated or actual values different from previously estimated fair values.

Research and Development Costs

Costs related to research, design and development of products are expensed to research and development as incurred. Software development costs are capitalized beginning when a product's technological feasibility has been established and ending when a product is available for general release to customers. The Company uses the working model approach to determine technological feasibility. The Company's products are released soon after technological feasibility has been established. As a result, the Company has not capitalized any software development costs because such costs have not been significant.

Royalties for Third-Party Technology

Royalties for third-party technology are either paid in advance and capitalized as prepaid royalties or are accrued as incurred and subsequently paid. These royalties are generally expensed to cost of revenue at the greater of a rate based on the contractual or estimated term or an effective royalty rate based on the total projected net revenue for contracts with guaranteed minimums. Each quarter, the Company evaluates the expected future realization of its prepaid royalties, as well as any minimum commitments not yet paid to determine amounts it deems unlikely to be realized through product sales. Any impairments or losses determined before the launch of a product are generally charged to general and administrative expense, and any impairments or losses determined post-launch are charged to cost of revenue. Unrecognized minimum royalty-based commitments are accounted for as executory contracts and, therefore, any losses on these commitments are recognized when the underlying intellectual property is abandoned (i.e., cease use) or the contractual rights to use the intellectual property are terminated.

Income Taxes

The Company provides for income taxes using the asset and liability method, which requires recognition of deferred tax assets and liabilities for the expected future tax consequences of events that have been included in the financial statements. Deferred tax assets and liabilities are determined based on the difference between the financial statement and tax basis of assets and liabilities using enacted tax rates in effect for the year in which the differences are expected to reverse. Deferred tax assets are reduced by a valuation allowance when it is more likely than not that some component or all of the deferred tax assets will not be realized. Tax rate changes are reflected in income during the period such changes are enacted.

Foreign Currency Translation

The functional currency for each of the Company's international subsidiaries is the respective local currency. The Company translates its financial statements of consolidated entities whose functional currency is not the U.S. dollar into U.S. dollars. The Company translates its assets and liabilities at the exchange rate in effect as of the financial statement date and translates statement of operations accounts using the average exchange rate for the period. Exchange rate differences resulting from translation adjustments are accounted for as a component of accumulated other comprehensive loss. Gains or losses, whether realized or unrealized, due to transactions in foreign currencies are reflected in the consolidated statements of operations under the line item other income (expense). The net losses on foreign currency transactions for the years ended December 31, 2019, 2018 and 2017 were \$260,000, \$55,000 and \$356,000, respectively, and are included in other income (expense) in the consolidated statements of operations.

Net Loss Per Share

Basic net loss per common share is computed by dividing net loss by the weighted-average number of common shares outstanding during the period. Diluted net loss per share is calculated by adjusting both the numerator (net loss) and the denominator (weighted-average number of shares outstanding), giving effect to all potentially dilutive common shares from warrants. The treasury stock method is used for computing potentially dilutive common shares. Under this method, consideration that would be received upon exercise (as well as remaining compensation cost to be recognized for awards not yet vested) is assumed to be used to repurchase shares of stock in the market, with the net number of shares assumed to be issued added to the denominator. In addition, the numerator is adjusted to exclude the changes in the fair value of the dilutive warrants that are classified as a liability but may be settled in shares. For the years ended December 31, 2019 and 2018, the Company reported diluted net loss, as the impact of excluding the warrant income and related potentially dilutive shares was

dilutive. Basic and diluted net loss per common share was the same for the year ended December 31, 2017 as the impact of all potentially dilutive securities outstanding was anti-dilutive.

Comprehensive Income (Loss)

Comprehensive income (loss) includes net income and items defined as other comprehensive income, such as unrealized gains and losses on foreign currency translation adjustments. Such items are reported in the consolidated statements of comprehensive income (loss).

Recently Adopted Accounting Standards

Leases (Topic 842)

On January 1, 2019, the Company adopted ASU 2016-02, *Leases*, and the related amendments (collectively, "Topic 842"), using the modified retrospective transition approach as of the effective date. The comparative information in the consolidated financial statements has not been revised and continues to be reported under the previously applicable lease accounting guidance.

In addition, the Company elected the package of practical expedients, which permits the Company not to reassess under the new standard its prior conclusions about lease identification, lease classification and initial direct costs. The Company did not adopt the hindsight practical expedient, and therefore continues to utilize lease terms determined under pre-Topic 842 lease guidance.

As a result of adopting Topic 842, the Company recognized additional operating lease liabilities of \$1.9 million (of which \$759,000 was current and \$1.1 million was non-current) and corresponding ROU assets of \$1.4 million as of January 1, 2019. Additionally, upon adoption of this standard, the Company recognized a cumulative-effect adjustment to accumulated deficit of \$190,000, net of taxes, as of January 1, 2019. The new lease guidance did not have a material impact on the Company's consolidated statements of operations or cash flows or compliance with debt covenants. For additional information regarding the Company's leases, see Note 4—"Commitments and Contingencies."

The cumulative effect of the changes made to the Company's January 1, 2019 consolidated balance sheet from the modified retrospective adoption of Topic 842 is as follows (in thousands):

	December 31, 2018	Adjustments	January 1, 2019
Assets:			
Property and equipment	\$ 545	\$ 124	\$ 669
Right of use assets – operating leases	—	1,367	1,367
Liabilities:			
Accounts payable and other accrued liabilities	\$ 2,838	\$ (211)	\$ 2,627
Operating lease liabilities	—	759	759
Deferred rent	45	(45)	—
Operating lease liabilities, non-current	—	1,100	1,100
Deferred rent, non-current	302	(302)	—
Stockholders' equity:			
Accumulated deficit	\$ (58,875)	\$ 190	\$ (58,685)

Adjustments to accounts payable and other accrued liabilities include the derecognition of a contract termination obligation of \$218,000 upon adoption of Topic 842. See Note 4—"Commitments and Contingencies" for additional information.

Income Statement – Reporting Comprehensive Income (Topic 220)

On January 1, 2019, the Company adopted ASU 2018-02, *Income Statement – Reporting Comprehensive Income (Topic 220)*, which allows a reclassification from accumulated other comprehensive income (loss) to retained earnings (accumulated deficit) for stranded tax effects resulting from the Tax Cuts and Jobs Act of 2017 and requires certain disclosures regarding stranded tax effects in accumulated other comprehensive income (loss). The Company did not reclassify any income tax effects of the Tax Cuts and Jobs Act of 2017 from accumulated other comprehensive loss to accumulated deficit as a result of the adoption of this standard.

Accounting Standards Not Yet Adopted

In December 2019, the FASB issued ASU 2019-12, *Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes*, which simplifies the accounting for income taxes by removing exceptions within the general principles of Topic 740 regarding the calculation of deferred tax liabilities, the incremental approach for intraperiod tax allocation, and calculating income taxes in an interim period. In addition, the ASU adds clarifications to the accounting for franchise tax (or similar tax) which is partially based on income, evaluating tax basis of goodwill recognized from a business combination, and reflecting the effect of any enacted changes in tax laws or rates in the annual effective tax rate computation in the interim period that includes the enactment date. The ASU is effective for fiscal years beginning after December 15, 2020, and will be applied either retrospectively or prospectively based upon the applicable amendments. Early adoption is permitted. The Company does not believe the impact of adopting this standard will be material to its consolidated financial statements and related disclosures.

In August 2018, the FASB issued ASU 2018-13, *Disclosure Framework – Changes to the Disclosure Requirements for Fair Value Measurement (Topic 820)* which changes the fair value measurement disclosure requirements of ASC 820. The ASU is effective for all entities for fiscal years beginning after December 15, 2019, including interim periods therein. Early adoption is permitted for any eliminated or modified disclosures upon issuance of this ASU. The Company does not believe the impact of adopting this standard will be material to its consolidated financial statements disclosures.

In January 2017, the FASB issued ASU 2017-04, *Intangibles – Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment*. The purpose of the amendment is to simplify how an entity is required to test goodwill for impairment by eliminating Step 2 from the goodwill impairment test. Step 2 measures a goodwill impairment loss by comparing the implied fair value of a reporting unit's goodwill with the carrying amount of that goodwill. This standard is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2022. Early adoption is permitted. The Company does not believe the impact of adopting this standard will be material to its consolidated financial statements.

2) Property and Equipment

Property and equipment consisted of the following (in thousands):

	December 31,	
	2019	2018
Computer, network equipment and furniture	\$ 2,381	\$ 2,565
Leasehold improvements	735	789
Total property and equipment	3,116	3,354
Less accumulated depreciation and amortization	(2,520)	(2,809)
Total property and equipment, net	\$ 596	\$ 545

Depreciation and amortization expense associated with property and equipment was \$314,000, \$438,000 and \$944,000 for the years ended December 31, 2019, 2018 and 2017, respectively.

3) Intangible Assets and Goodwill

Intangible Assets

The Company's amortizable intangible assets consisted of the following (in thousands):

	December 31, 2019			
	Customer Relationships	Developed Technology	Trademarks / Trade-Names	Total
Original cost	\$ 4,878	\$ 8,135	\$ 2,182	\$ 15,195
Accumulated amortization	(3,293)	(7,741)	(1,086)	(12,120)
Net identifiable intangible assets	\$ 1,585	\$ 394	\$ 1,096	\$ 3,075

	December 31, 2018			
	Customer Relationships	Developed Technology	Trademarks / Trade-Names	Total
Original cost	\$ 4,818	\$ 8,023	\$ 2,180	\$ 15,021
Accumulated amortization	(2,721)	(7,110)	(943)	(10,774)
Net identifiable intangible assets	\$ 2,097	\$ 913	\$ 1,237	\$ 4,247

Amortization expense of intangible assets consisted of the following (in thousands):

	Year Ended December 31,		
	2019	2018	2017
Amortization expense associated with the developed technology included in cost of revenues	\$ 455	\$ 1,024	\$ 1,197
Amortization expense associated with other acquired intangible assets included in operating expenses	757	904	904
Total amortization expense	\$ 1,212	\$ 1,928	\$ 2,101

The Company estimates that amortization expense associated with intangible assets will be as follows (in thousands):

Year Ending December 31,	
2020	\$ 955
2021	741
2022	545
2023	304
2024	141
Thereafter	389
Total	\$ 3,075

Goodwill

On October 3, 2014, the Company completed the acquisition of Kulu Valley, Ltd., subsequently renamed Qumu Ltd, and recognized \$8.8 million of goodwill and \$6.7 million of intangible assets. The goodwill balance of \$7.2 million at December 31, 2019 reflects the impact of foreign currency exchange rate fluctuations since the acquisition date.

As of December 31, 2019, the Company's market capitalization, without a control premium, was greater than its book value and, as a result, the Company concluded there was no goodwill impairment. Declines in the Company's market capitalization or a downturn in its future financial performance and/or future outlook could require the Company to record goodwill and other impairment charges. While a goodwill impairment charge is a non-cash charge, it would have a negative impact on the Company's results of operations.

4) Commitments and Contingencies

Leases

The Company is obligated under finance leases covering certain IT equipment that expire at various dates over the next three years. The Company also has non-cancellable operating leases, primarily for office space, that expire over the next five years. The Company has two leases that each contain a renewal option for a period of five years. Because the Company is not reasonably certain to exercise this option, the option is not considered in determining the lease term under Topic 842, which was adopted January 1, 2019.

During the year ended December 31, 2019, the Company commenced leases for office space in London, United Kingdom and Hyderabad, India.

Many of the Company's leases include escalation clauses, renewal options and/or termination options that are factored into its determination of lease payments under Topic 842 when reasonably certain. These options to extend or terminate a lease are at the Company's discretion. The Company has elected to take the practical expedient and not separate lease and non-lease components of contracts. The Company estimates its incremental borrowing rate to discount the lease payments based on information available at lease commencement under Topic 842. The Company's lease agreements do not contain any material residual value guarantees.

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The components of lease cost were as follows (in thousands):

	Year Ended December 31, 2019
Operating lease cost	\$ 526
Finance lease cost:	
Amortization of right of use assets	106
Interest on lease liabilities	11
Total finance cost	117
Total lease cost	\$ 643

The Company's ROU assets and lease liabilities were reported in the consolidated balance sheet as follows (in thousands):

Leases	Classification on Balance Sheet	December 31, 2019
Assets		
Operating	Right of use assets – operating leases	\$ 1,746
Finance	Property and equipment	130
Total lease assets		\$ 1,876
Liabilities		
Current		
Operating	Operating lease liabilities	\$ 587
Finance	Financing obligations	83
Non-current		
Operating	Operating lease liabilities, non-current	1,587
Finance	Financing obligations, non-current	83
Total lease liabilities		\$ 2,340

Other information related to leases is as follows (in thousands):

	Year Ended December 31, 2019
Supplemental cash flow information:	
Cash paid for amounts included in the measurement of lease liabilities	
Operating cash flow from operating leases	\$ 432
Financing cash flow from finance leases	77
ROU assets obtained in exchange for new lease obligations	
Finance leases	\$ 148
Weighted-average remaining lease term:	
Operating leases	3.8 years
Finance leases	2.0 years
Weighted-average discount rate:	
Operating leases	10.0%
Finance leases	6.2%

Future payments used in the measurement of lease liabilities on the consolidated balance sheet as of December 31, 2019 are as follows (in thousands):

	Operating leases	Finance leases
2020	\$ 764	\$ 91
2021	712	80
2022	672	5
2023	294	—
2024	114	—
Thereafter	—	—
Total undiscounted lease payments	2,556	176
Less amount representing interest	(382)	(10)
Present value of lease liabilities	\$ 2,174	\$ 166

Subleases

The Company determined that it had excess capacity at its Minneapolis, Minnesota headquarters and its London, United Kingdom office and effective May 1, 2018 and December 31, 2017, respectively, ceased using portions of its leased spaces, subsequently making them available for occupancy by sublessees. The Company also recorded losses related to the exit activities of \$177,000 (net of adjustments for the derecognition of leasehold improvement and deferred rent balances related to the exit activity) and \$72,000, which are included in other income (expense) for the years ended December 31, 2018 and 2017, respectively.

The Minneapolis sublease agreement had a term beginning May 2018 and extending through January 2023. On January 17, 2019, the Company terminated the Minneapolis sublease agreement, effective February 15, 2019, and contemporaneously modified the Company's primary lease agreement to relinquish the sublet space to the lessor, and be relieved of future lease payments for the previously sublet space, effective March 1, 2019. Upon modification of the Minneapolis lease agreement, the Company recognized a gain of \$21,000, which is reported in other income (expense) in the Company's consolidated statement of operations for the year ended December 31, 2019. The London sublease agreement had a term beginning January 2018 and extending through September 2019. Prior to the adoption of Topic 842 on January 1, 2019, the Company accounted for the above subleases under guidance for exit and disposal activities (ASC 420). As such, the Company carried a lease contract termination liability of \$218,000 as of December 31, 2018, representing the liability at fair value for the future contractual lease payments, net of expected sublease receipts.

A reconciliation of the beginning and ending contract termination obligation balances is as follows (in thousands):

	London, England	Minneapolis, Minnesota	Total
Contract termination obligation, January 1, 2017	\$ —	\$ —	\$ —
Lease termination costs incurred	72	—	72
Sublease payment received	122	—	122
Contract termination obligation, December 31, 2017	194	—	194
Lease termination costs incurred	—	224	224
Accretion expense	14	19	33
Payments on obligations	(189)	(40)	(229)
Change in currency exchange rate	(4)	—	(4)
Contract termination obligation, December 31, 2018	15	203	218
Adjustment and reclassification upon adoption of Topic 842 (see Note 1)	(15)	(203)	(218)
Contract termination obligation, December 31, 2019	\$ —	\$ —	\$ —

The contract termination obligation is included in other accrued liabilities in the Company's consolidated balance sheets.

Sublease income from the Company's subleases was \$105,000 and \$160,000 for the years ended December 31, 2019 and 2018. No sublease income was recognized for the year ended December 31, 2017.

Term Loan

The Company's term loan, which was paid in full during the year ended December 31, 2019, is reported in the consolidated balance sheets as follows (in thousands):

	December 31,	
	2019	2018
Term loan, remaining principal balance	\$ —	\$ 4,000
Unamortized original issue discount	—	(481)
Unamortized debt issuance costs	—	(88)
Term loan	\$ —	\$ 3,431

Credit Agreement – ESW Holdings, Inc.

On January 12, 2018, the Company and its wholly-owned subsidiary, Qumu, Inc., entered into a term loan credit agreement (the "ESW credit agreement") with ESW Holdings, Inc. as lender and administrative agent pursuant to which the Company borrowed \$10.0 million in the form of a term loan. Proceeds from the ESW credit agreement were used to pay the remaining outstanding balance of \$8.0 million on its previous term loan plus a 10% prepayment fee of \$800,000 on January 12, 2018. On

November 12, 2019, the Company paid the remaining outstanding principal, accrued interest and prepayment fee on the ESW credit agreement as explained below.

Interest on the term loan accrued and compounded monthly at a variable rate per annum equal to the prime rate plus 4.0%. In conjunction with this debt financing, the Company issued a warrant for the purchase of up to 925,000 shares of the Company's common stock, which remained unexercised and outstanding at December 31, 2019. See Note 5—"Fair Value Measurements" and Note 14—"Subsequent Event" for further discussion of the warrant.

On July 19, 2018, the Company paid \$6.5 million on its outstanding term loan from ESW Holdings, Inc. under its term loan credit agreement dated January 12, 2018. The payment was comprised of principal of \$6.0 million and accrued interest of \$463,000 for the period January 12, 2018 to the payment date of July 19, 2018. The Company used a portion of the \$9.8 million in net proceeds from the sale of its investment in BriefCam, Ltd. (see Note 10—"Sale of Investment in Software Company") to fund the prepayment. The Company determined that the prepayment of principal constituted a partial extinguishment of debt and, as such, recognized a \$1.2 million loss related to the write down of unamortized debt discount and issuance costs.

On November 12, 2019, the Company paid the remaining \$4.8 million due on its outstanding term loan from ESW Holdings, Inc. under its term loan credit agreement dated January 12, 2018. The payment was comprised of principal of \$4.0 million, accrued interest of \$528,000 for the period July 19, 2018 to the payment date of November 12, 2019, and prepayment fee of \$250,000. The Company used a portion of the \$8.2 million in net proceeds from the issuance of common stock, as described in Note 6—"Stockholders Equity" to fund the payment. The Company recognized a \$348,000 loss on debt extinguishment related to the write down of \$98,000 of unamortized debt discount and issuance costs and recognition of a \$250,000 prepayment fee upon payment of the remaining term loan balance.

Contingencies

The Company is exposed to a number of asserted and unasserted claims encountered in the normal course of business. Legal costs related to loss contingencies are expensed as incurred. In the opinion of management, the resolution of these matters will not have a material adverse effect on the Company's financial position or results of operations.

The Company's standard arrangements include provisions indemnifying customers against liabilities if the Company's products infringe a third-party's intellectual property rights. The Company has not incurred any costs in its continuing operations as a result of such indemnifications and has not accrued any liabilities related to such contingent obligations in the accompanying consolidated financial statements.

5) Fair Value Measurements

A hierarchy for inputs used in measuring fair value is in place that distinguishes market data between observable independent market inputs and unobservable market assumptions by the reporting entity. The hierarchy is intended to maximize the use of observable inputs and minimize the use of unobservable inputs by requiring that the most observable inputs be used when available. Three levels within the hierarchy may be used to measure fair value:

- Level 1: Inputs are unadjusted quoted prices in active markets for identical assets and liabilities.
- Level 2: Inputs include data points that are observable such as quoted prices for similar assets or liabilities in active markets, quoted prices for identical or similar assets or liabilities in markets that are not active, and inputs (other than quoted prices) such as interest rates and yield curves that are observable for the asset or liability, either directly or indirectly.
- Level 3: Inputs are generated from model-based techniques that use significant assumptions not observable in the market. These unobservable assumptions reflect an entity's own estimates of assumptions that market participants would use in pricing the asset or liability.

In conjunction with the debt financings completed in October 2016 and January 2018, the Company issued two warrants for the purchase of up to an aggregate of 1,239,286 shares of the Company's common stock, which remained unexercised and outstanding at December 31, 2019. The warrant issued in conjunction with the October 2016 debt financing (Hale warrant) for the purchase of up to 314,286 shares of the Company's common stock expires on October 21, 2026, has an exercise price of \$2.80 per share and is transferable. The warrant issued in conjunction with the January 2018 debt financing (ESW warrant) for the purchase of up to 925,000 shares of the Company's common stock expires on January 12, 2028, has an exercise price of \$1.96 per share and is transferable. Additionally, on August 31, 2018, the Company issued a warrant to a sales partner, iStudy Co., Ltd., (iStudy warrant) for the purchase of up to 100,000 shares of the Company's common stock; the warrant expires on August 31, 2028, has an exercise price of \$2.43 per share and is transferable. The Hale warrant and ESW warrant contain a cash settlement feature upon the occurrence of a certain events, essentially the sale of the Company as defined in the warrant agreements. Upon a sale of the Company, the holder of the iStudy warrant may exercise the warrant or may elect to receive the

same consideration as it would have been entitled to receive upon the occurrence of such transaction if it had been the holder of the shares then issuable upon such exercise of the warrant. As a result of these features, the warrants are subject to derivative accounting as prescribed under ASC 815. Accordingly, the fair value of the warrants on the dates of issuance was recorded in the Company's consolidated balance sheets as a liability. See Note 14—"Subsequent Event" for a discussion of the Company's merger agreement with Synacor, Inc., which impacts the cash settlement feature of the Hale warrant and ESW warrant.

The warrant liability was recorded in the Company's consolidated balance sheets at its fair value on the respective dates of issuance and is revalued on each subsequent balance sheet date until such instrument is exercised or expires, with any changes in the fair value between reporting periods recorded as other income or expense. During 2019, 2018 and 2017, the Company recorded a non-cash gain (loss) from the change in fair value of the warrant liability of \$(141,000), \$368,000 and \$74,000, respectively. The gain (loss) for each year resulted from changes in inputs for the Company's stock price, expected volatility, expected life and risk-free interest rates, as well as the present value of the minimum cash payment component of the instrument for the warrants, when applicable, along with management's assumptions including the probability and timing of certain events, such as a change in control or future equity offerings.

The Company estimates the fair value of this liability using option pricing models that are based on the individual characteristics of the warrants on the valuation date, which include the Company's stock price and assumptions for expected volatility, expected life and risk-free interest rate, as well as the present value of the minimum cash payment component of the instrument for the warrants, when applicable. Changes in the assumptions used could have a material impact on the resulting fair value of each warrant. The primary inputs affecting the value of the warrant liability are the Company's stock price and volatility in the Company's stock price, as well as assumptions about the probability and timing of certain events, such as a change in control or future equity offerings. Increases in the fair value of the underlying stock or increases in the volatility of the stock price generally result in a corresponding increase in the fair value of the warrant liability; conversely, decreases in the fair value of the underlying stock or decreases in the volatility of the stock price generally result in a corresponding decrease in the fair value of the warrant liability. The Company's evaluation of the probability and timing of a change in control or future equity offering represents an unobservable input that may shorten or lengthen the expected life assumption input of the option pricing model, and may increase or decrease the discounted value of the minimum cash payment component of the warrant liability.

The Company's liabilities measured at fair value on a recurring basis and the fair value hierarchy utilized to determine such fair values is as follows at December 31, 2019 and 2018 (in thousands):

	Total Fair Value at December 31, 2019	Fair Value Measurements Using		
		Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Liabilities:				
Derivative warrant liability - ESW warrant	\$ 2,149	\$ —	\$ —	\$ 2,149
Derivative warrant liability - Hale warrant	645	—	—	645
Derivative warrant liability - iStudy	145	—	—	145
Derivative warrant liability	<u>\$ 2,939</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 2,939</u>

	Total Fair Value at December 31, 2018	Fair Value Measurements Using		
		Quoted Prices in Active Markets (Level 1)	Significant Other Observable Inputs (Level 2)	Significant Unobservable Inputs (Level 3)
Liabilities:				
Derivative warrant liability - ESW warrant	\$ 2,015	\$ —	\$ —	\$ 2,015
Derivative warrant liability - Hale warrant	750	—	—	750
Derivative warrant liability - iStudy	33	—	—	33
Derivative warrant liability	<u>\$ 2,798</u>	<u>\$ —</u>	<u>\$ —</u>	<u>\$ 2,798</u>

The Company classified the warrant liability as Level 3 due to the lack of relevant observable market data over fair value inputs such as the probability-weighting of the various scenarios in the arrangements. The following table represents a rollforward of the fair value of the Level 3 instruments (significant unobservable inputs):

Balance at December 31, 2018	\$	2,798
Change in fair value		141
Balance at December 31, 2019	\$	<u>2,939</u>

6) Stockholders' Equity

Common Stock Offering

On November 7, 2019, the Company completed a public equity offering, selling a total of 3,652,000 shares of common stock, which included the full exercise of the underwriters' option to purchase additional shares, for net proceeds, after underwriting discounts and offering expenses, of \$8.2 million. A portion of the net proceeds from this offering to were used to repay the \$4.8 million of outstanding principal, accrued interest and prepayment fee under the Company's term loan credit agreement with ESW Holdings, Inc. on November 12, 2019. The Company intends to use the \$3.4 million of remaining net proceeds from this offering for working capital and general corporate purposes.

Common Stock Repurchase Program

Since October 2010, the Company's Board of Directors has approved common stock repurchases of up to 3,500,000 shares. Shares may be purchased at prevailing market prices in the open market or in private transactions, subject to market conditions, share price, trading volume and other factors. The repurchase program may be discontinued at any time. The repurchase program has been funded to date using cash on hand. The Company repurchased no shares under the share repurchase program during the years ended December 31, 2019, 2018 and 2017. As of December 31, 2019, there were 778,365 shares available under the Board authorizations. Under the Company's Merger Agreement with Synacor, Inc. described in Note 14—"Subsequent Event," the Company is prohibited from repurchasing or redeeming its stock, subject to certain exceptions relating to the exercise or vesting of equity awards.

7) Revenue

Nature of Products and Services

Perpetual software licenses

The Company's perpetual software license arrangements grant customers the right to use the software indefinitely as it exists at the time of purchase. The Company recognizes revenue for distinct software licenses once the license period has begun and the software has been made available to the customer. Payments for perpetual software license contracts are generally received upon fulfillment of the software product.

Term software licenses

The Company's term software licenses differ from perpetual software licenses in that the customer's right to use the licensed product has a termination date. Term software licenses are recognized upon transfer of control, which is typically at fulfillment, resulting in up-front revenue recognition. The Company categorizes revenue from term software licenses as subscription, maintenance and support revenue in service revenues. Payments are generally received quarterly or annually in equal or near equal installments over the term of the agreement.

Cloud-hosted software as a service

Cloud-hosted software as a service (SaaS) arrangements grant customers the right to access and use the licensed products at the outset of an arrangement via third-party cloud providers. Updates are generally made available throughout the entire term of the arrangement, which is generally one to three years. The Company provides an online library and technical support resources in these cloud-hosted SaaS arrangements, which in conjunction with the SaaS license constitute a single, combined performance obligation, and revenue is recognized over the term of the license. Payments are generally received annually in advance of the service period.

Hardware

The Company sells appliances that are typically drop shipped from third-party suppliers selected by the Company. The transaction price allocated to the appliance is generally recognized as revenue at fulfillment when the customer obtains control of the product. Payments for appliances are generally received upon delivery of the hardware product.

Maintenance and support

Maintenance and support arrangements grant customers the right to software updates and technical support over the term of the maintenance and support contract. Revenue from maintenance and support is generally recognized ratably over the contract term beginning on the commencement date of each contract, which is upon fulfillment of the software obligation. Payments are generally received annually in advance of the service period.

Professional services and training

Professional services and training generally consist of software implementation, on-boarding services and best practices consulting. Revenue from professional services contracts is typically recognized as performed, generally using hours expended to measure progress. Services are generally invoiced monthly for work performed.

Revenues by product category and geography

The Company combines its products and services into three product categories and three geographic regions, based on customer location, as follows (in thousands):

	Year Ended December 31,		
	2019	2018	2017
Software licenses and appliances	\$ 4,903	\$ 5,814	\$ 5,982
Service			
Subscription, maintenance and support	18,249	17,132	19,374
Professional services and other	2,210	2,067	2,811
Total service	20,459	19,199	22,185
Total revenues	\$ 25,362	\$ 25,013	\$ 28,167
	Year Ended December 31,		
	2019	2018	2017
North America	\$ 16,588	\$ 16,639	\$ 20,494
Europe	7,527	6,453	6,914
Asia	1,247	1,921	759
Total	\$ 25,362	\$ 25,013	\$ 28,167

Substantially all revenue from North America is sourced from customers in the United States. The Company has determined that reporting non-domestic revenue by country is not practicable.

Significant Judgments

The Company's contracts with customers typically contain promises to transfer multiple products and services to a customer. Judgment is required to determine whether each product and/or service is considered to be a distinct performance obligation that should be accounted for separately under the contract. The Company allocates the transaction price to the distinct performance obligations based on relative standalone selling price ("SSP"). The Company estimates SSP by maximizing use of observable prices such as the prices charged to customers on a standalone basis, established prices lists, contractually stated prices, profit margins and other entity-specific factors, or by using information such as market conditions and other observable inputs. However, the selling prices of its software licenses and cloud-hosted SaaS arrangements are highly variable. Thus, the Company estimates SSP for software licenses and cloud-hosted SaaS arrangements using the residual approach, determined based on total transaction price less the SSP of other goods and services promised in the contract.

Determining whether licenses and services are distinct performance obligations that should be accounted for separately, or not distinct and thus accounted for together, requires significant judgment. In some arrangements, such as most of the Company's license arrangements, the Company has concluded that the licenses and associated services are distinct from each other. In others, like the Company's cloud-hosted SaaS arrangements, the license and certain services are not distinct from each other.

and therefore the Company has concluded that these promised goods and services are a single, combined performance obligation.

If a group of agreements are so closely related that they are, in effect, part of a single arrangement, such agreements are deemed to be one arrangement for revenue recognition purposes. The Company exercises significant judgment to evaluate the relevant facts and circumstances in determining whether the separate agreements should be accounted for separately or as, in substance, a single arrangement. The Company's judgments about whether a group of contracts comprise a single arrangement can affect the allocation of consideration to the distinct performance obligations, which could have an effect on results of operations for the periods involved.

The Company is required to estimate the total consideration expected to be received from contracts with customers. In limited circumstances, the consideration expected to be received is variable based on the specific terms of the contract or based on the Company's expectations of the term of the contract. Generally, the Company has not experienced significant returns from or refunds to customers. These estimates require significant judgment and the change in these estimates could have an effect on its results of operations during the periods involved.

Contract Balances

The timing of revenue recognition may differ from the timing of invoicing to customers and these timing differences result in receivables or contract liabilities (deferred revenue) on the Company's consolidated balance sheet. The Company records deferred revenue when revenue is recognized subsequent to invoicing.

The Company's balances for contract assets totaled \$1.1 million and \$485,000 as of December 31, 2019 and 2018, respectively. The Company's balances for contract liabilities, which are included in current and non-current deferred revenue, totaled \$11.6 million and \$11.3 million as of December 31, 2019 and 2018, respectively.

During the year ended December 31, 2019, the Company recognized \$9.7 million of revenue that was included in the deferred revenue balance at the beginning of the period. All other activity in deferred revenue is due to the timing of invoices in relation to the timing of revenue as described above.

Revenue allocated to remaining performance obligations represents the transaction price allocated to the performance obligations that are unsatisfied, or partially unsatisfied, which includes unearned revenue and amounts that will be invoiced and recognized as revenue in future periods. Contracted but unsatisfied performance obligations were approximately \$19.3 million as of December 31, 2019, of which the Company expects to recognize \$11.3 million of revenue over the next 12 months and the remainder thereafter. During the years ended December 31, 2019 and 2018, no revenue was recognized from performance obligations satisfied in previous periods.

Payment terms and conditions vary by contract type, although terms generally include a requirement of payment within 30 to 60 days. In instances where the timing of revenue recognition differs from the timing of invoicing, the Company has determined that its contracts generally do not include a significant financing component. The primary purpose of invoicing terms is to provide customers with simplified and predictable ways of purchasing the Company's products and services, and not to facilitate financing arrangements.

8) Stock-Based Compensation

The Company issues shares pursuant to the 2007 Stock Incentive Plan (the "2007 Plan") which provides for the grant of stock incentive awards in the form of incentive and non-qualified stock options, stock appreciation rights, restricted stock, restricted stock units, performance stock, performance units and other awards in stock to certain key employees, non-employee directors and service providers. The exercise price of stock options granted under the 2007 Plan is equal to the market value on the date of grant. As of December 31, 2019, there were 3,230,320 shares authorized under the 2007 Plan, of which 604,950 were available for future grant.

The Company recognized the following amounts related to the Company's share-based payment arrangements (in thousands):

	Year Ended December 31,		
	2019	2018	2017
Stock-based compensation cost charged against loss, before income tax benefit			
Stock options	\$ 331	\$ 326	\$ 366
Restricted stock and restricted stock units	521	566	765
Performance stock units	5	190	59
Total stock-based compensation costs	\$ 857	\$ 1,082	\$ 1,190
Stock-based compensation cost included in:			
Cost of revenues	\$ 26	\$ 34	\$ 39
Operating expenses	831	1,048	1,151
Total stock-based compensation costs	\$ 857	\$ 1,082	\$ 1,190

As of December 31, 2019, compensation expense of \$578,000 related to non-vested option awards was not yet recognized and is expected to be recognized over a weighted-average period of 2.4 years. As of December 31, 2019, compensation expense of \$468,000 related to non-vested shares and restricted share unit awards was not yet recognized and is expected to be recognized over a weighted-average period 2.2 years.

Stock Options

The fair value of each option award is estimated at the date of grant using the Black-Scholes option pricing model. The assumptions used to determine the fair value of stock option awards granted were as follows:

	Year Ended December 31,		
	2019	2018	2017
Expected life of options in years	4.70 - 4.75	4.54 - 4.75	4.75
Risk-free interest rate	1.8% - 2.5%	2.6% - 2.9%	1.7% - 2.0%
Expected volatility	69.7% - 73.6%	69.6% - 70.5%	64.2% - 66.2%
Expected dividend yield	—%	—%	—%

The Company reviews these assumptions at the time of each new option award and adjusts them as necessary to ensure proper option valuation. The expected life represents the period that the stock option awards are expected to be outstanding. The Company has concluded that its stock option exercise history does not provide a reasonable basis upon which to estimate expected term, and therefore it uses the simplified method for determining the expected life of stock options granted to employees in 2019, 2018 and 2017, which bases the expected life calculation on the average of the vesting term and the contractual term of the awards. The risk-free interest rate is based on the yield of constant maturity U.S. treasury bonds with a remaining term equal to the expected life of the awards. The Company estimated the stock price volatility using weekly price observations over the most recent historical period equal to the expected life of the awards.

A summary of share option activity is presented in the table below (in thousands, except per share data):

(In thousands, except per share data)	Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value ⁽¹⁾
Options outstanding at December 31, 2016	1,508	\$ 7.03		
Granted	165	2.16		
Exercised	—	—		
Canceled	(385)	7.81		
Options outstanding at December 31, 2017	1,288	6.18		
Granted	758	2.24		
Exercised	—	—		
Canceled	(604)	7.60		
Options outstanding at December 31, 2018	1,442	3.51		
Granted	39	3.11		
Exercised	(40)	2.55		
Canceled	(381)	5.20		
Options outstanding at December 31, 2019	1,060	2.93	4.6	\$ 275
Total vested and expected to vest as of December 31, 2019	1,060	2.93	4.6	\$ 275
Options exercisable as of:				
December 31, 2017	838	\$ 7.85		
December 31, 2018	572	5.29		
December 31, 2019	540	3.51	3.9	\$ 92

⁽¹⁾ Aggregate intrinsic value includes only those options with intrinsic value (options where the exercise price is below the market value).

Other information pertaining to options is as follows (in thousands, except per share data):

	Year Ended December 31,		
	2019	2018	2017
Fair value of options granted	\$ 71	\$ 982	\$ 193
Per share weighted average fair value of options granted	\$ 1.83	\$ 1.30	\$ 1.17
Total intrinsic value of stock options exercised	\$ 55	\$ —	\$ —

Restricted Stock and Restricted Stock Units

Restricted stock and restricted stock units are valued based on the market value of the Company's shares on the date of grant, which was equal to the intrinsic value of the shares on that date. These awards vest and the restrictions lapse over varying periods from the date of grant. The Company recognizes compensation expense for the intrinsic value of the restricted awards ratably over the vesting period.

A summary of restricted stock and restricted stock units activity is presented in the table below (in thousands, except per share data):

	Number of Shares	Weighted Average Grant-Date Fair Value
Nonvested at December 31, 2016	190	\$ 7.13
Granted	213	2.44
Vested	(146)	5.67
Canceled	(39)	5.21
Nonvested at December 31, 2017	218	3.87
Granted	279	2.17
Vested	(186)	3.66
Canceled	(3)	14.78
Nonvested at December 31, 2018	308	2.38
Granted	230	3.16
Vested	(198)	2.53
Canceled	(31)	2.25
Nonvested at December 31, 2019	309	\$ 2.87

Other information pertaining to restricted stock and restricted stock units is as follows (in thousands, except per share data):

	Year Ended December 31,		
	2019	2018	2017
Per share weighted average grant-date fair value of restricted stock and restricted stock units granted	\$ 3.16	\$ 2.17	\$ 2.44
Total fair value of restricted stock and restricted stock units vested	\$ 749	\$ 377	\$ 392

Performance Stock Units

The Company granted performance stock units during 2018 ("2018 Performance Stock Units") and 2017 ("2017 Performance Stock Units"). In settlement of the performance stock units, the Company issues a number of shares equal to the number of performance stock units issued multiplied by the total percentage achievement of the performance goals for each award. The percentage achievement for the performance stock units may not exceed 100%.

A summary of performance stock units activity is presented in the table below (in thousands):

	Number of Units		
	2018 Performance Stock Units	2017 Performance Stock Units	Total Performance Stock Units
Nonvested at December 31, 2016	—	—	—
Granted	—	166	166
Vested	—	—	—
Canceled	—	(26)	(26)
Nonvested at December 31, 2017	—	140	140
Granted	169	—	169
Vested	—	(116)	(116)
Canceled	(21)	(24)	(45)
Nonvested at December 31, 2018	148	—	148
Granted	—	—	—
Vested	(98)	—	(98)
Canceled	(9)	—	(9)
Nonvested at December 31, 2019	41	—	41

In settlement of the vested 2018 Performance Stock Units, during 2019 the Company issued 98,492 shares of restricted stock, which was equal to the number of vested 2018 Performance Stock Units multiplied by the performance goals achievement of 100.0%. At December 31, 2019, there were 40,599 shares of common stock underlying the outstanding 2018 Performance Stock Units that subject to vesting upon the achievement of performance goals for the performance period of January 1, 2019 to

December 31, 2019. The 2018 Performance Stock Units were canceled on February 10, 2020 upon determination by the Compensation Committee of the Company's Board of Directors that the performance metric for the 2019 performance period was not achieved.

The 2017 Performance Stock Units consisted of 140,493 units outstanding as of December 31, 2017, of which 116,168 vested during 2018. In settlement of the vested 2017 Performance Stock Units, during 2018 the Company issued 25,726 shares upon vesting, which was equal to the number of 2017 Performance Stock Units vested multiplied by the weighted percentage achievement of the performance goals for the 2017 Incentive Plan of approximately 22.1%. With the vesting and settlement of the 2017 Performance Stock Units in shares, the 2017 Performance Stock Units terminated.

9) 401(K) Savings Plan

The Company has a savings plan under Section 401(k) of the Internal Revenue Code. The plan allows employees to contribute up to 00% of pretax compensation. The Company matches a percentage of employees' contributions. Matching contributions totaled \$296,000, \$281,000 and \$343,000 for the years ended December 31, 2019, 2018 and 2017, respectively.

10) Sale of Investment in Software Company

As of December 31, 2017, the Company held an investment reported in other assets, non-current, totaling \$3.1 million in convertible preferred stock of BriefCam, Ltd. ("BriefCam"), a privately-held Israeli company. During 2018, Canon Inc. ("Canon") acquired all of the outstanding shares of BriefCam and the Company received \$9.7 million from the closing proceeds for its shares of BriefCam, as well as received \$100,000 following the satisfaction of a contingency, resulting in a gain on sale of \$6.6 million during the year ended December 31, 2018. Additionally, during the year ended December 31, 2019, the Company recognized a gain of \$41,000 related to the release of cash from escrow in connection with the sale.

Prior to its sale, the investment did not have a readily determinable fair value and was recorded at cost, less impairment, if any, plus or minus changes resulting from observable price changes in market-based transactions for an identical or similar investment of the same issuer and is included in other non-current assets. The Company's ownership interest was less than 20%. From the date of the Company's adoption of ASU 2016-01, *Financial Instruments – Overall*, on January 1, 2018 to the sale of BriefCam, there were no observable price changes or impairments related to the Company's non-marketable investment in the equity security. The gain on sale was taxable in the U.S. and was offset for federal income tax purposes by current or prior-year tax losses but was subject to applicable state income taxes. The gain on sale was not taxable in Israel.

11) Income Taxes

The components of loss before income taxes consist of the following (in thousands):

	Year Ended December 31,		
	2019	2018	2017
Loss before income taxes:			
Domestic	\$ (5,466)	\$ (1,631)	\$ (11,524)
Foreign	(1,171)	(1,688)	(558)
Total loss before income taxes	\$ (6,637)	\$ (3,319)	\$ (12,082)

The provision for income tax expense (benefit) consists of the following (in thousands):

	Year Ended December 31,		
	2019	2018	2017
Current:			
U.S. Federal	\$ —	\$ (8)	\$ (175)
State	17	591	35
Foreign	(246)	(314)	(211)
Total current	(229)	269	(351)
Deferred:			
U.S. Federal	—	—	—
State	8	11	(12)
Foreign	27	18	5
Total deferred	35	29	(7)
Total provision for income tax expense (benefit)	\$ (194)	\$ 298	\$ (358)

Total income tax expense (benefit) differs from the expected income tax expense (benefit), computed by applying the federal statutory rate of 21% in both 2019 and 2018, and 34% in 2017, to earnings before income taxes as follows (in thousands):

	Year Ended December 31,		
	2019	2018	2017
Expected income tax benefit	\$ (1,393)	\$ (697)	\$ (4,107)
Federal R&D credit	(54)	(32)	(24)
Refundable AMT credit	—	(12)	(172)
Effect of deferred rate change	—	8	11,851
Foreign tax	27	38	(87)
Non-deductible stock issuance costs	3	85	186
Foreign unremitted earnings	—	130	(20)
Change in valuation allowance	1,379	408	(7,764)
State income taxes, net of federal tax effect	(219)	455	(306)
Other, net	63	(85)	85
Total provision for income tax expense (benefit)	\$ (194)	\$ 298	\$ (358)

The tax effects of temporary differences that give rise to significant portions of deferred tax assets (liabilities) are presented below (in thousands):

	December 31,	
	2019	2018
Deferred tax assets:		
Inventory provisions and uniform capitalization	\$ —	\$ 1
Accounts receivable allowances	8	13
Non-qualified stock option and restricted stock expense	220	184
Deferred revenue	218	101
Lease liabilities	290	—
Loss and credit carryforwards of U.S. subsidiary	24,717	24,101
Loss carryforward of foreign subsidiaries	145	283
Excess interest expense	496	298
Other accruals and reserves	101	169
Total deferred tax assets before valuation allowance	26,195	25,150
Less valuation allowance	(25,406)	(24,153)
Total deferred tax assets	\$ 789	\$ 997
Deferred tax liabilities:		
Acquired intangibles	\$ (465)	\$ (901)
Right of use assets	(207)	—
Fixed assets	(26)	3
Other	(70)	(46)
Total deferred tax liabilities	\$ (768)	\$ (944)
Total net deferred tax assets	\$ 21	\$ 53

As of December 31, 2019, the Company had \$89.2 million of net operating loss carryforwards for U.S. federal tax purposes and \$66.2 million of net operating loss carryforwards for various states. The loss carryforwards for state tax purposes will expire between 2020 and 2038 if not utilized. At December 31, 2019, \$85.8 million of federal net operating loss carryforwards (losses originating in tax years beginning prior to January 1, 2018), expire in years 2022 through 2037, and federal net operating loss of \$3.4 million generated since 2018 can be carryforward indefinitely and utilization is limited to 80% of taxable income. The net operating loss expiration related to the state income tax returns that the Company files varies by state.

As of December 31, 2019, the Company had federal and state research and development credit carryforwards of \$3.3 million, net of Section 383 limitations, which will begin to expire in 2022 if not utilized.

As a result of its acquisition of Qumu, Inc. in October 2011, utilization of U.S. net operating losses and tax credits of Qumu, Inc. are subject to annual limitations under Internal Revenue Code Sections 382 and 383, respectively. The Company has not completed an IRC Section 382 study since 2011. It is possible additional ownership changes have occurred, which may result

in additional Section 382 and 383 limitations. Due to the valuation allowance, it is not expected that any such limitation will have an impact on the results of operations of the Company.

The Company assessed that the valuation allowance against its U.S. deferred tax assets is still appropriate as of December 31, 2019 and 2018, based on the consideration of all available positive and negative evidence, using the “more likely than not” standard required by ASC 740, *Income Taxes*. During 2019 the U.K. shifted from a net deferred tax liability to net deferred tax asset position. As such, the Company no longer believes that it is more likely than not that the future results of the operations in the U.K. will generate sufficient taxable income to utilize the deferred tax assets. As of December 31, 2019, a full valuation allowance has been applied against its U.K. deferred tax assets. As of December 31, 2019, the Company had a cumulative foreign tax loss carryforward of \$2.0 million in the U.K. This amount can be carried forward indefinitely. The valuation allowance will be reviewed quarterly and will be maintained until sufficient positive evidence exists to support the reversal of the valuation allowance.

On December 22, 2017, the Tax Cuts and Jobs Act (the Tax Act) was enacted, significantly altering U.S. corporate income tax law. Many of the new elements of the Tax Act became effective during 2018, including limitations on the deductibility of interest expense, limitations on executive compensation, as well as international provisions. The Company has considered and incorporated the new provisions into its tax calculations. Such provisions included in the Tax Act did not significantly impact the Company in 2019 and 2018, due to the full valuation allowance on deferred tax assets.

The Company may repatriate cash associated with undistributed earnings of its foreign subsidiaries, such that they are not reinvested indefinitely. The repatriation of cash and cash equivalents held by the Company’s international subsidiaries would not result in an adverse tax impact on cash given that the future tax consequences of repatriation are expected to be insignificant as a result of the Tax Cuts and Jobs Act of 2017.

A reconciliation of the beginning and ending amounts of gross unrecognized tax benefits is presented in the table below (in thousands):

	Year Ended December 31,	
	2019	2018
Gross unrecognized tax benefits at beginning of year	\$ 1,724	\$ 1,136
Increases related to:		
Prior year income tax positions	7	2
Current year income tax positions	49	586
Gross unrecognized tax benefits at end of year	\$ 1,780	\$ 1,724

Included in the balance of unrecognized tax benefits at December 31, 2019 are potential benefits of \$585,000 that, if recognized, would affect the effective tax rate. The change in the liability for gross unrecognized tax benefits reflects an increase in reserves established for federal and state uncertain tax positions. The Company does not anticipate that the total amount of unrecognized tax benefits as of December 31, 2019 will change significantly by December 31, 2020.

The Company recognizes accrued interest and penalties related to unrecognized tax benefits as a component of income tax expense. Total accrued interest and penalties amounted to \$28,000 and \$5,600 on a gross basis at December 31, 2019 and 2018, respectively, and are excluded from the reconciliation of unrecognized tax benefits presented above. Interest and penalties recognized in the consolidated statements of operations related to uncertain tax positions amounted to net tax expense of \$22,000 and \$4,200 in 2019 and 2018, respectively.

The Company files income tax returns in the U.S. federal jurisdiction and various state and foreign jurisdictions. As of December 31, 2019, the Company was no longer subject to income tax examinations for taxable years before 2017 in the case of U.S. federal taxing authorities, and taxable years generally before 2015 in the case of major state and local taxing jurisdictions.

12) Computation of Net Loss Per Share of Common Stock

The following table identifies the components of net loss per basic and diluted share (in thousands, except for per share data):

	Year Ended December 31,		
	2019	2018	2017
Net loss per share – basic			
Net loss	\$ (6,443)	\$ (3,617)	\$ (11,724)
Weighted average shares outstanding – basic	10,395	9,499	9,347
Net loss per share – basic	<u>\$ (0.62)</u>	<u>\$ (0.38)</u>	<u>\$ (1.25)</u>
Net loss per share – diluted			
Loss attributable to common shareholders:			
Net loss	\$ (6,443)	\$ (3,617)	\$ (11,724)
Numerator effect of dilutive securities			
Warrants	(105)	(161)	—
Loss attributable to common shareholders	<u>\$ (6,548)</u>	<u>\$ (3,778)</u>	<u>\$ (11,724)</u>
Weighted averages shares outstanding – diluted:			
Weighted average shares outstanding – basic	10,395	9,499	9,347
Denominator effect of dilutive securities			
Warrants	19	107	—
Weighted average shares outstanding – diluted	<u>10,414</u>	<u>9,606</u>	<u>9,347</u>
Net loss per share – diluted	<u>\$ (0.63)</u>	<u>\$ (0.39)</u>	<u>\$ (1.25)</u>

Stock options, warrants and restricted stock units to acquire common shares excluded from the computation of diluted weighted-average common shares as their effect is anti-dilutive were as follows (in thousands):

	Year Ended December 31,	
	2019	2018
Stock options	1,299	1,273
Warrants	1,025	348
Restricted stock units	124	150
Total anti-dilutive	<u>2,448</u>	<u>1,771</u>

13) Significant Customers and Geographic Data

One customer accounting for more than 10% of the Company's total revenue is as follows (in thousands):

Revenues	Year Ended December 31,		
	2019	2018	2017
Customer A	*	*	\$ 4,945

* No customer exceeded 10% of total revenue

Customers accounting for more than 10% of the Company's accounts receivable are as follows (in thousands):

Accounts Receivable	December 31,	
	2019	2018
Customer B	*	\$ 841
Customer C	\$ 677	\$ 782
Customer D	*	\$ 692
Customer E	\$ 550	*
Customer F	\$ 471	*

* Accounts receivable balance did not exceed 10%

Net property and equipment of the Company were located as follows (in thousands):

	December 31,	
	2019	2018
United States	\$ 442	\$ 515
United Kingdom	96	30
India	58	—
Total	\$ 596	\$ 545

14) Subsequent Event

On February 11, 2020, Qumu entered into an Agreement and Plan of Merger and Reorganization (the “Merger Agreement”) for a proposed “merger of equals” transaction with Synacor, Inc. (“Synacor”), and Quantum Merger Sub I, Inc., a direct, wholly owned subsidiary of Synacor (“Merger Sub”). Pursuant to the Merger Agreement, and subject to the conditions in the Merger Agreement, Merger Sub will merge with and into Qumu (the “Merger”), with Qumu surviving the Merger as a wholly owned subsidiary of Synacor. At the effective time of the Merger, by virtue of the Merger and without any action on the part of Synacor, Qumu, Merger Sub or any holder of any of the securities of Synacor, Qumu or Merger Sub, each share of common stock of Qumu issued and outstanding immediately prior to the effective time (other than the shares that are owned by Qumu, Synacor or Merger Sub) will be converted into the right to receive 1.61 newly issued shares of common stock of Synacor.

Immediately prior to the effective time, each currently outstanding Qumu restricted stock award, restricted stock unit and stock option (the “Qumu Stock Awards”) will become fully vested and any restrictions or risk of forfeiture will lapse. Any Qumu Common Stock required to be issued to the holder of such Qumu Stock Award following such acceleration of vesting or lapse of restrictions shall be deemed to be issued and outstanding as of immediately prior to the effective time and converted into the right to receive Synacor Common Stock at the exchange ratio.

Subject to the terms and conditions set forth in the Merger Agreement, at the effective time, each currently outstanding Qumu stock option will terminate and be cancelled, with the holder thereof becoming entitled to receive, on the date on which the effective time occurs, an amount in cash, without interest and subject to applicable withholding, equal to: (i) the excess, if any, of (A) the last reported sales price on Nasdaq of one share of Qumu Common Stock on the Closing Date over (B) the exercise price per share of Qumu Common Stock subject to such Qumu stock option multiplied by (ii) the number of shares of Qumu Common Stock subject to such Qumu stock option at the effective time. However, if the exercise price of such Qumu stock option is equal to or greater than the last reported sales price on Nasdaq on such date, such Qumu stock option will terminate and be cancelled without any consideration being payable in respect thereof.

At the effective time, by virtue of the Merger and without necessity of any further action, each Qumu equity award that is granted on or after February 11, 2020, is held by a then current service provider of Qumu and is outstanding immediately prior to the effective time will be assumed by Synacor as specified in the Merger Agreement.

The consummation of the Merger is subject to customary closing conditions, including, among others, the approval of the Merger Agreement by Qumu shareholders and the approval of the issuance of shares of Synacor common stock pursuant to the Merger Agreement by the Synacor stockholders. The parties expect the Merger will be completed in the second quarter of calendar year 2020.

The foregoing description of the Merger and Merger Agreement does not purport to be complete and is qualified in its entirety by reference to the Merger Agreement, which is filed as Exhibit 2.1 to our Current Report on Form 8-K, filed with the SEC on February 11, 2020. In addition, see Part I – Item 1A – Risk Factors – Risks Relating to the Merger.

In connection with the Merger, each holder of a warrant will have the right to receive, upon exercise of the warrant, 1.61 newly issued shares of common stock of Synacor for each share of Qumu common stock then issuable upon such exercise of the warrant. Alternatively, the ESW warrant and Hale warrant each provide that at the request of the holder, Qumu must purchase the warrant from such holder for a purchase price, payable in cash, equal to the greater of the original issuance value in respect of the remaining unexercised portion of the warrant and the Black-Scholes value of the remaining unexercised portion of the warrant through the date of the consummation of the Merger as determined in accordance the warrant. The original issuance value of the ESW warrant is \$1,936,535 and the original issuance value of the Hale warrant is \$915,389. The iStudy warrant holder has no right to require a cash purchase of the warrant and the portion of the iStudy warrant not exercised prior to the closing of the Merger will expire at the time of the closing of the Merger. The rights of the holders of the ESW warrant and the Hale warrant to exercise the warrants will expire at the closing of the Merger and any cash purchase price must be paid within five trading days of the request that Qumu purchase the warrant.

ITEM 9. CHANGES IN AND DISAGREEMENTS WITH ACCOUNTANTS ON ACCOUNTING AND FINANCIAL DISCLOSURE

None.

ITEM 9A. CONTROLS AND PROCEDURES

a) Evaluation of Disclosure Controls and Procedures

Our Chief Executive Officer, Vernon J. Hanzlik, and our Chief Financial Officer, David G. Ristow, have evaluated the Company's disclosure controls and procedures as of December 31, 2019. Our Chief Executive Officer and our Chief Financial Officer used the definition of "disclosure controls and procedures" as set forth in Rule 13a-15(e) under the Exchange Act in making their conclusion as to the effectiveness of such controls and procedures.

Based upon such evaluation, our Chief Executive Officer and our Chief Financial Officer have concluded that our disclosure controls and procedures were effective as of December 31, 2019.

b) Management's Report on Internal Control Over Financial Reporting

Management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act. Under the supervision of our Chief Executive Officer and our Chief Financial Officer, we conducted an evaluation of the effectiveness of our internal control over financial reporting based on the framework in *Internal Control - Integrated Framework (2013)* issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

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 U.S. generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that:

- (i) Pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company;
- (ii) Provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with U.S. generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and
- (iii) Provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Based on our assessment and those criteria, management believes that the Company's internal control over financial reporting was effective as of December 31, 2019.

c) Changes in Internal Control Over Financial Reporting

There have been no changes in internal controls over financial reporting that occurred during the fourth quarter ended December 31, 2019 that have materially affected, or are reasonable likely to materially affect, the Company's internal control over financial reporting.

ITEM 9B. OTHER INFORMATION

On March 3, 2020, the Company's Compensation Committee approved a retention agreement between the Company and David G. Ristow, the Company's Chief Financial Officer. Under the retention agreement, Mr. Ristow will be paid a stay bonus of \$54,000 if he remains employed through July 31, 2020 or if he is terminated without cause prior to July 31, 2020, subject to Mr. Ristow's delivery of release of claims against the Company. If Mr. Ristow resigns or is terminated for cause before July 31, 2020, the Company is not obligated to pay the \$54,000 stay bonus to Mr. Ristow. The foregoing description of retention agreement does not purport to be complete and is qualified in its entirety by reference to the retention agreement dated March 3, 2020, which is filed herewith as Exhibit 10.11 and is incorporated by reference herein.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

Information Regarding Directors

Set forth below are the biographies of each director, as well as a discussion of the specific experience, qualifications, attributes and skills that led to the conclusion that such person should serve as a director of Qumu:

Vern Hanzlik, age 62, was promoted to Chief Executive Officer and was elected as a director on October 19, 2015. Prior to becoming our Chief Executive Officer, Mr. Hanzlik served as President since December 12, 2014 and as Executive Vice President since March 13, 2014. Mr. Hanzlik joined us in November 2012 as a Senior Vice President and as General Manager, Qumu. From February 2011 to November 2012, Mr. Hanzlik was President, EMEA and member of the Board of TEAM Informatics, a global enterprise solutions and technology company. From December 2006 to February 2010, Mr. Hanzlik was the Chief Marketing Officer of Sajan, Inc., a privately held company, and from February 2010 until January 2011, also served as the Chief Marketing Officer of Sajan's successor company by merger, publicly-held Sajan, Inc. (OTC: SAJA), a provider of global language translation services, software localization and cloud-based translation management software. Mr. Hanzlik also served as President of Sajan Software Ltd., a subsidiary of Sajan, from June 2009 to January 2011. Mr. Hanzlik was a co-founder of Stellent, Inc., which was a publicly-held provider of content and document management software and services located in Eden Prairie, Minnesota, until it was acquired by Oracle Corporation in 2006. While with Stellent, Inc., he most recently served as Executive Vice President of Compliance and Strategic Alliances from January 2004 to February 2006. Additionally, Mr. Hanzlik served as Stellent's President and Chief Executive Officer and as a director of Stellent from 2001 to 2003. Mr. Hanzlik served as a director of pre-merger Sajan, Inc. from April 2006 to February 2010 and as a director of post-merger Sajan, Inc. from February 2010 to January 2011. Mr. Hanzlik also currently serves on the board of directors for Savigent Software, Inc., a provider of event-driven manufacturing operations management software.

Mr. Hanzlik's role as our Chief Executive Officer gives him unique insights as a director into our challenges, opportunities and operations, as well as helps ensure a strong alignment between the board's directives and management's execution of these directives. Mr. Hanzlik has demonstrated executive leadership abilities, as well as a strong background in creating, communicating, executing and sustaining strategic initiatives in the software industry.

Robert F. Olson, age 63, has been a director of Qumu since January 7, 2012 and serves as Chair of the Board. He also serves on the Compensation Committee and Governance Committee. Since February 2010, Mr. Olson has owned and operated a winery in California. From December 2008 until its sale in July 2012, Mr. Olson was the Chairman and primary investor in Swift Knowledge, LLC, a business analytics software company focused on the banking and finance markets. In 1991, Mr. Olson founded Stellent, Inc., an enterprise content management software company that was publicly-traded until it was sold to Oracle Corporation in 2006. Mr. Olson served as Stellent's Chief Executive Officer from October 2000 to July 2001 and as its President and Chief Executive Officer from 1990 to October 2000 and from April 2003 until it was sold.

Mr. Olson's previous work experience, particularly as the Chief Executive Officer of Stellent, Inc., contributes to the Board's understanding of the development and management of growing technology companies, particularly as we continue to expand into growing areas of technology.

Mary E. Chowning, age 58, was appointed as a director of Qumu on October 31, 2019 and serves on the Audit Committee. In 2002, Ms. Chowning founded and is currently the managing partner at Colonnade Consulting LLC, a provider of board advisory, strategy, operational, and consulting services to mid-sized companies across a variety of industries. She served in various positions with Metagenics, Inc., a developer and manufacturer of nutrition and lifestyle medicines, from January 2012 to January 2016, including Interim Chief Executive Officer from December 2014 to December 2015 and Chief Operating Officer from February 2013 to January 2016. Ms. Chowning also served as President and Chief Operating Officer from 2010 to 2011 and as Interim Chief Financial Officer from 2009 to 2010 of McCue Corporation, a manufacturer of asset protection systems. Ms. Chowning served as Chief Financial Officer of X-Rite Inc., a leading manufacturer of color and management products and solutions, from 2003 to 2008. Ms. Chowning holds a Bachelor of Arts degree in Business Economics from the University of California and is a Certified Public Accountant (California, inactive). Ms. Chowning currently serves on the Board of Directors of Gunnar Optiks LLC, a producer of treated protective eyewear, Chicago Scenic Studio, Inc., a design/build studio of immersive exhibit experiences, and the Granville & Erline Walker Scholarship Foundation.

Ms. Chowning contributes to the Board with the range and depth of her director and executive-level management experience, having served in multiple chief executive officer, chief financial officer and chief operating officer roles. Ms. Chowning is also an audit committee financial expert as that term is defined under the rules of the Securities and Exchange Commission.

Neil E. Cox, age 70, has been a director of Qumu since December 19, 2017, serves as a member on the Audit and Compensation Committees, and is Chair of the Governance Committee. Since July 2010, Mr. Cox has been the President and CEO of Repio, Inc., which provides a software platform that enables users to take control of their online information and image. He also serves as a Senior Technology & Telecom Advisor to XMS Capital Partners, an independent financial services firm providing M&A and corporate advisory services. From May 2006 to March 2010, Mr. Cox held roles with Qwest Communications International, Inc. (NYSE: Q until its acquisition in 2010 by CenturyLink, Inc.). From September 2008 to March 2010, he served as the Executive Vice President of Qwest Communications International, with responsibility for business development, product development and IT. From 2004 to 2006, Mr. Cox was a Venture Partner at MK Capital, which invests in emerging technologies and application software. From March 2001 to September 2004, Mr. Cox served as Executive Vice President for the telecommunications sector at Science Applications International Corporation (NYSE: SAIC), a science, engineering and technology applications company. In August 2015, Mr. Cox was appointed by the U.S. Secretary of Commerce to be on the board of directors of First Responder Network Authority (FirstNet.gov), which will build the world's first wireless network for first responders. Mr. Cox also chairs the technology committee of the FirstNet board.

Mr. Cox contributes to the Board through his strong background in executive-level management and deep level of operational experience, particularly with the development and growth of new communications technologies.

Daniel R. Fishback, age 58, was appointed as a director of Qumu on December 11, 2013 and is Chair of the Compensation Committee. From 2001 to 2013, Mr. Fishback was the President and Chief Executive Officer of DemandTec, Inc., a provider of a cloud-based collaborative optimization network for retailers and consumer products companies. DemandTec was acquired in 2012 by International Business Machines Corporation (NYSE: IBM). From January 2000 to March 2001, Mr. Fishback served as Vice President of Channels for Ariba, Inc., a provider of solutions to help companies manage their corporate spending. Since January 2017, Mr. Fishback has served on the board of directors of Teradata Corp. (NYSE: TDC). He also currently serves on the board of directors for private companies Conversica Inc., User Zoom Inc., Prevedere, Inc., Sight Machine and Moogsoft, Inc., as well as the non-profit foundation Fishback Family Foundation. Mr. Fishback previously served on the board of directors of SPS Commerce, Inc. (Nasdaq: SPSC), a software company providing cloud-based on-demand supply chain management solutions, from March 2011 to May 2012.

Mr. Fishback brings to the Board strong leadership skills developed as an executive of several companies in the software industry and in-depth knowledge of the software industry. Mr. Fishback is also an audit committee financial expert as that term is defined under the rules of the Securities and Exchange Commission.

Edward Horowitz, age 72, was appointed as a director of Qumu on October 31, 2019 and serves on the Governance Committee. He is currently chairman of EdsLink LLC, a New York City based venture capital firm, which he founded in 2000. He served as co-CEO of Encompass Digital Media, a global operator of satellite teleports and digital content management from and on its board. Mr. Horowitz also served as President and Chief Executive Officer of SES AMERICOM, a market-leading satellite operator. He also served as Executive VP of Advanced Development at Citigroup, focused on delivering financial services via the internet and was the founder and chairman of e-Citi. Prior to joining Citigroup, Mr. Horowitz was SVP of Viacom Inc., a producer of entertainment media, and a member of its operating committee. Currently, Mr. Horowitz serves as chairman of the board of the First Responder Network Authority (FirstNet.gov), which will build the world's first wireless network for first responders, and was initially appointed by the U.S. Secretary of Commerce in August 2015. He also currently serves on the boards of PT Link Net, a provider of cable television and high speed broadband internet services in Indonesia, and the non-profit New York Hall of Science. Mr. Horowitz served as the chair of the board of directors of FairPoint Communications (Nasdaq: FRP), a public communication services company, from January 2011 to its sale in July 2017.

Mr. Horowitz's qualifications to serve on the Board of Directors include his breadth of leadership experience in the communications industry, as well as his current and past service on the boards of other companies.

Kenan Lucas, age 35, was appointed as a director of Qumu on December 19, 2017 and is Chair of the Audit Committee. Mr. Lucas joined Harbert Discovery Fund in August 2014 and currently serves as Managing Director and Portfolio Manager of the Harbert Discovery Fund. The Discovery Fund seeks to generate long-term capital growth primarily through investments in small and microcap stocks in the U.S. and Canada. From 2012 to 2014, Mr. Lucas earned an MBA from the Darden School of Business at the University of Virginia, where he received the Faculty Award for Academic Excellence. From 2010 to August 2012, Mr. Lucas was an associate at Swander Pace Capital, a middle-market private equity firm, and focused on mergers and acquisitions and corporate finance transactions and consulted with portfolio companies on strategy, growth initiatives, and corporate financing options. From 2007 to June 2010, Mr. Lucas was an analyst at Cowen and Company, a middle-market investment bank, where he advised companies on sell-side transactions and strategic alternatives. Since January 2018, Mr. Lucas has served on the board of directors of Streamline Health Solutions, Inc. (Nasdaq: STRM), a provider of integrated solutions, technology-enabled services and analytics supporting revenue cycle optimization for healthcare enterprises.

Mr. Lucas brings to the Board and the Company significant experience in equity capital markets, evaluating financing options, assessing corporate strategy, and considering other strategic alternatives. He also contributes to the Board through his perspective as our largest shareholder.

Information Regarding Executive Officers

Set forth below is biographical and other information for our current executive officers. Information about Vern Hanzlik, our President and Chief Executive Officer, may be found above in this Annual Report on Form 10-K under the heading "Information Regarding Directors."

David G. Ristow, age 49, was hired as our Chief Financial Officer on December 15, 2017 after serving as our interim Chief Financial Officer on a consulting basis from November 7, 2017. From April 2017 until November 2017, Mr. Ristow acted as Chief Financial Officer of Ascent Solutions, a consulting company delivering cybersecurity, cloud, IT strategy, and infrastructure enablement services. From July 2016 to April 2017, Mr. Ristow acted as Chief Financial Officer for eGrowcery, an international e-commerce software business. From January 2016 to June 2016, Mr. Ristow acted as the Chief Financial Officer of Noribachi, a manufacturer of high output commercial lighting solutions operating on an Internet Of Things platform. From 2012 to 2016, Mr. Ristow acted as Chief Financial Officer of portfolio companies and Director of Investments for Eurovestech Plc. From 2007 to 2012, Mr. Ristow acted as Chief Financial Officer of KSS Retail, an international software business providing price optimization solutions to retailers throughout the world, which was sold in January 2010. Mr. Ristow has a B.S. in Accounting from the University of Southern California and began his finance career with Deloitte. Mr. Ristow is a licensed Certified Public Accountant (inactive status), member of the CGMA and veteran of the USMC.

There is no family relationship among any of our directors or our executive officers.

Code of Ethics

We have adopted a code of ethics that applies to all directors, officers and employees, including our principal executive officer, principal financial officer, principal accounting officer or persons performing similar functions. This code of ethics is included in our Code of Ethics and Business Conduct which is publicly available by following the link to the Corporate Governance page of the Investors section of our website: www.qumu.com/en/investor-relations/corporate-governance. To the extent permitted, we intend to disclose any amendments to, or waivers from, the code of ethics applicable to our principal executive officer, principal financial officer, principal accounting officer or persons performing similar functions or with respect to the required elements of the code of ethics on the page of our website identified above.

Audit Committee and Audit Committee Financial Expert

The Audit Committee assists the Board by reviewing the integrity of our financial reporting processes and controls; the qualifications, independence and performance of the independent auditors; and compliance by us with certain legal and regulatory requirements. The Audit Committee has the sole authority to retain, compensate, oversee and terminate the independent auditors. The Audit Committee reviews our annual audited financial statements, quarterly financial statements and filings with the Securities and Exchange Commission. The Audit Committee reviews reports on various matters, including our critical accounting policies, significant changes in our selection or application of accounting principles and our internal control processes. Under its charter, the Audit Committee exercises oversight of significant risks relating to financial reporting and internal control over financial reporting, including discussing these risks with management and the independent auditor and assessing the steps management has taken to minimize these risks. The Audit Committee also pre-approves all audit and non-audit services performed by the independent auditor.

Based upon a review of the education, experience and other qualifications of each member of our Audit Committee serving in 2019, Mr. Fishback and Ms. Chowning each meets the Securities and Exchange Commission definition of an "audit committee financial expert." The members of the Audit Committee also meet the Nasdaq Stock Market requirements regarding the financial sophistication and the financial literacy of members of the audit committee.

ITEM 11. EXECUTIVE COMPENSATION

Explanation of Compensation

The following describes our compensation objectives and policies as applied to the following executive officers who are referred to in this proxy statement as the named executive officers:

- Vern Hanzlik, who served as President and Chief Executive Officer in 2019;
and
- David G. Ristow, who served as Chief Financial Officer in 2019.

Our Compensation Philosophy

Our philosophy with respect to the compensation of executive officers is based upon the following principles:

- Executive base compensation levels should be established by comparison of job responsibility to similar positions in comparable companies and be adequate to retain highly-qualified personnel; and
- Variable compensation should be established by comparison of job responsibility to similar positions in comparable companies and be adequate to retain highly-qualified personnel and should provide incentives to improve performance and shareholder value.

The Compensation Committee reviews compensation philosophy and programs regularly (no less than annually). The Compensation Committee's review is two-fold: first, to ensure our philosophy and programs meet our objectives of providing compensation that attracts and retains executive talent and encourages our executive officers to achieve our business goals and second, to identify changes and trends in executive compensation policies and practices that may be applicable to Qumu.

2019 Compensation Elements and Determinations

The Compensation Committee followed the guiding principles outlined above in the development and administration of compensation programs for the named executive officers. During 2019, the components of our executive compensation programs consisted of the following:

- Base salary;
- Short-term incentive compensation delivered through the 2019 Company Bonus Plan, the annual cash incentive plan for 2019; and
- Long-term equity compensation.

The named executive officers were also eligible to participate in the same benefit programs as were available to our other employees. Because the Compensation Committee does not believe that personal benefits or perquisites are appropriate as a significant element of compensation, the value of perks to any named executive officer was less than \$10,000 in 2019.

In addition to selecting the components of compensation, the Compensation Committee also determined the relative weight of each component for each of the named executive officers. Performance-based, variable compensation is intended to be a meaningful portion of overall compensation. For 2019, the Compensation Committee continued its practice of weighting this type of compensation more heavily than fixed compensation, such as base salary. For 2019, the Compensation Committee emphasized performance-based, variable compensation both through the 2019 Company Bonus Plan and through the performance goals determined by the Compensation Committee for 2019 that were set as part of the 2018 grant of performance stock units.

Annually, our Governance Committee establishes and oversees a process for the evaluation of the performance of the Chief Executive Officer by the whole Board, including a self-assessment by the Chief Executive Officer. The Compensation Committee then considers the results of that performance review in determining compensation of the Chief Executive Officer.

In determining 2019 compensation for the named executive officers, the Compensation Committee also considered compensation information, as disclosed in proxy statements and other publicly available sources, of certain other companies the Compensation Committee determined to be comparable based upon factors such as headquarters location, industry, revenue, and number of employees. The Compensation Committee also reviewed updated compensation and surveys, reports and other market data against which it measured the competitiveness of our compensation programs for 2019.

While the Compensation Committee viewed the 50th percentile of the peer group as a key data point for the various elements of compensation in 2019, the Compensation Committee also considered experience, scope of position, individual performance, competitiveness and retention, our financial performance and position, our share price and market capitalization, and other factors when positioning elements of compensation to executive officers within the peer group. In general, each element of our compensation programs as compared to benchmark peer group companies is between the 25th and 50th percentile.

Historically, the Compensation Committee has typically considered the following factors in addition to the information set forth above to determining the value of long-term equity incentive compensation: (i) previously made grants to the executive officer; (ii) progress toward meeting our stock ownership guidelines; (iii) the type of equity award and the standard terms of that type of award; (iv) our historical grant practices; (v) the potential cash compensation to the executive officer; and (vi) the position of the executive officer to ensure that those in positions of increased responsibility have an opportunity to receive a

correspondingly larger portion of the overall value of long-term equity compensation for the year. The Compensation Committee also incorporated into the 2019 performance stock unit awards multiple financial performance goals, a two-year performance period of 2018 and 2019 and an additional one-year service period requirement for any shares earned, in order to further extend the long-term incentives provided by these awards and further align pay with performance.

2019 Base Salaries

On February 27, 2019, the Compensation Committee determined to increase the annual base salaries of Mr. Hanzlik and Mr. Ristow to \$350,000 and \$300,000, respectively, effective January 1, 2019. These increases were based upon the Compensation Committee's review of the compensation information described above. Mr. Hanzlik's annual base salary for 2018 was \$390,800, reflecting the higher cost of living while he resided in California, but would have been \$308,800 on an unadjusted basis. Effective January 1, 2019, the Compensation Committee discontinued any cost of living adjustment to Mr. Hanzlik's base salary. Mr. Ristow's annual base salary for 2018 was \$275,000.

2019 Company Bonus Plan

On February 27, 2019, the Compensation Committee adopted the 2019 Company Bonus Plan and set the cash incentive pay opportunities under the 2019 Company Bonus Plan for our eligible employees including our executive officers, Messrs. Hanzlik and Ristow.

Under the 2019 Company Bonus Plan, the Compensation Committee determined target amounts of three performance goals for 2019: annual revenue, adjusted EBITDA and customer retention percentage, which were each weighted one-third. Revenue was to be determined in conformity with U.S. generally accepted accounting principles. Adjusted EBITDA was defined as our net income (loss) excluding items related to interest income and expense, the impact of income-based taxes, depreciation and amortization, stock-based compensation, change in fair value of warrant liability, foreign currency gains and losses, the 2019 Company Bonus Plan amounts, and other non-operating income and expenses. The Compensation Committee retained the discretion to include or exclude items from each of the performance goals and to determine the achievement of the performance goals for the purposes of calculating incentive pay under the 2019 Company Bonus Plan.

Under the 2019 Company Bonus Plan, the target level of achievement was also the minimum level of achievement such that achievement of a performance goal at less than target level would result in no incentive pay with respect to that performance goal. Achievement of a performance goal at greater than target level would result in proportionately increasing incentive pay relating to that performance goal. However, under the 2019 Company Bonus Plan, the maximum incentive pay that may be earned by an executive officer would not exceed 150% of his incentive pay at the target level, even if actual performance exceeds the maximum level for any or all performance goals.

For each participant in the 2019 Company Bonus Plan, the incentive pay opportunity was determined by the participant's base salary multiplied by that participant's target incentive pay percentage. For Messrs. Hanzlik and Ristow, the target incentive pay percentages were set by the Compensation Committee at 100% and 50%, respectively. The annual incentive pay opportunity of each participant, including the executive officers, was required to be pro-rated on a weighted average with all 2019 Company Bonus Plan participants based upon the aggregate pool such that the aggregate amount of incentive pay under the 2019 Company Bonus Plan would not exceed the aggregate pool as determined by the Compensation Committee.

A participant in the 2019 Company Bonus Plan, including an executive officer, must have been employed by us as of December 31, 2019 and as of the payment date in order to receive any incentive pay under the 2019 Company Bonus Plan unless otherwise provided in our letter agreement with Messrs. Hanzlik and Ristow relating to severance and change in control benefits. Additionally, all incentive payments are subject to "clawback" to the extent required by federal law and the 2007 Second Amended and Restated Stock Incentive Plan (the "2007 Plan").

Effective February 10, 2020, the Compensation Committee determined that \$614,510 was the pool available under the 2019 Company Bonus Plan for payment of cash incentive pay to all eligible employees, including the executive officers, based upon achievement of the renewal performance goal. The Compensation Committee determined that the performance goals relating to revenue and adjusted EBITDA were not met. After applying the proration for base salary and target bonus percentages applicable to the 2019 Company Bonus Plan, Messrs. Hanzlik and Ristow received \$136,990 and \$58,710, respectively, under the 2019 Company Bonus Plan.

2019 Equity Awards

Pursuant to the offer letter with Mr. Ristow, we granted Mr. Ristow a seven-year non-qualified stock option to purchase 150,000 shares of our common stock and an award of 30,000 shares of restricted stock. The option has an exercise price equal to the fair market value of our common stock as of the grant date and vests with respect to 25% of the shares underlying the

option on the first four anniversaries of the hire date. The restrictions on the restricted stock award will lapse with respect to 25% of the shares underlying the award on the first four anniversaries of the hire date. The stock option award and restricted stock award were granted under the 2007 Plan. In accordance with our policy regarding the granting of equity-based compensation awards, the grant date for the equity awards to Mr. Ristow was May 15, 2018, the first day of the next open window period.

Under our policy regarding the granting of equity-based compensation awards, annual equity awards to executive officer and non-executive officer employees will be approved by the Compensation Committee at a regularly scheduled meeting at which the Compensation Committee determines incentive compensation for the immediately completed year and the compensation program for executive officers for the current year, typically scheduled in February of each year. In accordance with this aspect of our policy, the Compensation Committee approved the award of an aggregate of 168,500 performance stock units to our executive officers and members of senior management under the 2007 Plan on March 23, 2018. The Compensation Committee approved an award to Messrs. Hanzlik and Ristow of 50,000 performance stock units and 30,274 performance stock units, respectively. In accordance with our policy regarding the granting of equity-based compensation awards, the grant date for the performance stock unit awards was May 15, 2018, the first day of the next open window period. The performance stock units represented a contractual right to receive shares of our common stock upon the achievement of performance goals. Two-thirds of each award of performance stock units vested based upon achievement of performance goals relating to 2018 revenue and renewal retention percentage, weighted equally. One-third of each award of performance stock units vested based upon achievement of a performance goal relating to 2019 free cash flow from operations. In settlement of the performance stock units, we issued the number of shares equal to the number of performance stock units for that performance period multiplied by the total percentage achievement of the performance goals for that performance period. The Compensation Committee determined achievement of the performance goals following the end of the performance period and retained the discretion to include or exclude items from any of the performance goals. The shares issued were restricted from transfer for a period of 364 days following issuance. The performance stock unit award and the restricted shares were subject to forfeiture for termination of employment for any reason. Upon a change of control, the performance stock units and the restricted shares vest in full and any restrictions lapse. Additionally, the awards are subject to “clawback” to the extent required by federal law and the 2007 Plan.

Effective March 5, 2019, the Compensation Committee determined the achievement of performance goals for the 2018 performance period under the performance stock units approved by the Compensation Committee on March 23, 2018. The Compensation Committee determined that the percentage achievement of the performance goals for the 2018 performance period was 100% resulting in the vesting of two-thirds of each outstanding performance stock unit award. Accordingly, of the 50,000 performance stock units issued to Mr. Hanzlik and of the 30,274 performance stock units issued to Mr. Ristow, we issued 33,333 shares and 20,182 shares, respectively, in settlement of their performance stock units on March 5, 2019. As provided in and subject to the terms of the award agreements, the shares issued will be restricted from transfer for a period of 364 days following issuance and are subject to forfeiture for termination of employment. Effective February 10, 2020, the Compensation Committee determined the achievement of the performance goal for the 2019 performance period under the performance stock units approved by the Compensation Committee on March 23, 2018. The Compensation Committee determined that the performance goal for the 2019 performance period was not met and accordingly, the outstanding performance stock units were forfeited to the Company without payment of any consideration therefor as of February 10, 2020. Accordingly, as of February 10, 2020, none of the performance stock unit awards were outstanding.

In order to motivate and retaining personnel, the Compensation Committee pulled forward the 2019 annual grants to December 10, 2018, and, on that date, granted stock options and restricted stock to executive and non-executive officer employees under the 2007 Plan. On December 10, 2018, the Compensation Committee granted Mr. Hanzlik 37,500 shares of restricted stock and a stock option to purchase 75,000 shares of our common stock and the Compensation Committee granted Mr. Ristow 25,000 shares of restricted stock and a stock option to purchase 50,000 shares of our common stock. Like the other awards granted under the 2007 Plan, each option has an exercise price equal to the fair market value of our common stock as of the grant date, each option vests with respect to 25% of the shares underlying the option on the first four anniversaries of the date of grant, and the restrictions on the restricted stock award will lapse with respect to 25% of the shares underlying award on the first four anniversaries of date of grant.

All stock options granted in 2019 have an exercise price of the fair market value of our common stock on the date of grant. The date of grant is determined under the 2007 Plan by reference to the closing market price of our common stock on the date the Compensation Committee meets (or takes action in writing in lieu of meeting) and determines the award recipient, the number of shares underlying stock option awards and the other material terms of the stock option grant, or such future date specified as the grant date by the Compensation Committee when all material terms of the stock option grant are determined.

Our policy is to grant equity awards at a time that Qumu's directors and executive officers are not in possession of material, non-public information and during the periods of time that trading would be permitted under our trading policy, which is referred to above as an "open window period."

Consideration of 2019 Say-on-Pay Vote

The say-on-pay proposal presented at the 2019 Annual Meeting of Shareholders received approximately 84% approval by our shareholders. We continue to seek out and welcome feedback from shareholders relating to our compensation programs and practices. Based upon the 2019 Annual Meeting say-on-pay vote and the feedback subsequent to the 2019 Annual Meeting, we believe that shareholders support our efforts to strengthen the connection between executive pay and performance.

Consideration of Risk in Compensation

The Compensation Committee believes that promoting the creation of long-term value discourages behavior that leads to excessive risk. The Compensation Committee believes that the following features of our compensation programs provide incentives for the creation of long-term shareholder value and encourage high achievement by our executive officers without encouraging inappropriate or unnecessary risks:

- Our long-term equity incentives are at the discretion of the Compensation Committee and are granted pursuant to a disciplined process.
- Stock options become exercisable over a four-year period and remain exercisable for up to seven years from the date of grant, and restricted shares vest over periods up to four years, encouraging executives to look to long-term appreciation in equity values.
- The performance stock units granted in 2018 have multi-year performance goals and after the shares are earned, they are issued as restricted stock with an additional one-year vesting. These features encourage executives to drive long-term performance.
- We balance short- and long-term decision-making with our annual cash incentive program, equity awards that vest over four years, and multi-year performance periods for our performance stock units.
- Because of our stock ownership guidelines, our executive officers could lose significant value if our stock price were exposed to inappropriate or unnecessary risks.
- The metrics used to determine the incentive pay to a named executive officer under the 2019 Company Bonus Plan balanced annual revenue, adjusted EBITDA and customer retention percentage, which were each weighted one-third. In this way, we incentivize disciplined growth and prudent expense management.
- The incentive pay amounts under the 2019 Company Bonus Plan cannot exceed 150% of the executive officer's target amount, no matter how much performance exceeds the maximum levels of the performance goals. This feature was designed to limit windfalls.
- Through our 2007 Plan, the Compensation Committee has the right to "claw back" stock incentives or cash incentives from a participant or to seek repayment from a participant through a variety of means in certain circumstances such as certain restatements of our financial statements, certain terminations of employment, and breach of an agreement between us and the executive officer. These "claw back" features are applicable to the 2019 Company Bonus Plan and to all equity awards granted in 2019.
- Our corporate compliance systems and policies, which are overseen by the Audit Committee, further mitigate against excessive or inappropriate risk taking. For example, our insider trading policy prohibits executive officers from purchasing Qumu securities on margin, hedging Qumu securities, borrowing against any account in which Qumu securities are held, pledging Qumu securities as collateral for a loan, or engaging in monetization transactions.

Based on their consideration of these and other factors, the Compensation Committee concurred with our management's determination that none of its compensation policies and practices is reasonably likely to have a material adverse effect on Qumu.

Summary Compensation Table

The following table shows, for Vern Hanzlik, who served as our Chief Executive Officer in 2019, and David G. Ristow, who served as our Chief Financial Officer in 2019 (together referred to as our “named executive officers”), information concerning compensation earned for services in all capacities during the years indicated.

Name and Position	Year	Salary	Stock Awards (1)	Option Awards (1)	Non-Equity Incentive Plan Compensation (2)	All Other Compensation (3)	Total
Vern Hanzlik, President and Chief Executive Officer	2019	\$ 350,000	\$ —	\$ —	\$ 136,990	\$ 14,565	\$ 501,555
	2018	390,800	234,934	92,755	—	15,463	733,952
	2017	390,800	109,618	76,773	—	17,745	594,936
David G. Ristow (4), Chief Financial Officer	2019	\$ 300,000	\$ —	\$ —	\$ 58,710	\$ 23,510	\$ 382,220
	2018	275,000	53,143	61,837	43,052	21,089	454,121
	2017	12,516	68,400	194,611	—	—	275,527

- (1) Valuation of awards based on the grant date fair value of those awards computed in accordance with FASB ASC Topic 718 utilizing assumptions discussed in Note 8 to our consolidated financial statements for the year ended December 31, 2019 included in this Annual Report on Form 10-K for the year ended December 31, 2019. For 2018, includes \$78,555 in stock issued to Mr. Hanzlik in lieu of a cash payment of under the short-term cash incentive compensation program for 2018.
- (2) Represents the amounts paid in cash to the named executive officers under the short-term cash incentive compensation program for the year noted, except as noted in the footnote above. All amounts are reported for the year in which the related services were performed, although may be paid in the following year.
- (3) Represents the following amounts:

Name	Year	Matching Contributions to 401(k) Plan	Insurance Premiums
Vern Hanzlik	2019	\$ 8,338	\$ 6,227
	2018	8,908	6,555
	2017	7,950	9,795
David G. Ristow	2019	\$ 7,976	\$ 15,534
	2018	6,197	14,892
	2017	—	—

- (4) Effective December 15, 2017, Mr. Ristow was hired as our Chief Financial Officer after serving as our Interim Chief Financial Officer on a consulting basis beginning November 7, 2017. Accordingly, information for 2017 represents a partial year. Salary information does not include amounts paid to Salo, LLC for the provision of Mr. Ristow’s services as Interim Chief Financial Officer. We paid Salo, LLC \$245 per hour for Mr. Ristow’s services or \$109,117 in the aggregate for his consulting services prior to being hired.

Outstanding Equity Awards at Fiscal Year-End

The following table sets forth certain information concerning option and stock awards outstanding to the named executive officers at December 31, 2019.

Name	Option Awards				Stock Awards			
	Number of Securities Underlying Unexercised Options Exercisable	Number of Securities Underlying Unexercised Options Unexercisable (1)	Option Exercise Price (\$)	Option Expiration Date (1)	Number of Shares or Units of Stock That Have Not Vested	Market Value of Shares or Units of Stock That Have Not Vested (2)	Equity incentive plan awards: number of unearned shares, units or other rights that have not vested (3)	Equity incentive plan awards: market or payout value of unearned shares, units or other rights that have not vested (2)
Vern Hanzlik	60,000	—	\$ 3.11	11/11/2022	—	\$ —	—	—
	37,500	37,500	\$ 1.90	3/8/2024	—	\$ —	—	—
	18,750	56,250	\$ 2.1257	12/10/2025	—	\$ —	—	—
	—	—	\$ —	—	80,208	\$ 209,343	—	—
	—	—	\$ —	—	—	\$ —	16,667	43,501
David G. Ristow	75,000	75,000	\$ 2.28	12/15/2024	—	\$ —	—	—
	12,500	37,500	\$ 2.1257	12/10/2025	—	\$ —	—	—
	—	—	\$ —	—	53,932	\$ 140,763	—	—
	—	—	\$ —	—	—	\$ —	10,092	26,340

- (1) Options vest and become exercisable in equal installments on the first four anniversaries of the date of grant or hire date and the expiration date of each option is the seven-year anniversary of the date of grant of such option.
- (2) Value based on a share price of \$2.61, which was the closing sales price for a share of our common stock on the Nasdaq Capital Market on December 31, 2019.
- (3) Represents performance stock units approved by the Compensation Committee on March 23, 2018. For the 2018 performance period, the Company issued 33,333 shares of restricted stock to Mr. Hanzlik on March 5, 2019 in settlement of his award of 50,000 performance stock units and issued 20,182 shares of restricted to Mr. Ristow on March 5, 2019 in settlement of his award of 30,274 performance stock units. As provided in and subject to the terms of the award agreements, the shares issued will be restricted from transfer for a period of 364 days following issuance and are subject to forfeiture for termination of employment. As of December 31, 2019, Mr. Hanzlik held 16,667 performance stock units and Mr. Ristow held 10,092 performance stock units. Effective February 10, 2020, the Compensation Committee determined that the performance goal for the 2019 performance period was not met and accordingly, the outstanding performance stock units were forfeited to the Company without payment of any consideration therefor as of February 10, 2020. Accordingly, as of February 10, 2020, none of the performance stock unit awards were outstanding.

Employment Arrangements with Named Executive Officers and Post-Employment Compensation

Our practice has been to enter into a standard form of letter agreement relating to severance and change in control benefits (the “letter agreement”) with each person appointed by the Board as an executive officer. As of December 31, 2019, Messrs. Hanzlik and Ristow are parties to the letter agreement, which is summarized below.

The Compensation Committee believes that severance and change in control arrangements for the named executive officers are consistent with competitive pay practices, aid in the recruitment and retention of executive officers, and provide incentives for executive officers to grow our business and maintain focus on returning value to shareholders. The Compensation Committee believes that providing protection to executive officers whose employment is terminated in connection with a change in control strikes an appropriate balance among the interests of our executive officers and the interests of others in a change in control transaction. In particular, the Compensation Committee believes that these arrangements are appropriate in part because the benefits under the agreement are only payable upon termination without cause prior to a change in control or both the occurrence of a change in control and the termination of employment without cause or for good reason, and that the severance and change in control benefits are conditioned upon compliance with non-disclosure and non-competition agreements.

The terms “cause,” “good reason,” and “change in control,” used in the letter agreement are defined as follows:

Term	Definition
Cause	<ul style="list-style-type: none">• The failure by the executive officer to use his or her best efforts to perform the material duties and responsibilities of his or her position or to comply with any material policy or directive Qumu has in effect from time to time, provided the executive officer shall have received notice of such failure and have failed to cure the same within thirty days of such notice.• Any act on the part of the executive officer which is harmful to the reputation, financial condition, business or business relationships of Qumu, including, but not limited to, conduct which is inconsistent with federal or state law respecting harassment of, or discrimination against, any Qumu employee or harmful to the reputation or business relationships of the executive officer.• A material breach of the executive officer's fiduciary responsibilities to Qumu, such as embezzlement or misappropriation of Qumu funds, business opportunities or properties, or to any of our customers, vendors, agents or employees.• Conviction of, or guilty plea or <i>nolo contendere</i> plea by the executive officer to a felony or any crime involving moral turpitude, fraud or misrepresentation.• A material breach of the executive officer's Nondisclosure and Noncompetition Agreement with Qumu.
Good Reason	<p>Good Reason for the twelve-month period following a Change in Control shall mean, without your express written consent, any of the following:</p> <ul style="list-style-type: none">(i) a material diminution of your authority, duties or responsibilities with respect to your position immediately prior to the Change in Control, or(ii) a material reduction in your base compensation as in effect immediately prior to the Change in Control;(iii) a material reduction in your opportunity to earn a cash bonus under the annual short-term incentive compensation plan of Qumu in which you participate as in effect immediately prior to the Change in Control (for the avoidance of doubt, specifically excluding any reduction in your opportunity to earn a cash bonus under any long-term incentive compensation plan of Qumu in which you participate);(iv) a material reduction in the authority of the person to whom you report (or a change in your reporting directly to the Board of Directors, if applicable);(v) a material change in the geographic location at which you must perform services for Qumu; and(vi) any other action or inaction that constitutes a material violation of this Agreement by Qumu; <p>provided that no such termination for Good Reason shall be effective unless: (A) you provide written notice to the Chair of the Board of Directors of the existence of a condition specified in paragraphs (i) through (v) above within 90 days of the initial existence of the condition; (B) Qumu does not remedy such condition within 30 days of the date of such notice; and (C) you terminate your employment within 90 days following the last day of the remedial period described above.</p>

Term	Definition
Change in Control	<p>Change in Control of Qumu shall mean a change in control which would be required to be reported in response to Item 5.01 of Form 8-K promulgated under the Securities Exchange Act of 1934, as amended (the "Exchange Act"), whether or not Qumu is then subject to such reporting requirement, including without limitation, if:</p> <ul style="list-style-type: none">• any "person" (as such term is used in Sections 13(d) and 14(d) of the Exchange Act) becomes the "beneficial owner" (as defined in Rule 13d-3 under the Exchange Act), directly or indirectly of securities of Qumu representing 20% or more of the combined voting power of Qumu's then outstanding securities (other than an entity owned 50% or greater by Qumu or an employee pension plan for the benefit of the employees of Qumu);• there ceases to be a majority of the Board of Directors comprised of (A) individuals who, on the date of this letter agreement, constituted the Board of Directors of Qumu; and (B) any new director who subsequently was elected or nominated for election by a majority of the directors who held such office prior to a Change in Control; or• Qumu disposes of at least 75% of its assets, other than (X) to an entity owned 50% or greater by Qumu or any of its subsidiaries, or to an entity in which at least 50% of the voting equity securities are owned by the shareholders of Qumu immediately prior to the disposition in substantially the same percentage or (Y) as a result of a bankruptcy proceeding, dissolution or liquidation of Qumu.

The letter agreement provides that if the executive officer's employment is terminated without cause (other than during the twelve-month period following a change in control), the executive will be entitled to payments of the executive officer's regular base salary for a period of twelve months. The executive officer will also be paid an amount equal to the average of the prior three calendar years' short-term incentive bonus amount received by the executive. The short-term incentive bonus amount will be paid in twelve equal installments consistent with our regular payroll practices. We also will pay a portion of the premiums for continued health, dental and group life insurance until the earlier of: (A) twelve months from the date COBRA coverage begins; or (B) the date COBRA coverage otherwise terminates.

Under the letter agreements, if a change in control occurs, but the named executive officer's employment is not terminated within twelve months of the change in control, the executive is not entitled to any payment or benefit under the letter agreements.

The letter agreement provides that if a change in control occurs and within twelve months of the change in control the named executive officer's employment is terminated by us without cause or by the executive for good reason, we must pay the executive a cash severance payment. The severance payment is payable within sixty days of the date of termination and will be equal to 100% of the sum of the executive's annual base salary and his "target bonus" in effect on such date (without giving effect to any reduction that results in the executive's termination for good reason). The "target bonus" is the cash amount under all our short-term annual incentive compensation plans in which the executive participates, waiving any condition for payment to the executive and assuming that the performance goals for the period were achieved at the 100% level. We will pay a portion of the premiums for continued health, dental and group life insurance until the earlier of: (A) twelve months from the date COBRA coverage begins; or (B) the date COBRA coverage otherwise terminates.

These salary continuation and change in control benefits are conditioned upon the named executive officer's execution of a general release and compliance with a nondisclosure and non-competition agreement. Further, in the event that the vesting of options upon a change in control, together with all other benefits provided by the letter agreement, would result in all or a portion of such amount being subject to excise tax then the executive will be entitled to either the full amount of the payments or value of benefits under the letter agreement or such lesser amount as determined by us that would result in no portion of the payment being subject to excise tax, whichever results in the receipt by the named executive officer of the greatest amount on an after-tax basis.

Additionally, if the amounts payable under the letter agreement would be subject to the requirements of Section 409A of the Internal Revenue Code, we may amend the letter agreement as we may determine, including to delay the start of any payment as provided in the letter agreement, amend the definition of change in control, and amend the definition of disability. In the event any such payment is so delayed, the amount of the first payment to the executive officer will be increased for interest

earned on the delayed payment based upon interest for the period of delay, compounded annually, equal to the prime rate (as published in the Wall Street Journal) in effect as of the date the payment should otherwise have been provided.

If the named executive officer resigns (other than for good reason during the twelve month period following a change in control), if we terminate the named executive officer's employment for cause, or if the named executive officer's employment terminates as a result of death or disability, the named executive officer is entitled to receive the named executive officer's base salary accrued but unpaid as of the date of termination, but is not entitled to receive any salary continuation benefit thereafter.

Additionally, under the 2007 Plan, all stock options held by the named executive officers will immediately vest upon a change in control and if the agreements effectuating the change in control do not provide for the assumption or substitution of restricted stock awards, the restrictions will lapse on the restricted stock to the extent these restrictions have not already lapsed under the terms of the restricted stock award agreement.

Director Compensation

Our non-employee directors received the following amounts for Board and committee service during 2019:

- an annual retainer of \$38,000;
- an additional retainer of \$16,000 for our non-executive Chairman of the Board, Robert F. Olson;
- an annual retainer of \$6,000, \$4,000 and \$3,000 for members of the Audit, Compensation and Governance Committees, respectively; and
- an additional annual retainer of \$8,000, \$8,000 and \$3,000 for the chairs of the Audit, Compensation and Governance Committees, respectively.

For directors who are not employees, the 2007 Plan provides for a grant of a discretionary number of shares of restricted stock, restricted stock units, or non-qualified stock options or a combination of any on each director's election and re-election at the annual shareholder meeting, not to exceed 25,000 shares. Under this provision of the 2007 Plan, each non-employee director re-elected at the 2019 Annual Meeting of Shareholders was granted restricted stock units, with the number of underlying shares equal to \$80,000 divided by the fair market value of our common stock on the grant date, rounded down to the nearest whole share, up to a maximum of 25,000 shares. Each restricted stock unit represents a contingent right to receive one share of our common stock. The restricted stock units vest in full on the first business day prior to the Annual Meeting of Shareholders next following the date of grant provided the director continues to provide services to us on that date, except that such restricted stock units will fully vest in the event of death, disability, or a change in control. Directors may elect to defer receipt of the shares to the earlier of January 1 of the 3rd to 10th year following the date of grant or the first January 1 following the date of separation of service from Qumu. Any restricted stock units the director does not elect to defer will be paid within 90 days following the date the restricted stock units first vest. In accordance with these provisions of the 2007 Plan, on May 9, 2019 the date of the 2019 Annual Meeting of Shareholders, Messrs. Cox, Fishback, Lucas and Olson were each granted an award of 18,099 restricted stock units.

On February 10, 2020, the Compensation Committee granted 25,000 restricted stock units from the 2007 Plan to each of Ms. Chowning and Mr. Horowitz, who were elected as directors on October 31, 2019 but did not receive any equity awards at that time. The vesting, deferral and other terms of the RSU awards to Ms. Chowning and Mr. Horowitz are the same as the RSU awards granted to the non-employee directors elected at the 2019 Annual Meeting of Shareholders.

The following table shows the cash and other compensation paid by us to each of our directors for 2019. Vern Hanzlik, who served as a director and executive officer in 2019, did not receive compensation as a director during 2019.

Name	Fees Earned or Paid in Cash (1)	Stock Awards (2)	Total
Robert F. Olson	\$ 59,175	\$ 79,998	\$ 139,173
Mary E. Chowning	\$ —	\$ —	\$ —
Neil E. Cox	\$ 48,525	\$ 79,998	\$ 128,523
Daniel R. Fishback	\$ 52,700	\$ 79,998	\$ 132,698
Edward Horowitz	\$ —	\$ —	\$ —
Kenan Lucas	\$ 50,134	\$ 79,998	\$ 130,132
Thomas F. Madison (3)	\$ 26,389	\$ —	\$ 26,389
Kimberly K. Nelson (4)	\$ 33,458	\$ —	\$ 33,458

- (1) Represents cash retainer and meeting fees for 2019 as described above.
- (2) Valuation of awards based on the grant date fair value of those awards computed in accordance with FASB ASC Topic 718 utilizing assumptions discussed in Note 8 to our consolidated financial statements for the year ended December 31, 2019 included in this Annual Report on Form 10-K.
- (3) Thomas F. Madison passed away on April 10, 2019 and ceased serving as a director.
- (4) Ms. Nelson was not nominated for re-election at the 2019 Annual Meeting of Shareholders and accordingly, ceased serving as a director on May 9, 2019.

For a summary of the stock awards and option awards held by Mr. Hanzlik at December 31, 2019, please see Item 11, “Executive Compensation – Outstanding Equity Awards at Fiscal Year End.” No non-employee director held any option awards at December 31, 2019. Each of Messrs. Olson, Cox, Fishback, and Lucas held 18,099 unvested restricted stock units as of December 31, 2019 that will vest on the date before the 2020 Annual Meeting of Shareholders, subject to acceleration upon a change in control and deferral elections described above. As of December 31, 2019, Ms. Chowning and Mr. Horowitz held no stock awards or option awards.

ITEM 12. SECURITY OWNERSHIP OF CERTAIN BENEFICIAL OWNERS AND MANAGEMENT AND RELATED STOCKHOLDER MATTERS

Securities Authorized for Issuance under Equity Compensation Plans

The following table sets forth information regarding Qumu's equity compensation plans in effect as of December 31, 2019. Each of the Company's equity compensation plans is an “employee benefit plan” as defined by Rule 405 of Regulation C of the Securities Act of 1933.

Plan category	Securities Authorized for Issuance Under Equity Compensation Plans		
	Number of Shares of Common Stock to be Issued Upon Exercise of Outstanding Options, Warrants and Rights	Weighted-Average Exercise Price of Outstanding Options, Warrants and Rights	Number of Shares of Common Stock Remaining Available for Future Issuance Under Equity Compensation Plans ⁽¹⁾
Equity compensation plans approved by shareholders	1,060,250	\$ 2.93	604,950

⁽¹⁾ Excludes shares of common stock listed in the first column.

Ownership of Voting Securities by Principal Holders and Management

The following table sets forth certain information as of March 2, 2020 with respect to our common stock beneficially owned by (i) each director, (ii) each person known to us to beneficially own more than five percent of our common stock, (iii) each executive officer named in the Summary Compensation Table (the “named executive officers”), and (iv) all current executive officers and directors as a group.

<u>Name and Address of Beneficial Owner</u>	<u>Number of Shares Beneficially Owned (1)</u>	<u>Percent of Outstanding</u>
Harbert Discovery Fund, LP (2) 2100 Third Avenue North, Suite 600 Birmingham, AL 35203	1,392,522	10.3%
BLR Partners LP (3) 1177 West Loop South, Suite 1625 Houston, Texas 77027	1,020,000	7.5%
ESW Capital, LLC (4) 401 Congress Avenue, Suite 2650 Austin, TX 78701	925,000	6.8%
Renaissance Technologies LLC (5) 800 Third Avenue New York, NY 10022	772,856	5.7%
Vern Hanzlik (6)(7)	377,148	2.8%
Robert F. Olson (6)(8)	139,405	1.0%
Mary E. Chowning (6)	10,000	0.1%
Neil E. Cox (6)	33,000	0.2%
Daniel R. Fishback (6)(9)	101,560	0.7%
Edward Horowitz (6)	10,000	0.1%
Kenan Lucas (6)(10)	1,392,522	10.3%
David G. Ristow (7)	162,180	1.2%
All current executive officers and directors as a group (8 persons)	2,225,815	16.4%

* Less than one percent

- (1) Includes the following number of shares that could be acquired within 60 days of March 2, 2020 upon the exercise of stock options: Mr. Hanzlik, 135,000 shares and Mr. Ristow, 87,500 shares; and all current directors and executive officers as a group, 222,500 shares. No director held any stock option as of March 2, 2020.
Does not include the following number of shares that could be acquired upon settlement of restricted stock units held as of March 2, 2020 by the non-employee directors: Mr. Olson, 18,099 shares; Mr. Fishback, 18,099 shares; Mr. Cox, 18,099 shares; Mr. Lucas, 18,099 shares; Ms. Chowning, 25,000 shares and Mr. Horowitz, 25,000 shares; and all non-employee directors as a group, 122,396 shares.
- (2) Based on an Amendment No. 7 to Schedule 13D filed on February 13, 2020 by the following reporting persons: (i) Harbert Discovery Fund, LP (the “Harbert Fund”), (ii) Harbert Discovery Fund GP, LLC (the “Fund GP”), (iii) Harbert Fund Advisors, Inc. (“HFA”), (iv) Harbert Management Corporation (“HMC”), (v) Jack Bryant, (vi) Kenan Lucas, and (vii) Raymond Harbert. Kenan Lucas is the Managing Director and Portfolio Manager of the Fund GP, which serves as the general partner of the Fund. Jack Bryant is a Senior Advisor to the Fund, and a Vice President and Senior Managing Director of HMC. Raymond Harbert is the controlling shareholder, Chairman and Chief Executive Officer of HMC, an alternative asset investment management firm that is the managing member of the Fund GP. Mr. Harbert also serves as the Chairman, Chief Executive Officer and Director of HFA, an indirect, wholly owned subsidiary of HMC, which provides the Harbert Fund with certain operational and administrative services. The reporting persons report that they have shared voting and dispositive power over the shares indicated above as of February 11, 2020 in accordance with the following: HFA, HMC, and Raymond Harbert have shared voting and dispositive power over 1,392,522 shares and may be deemed to be the beneficial owners of such shares. The Fund GP, the Harbert Fund, Jack Bryant, and Kenan Lucas have shared voting and dispositive power over 1,367,522 shares and may be deemed to be the beneficial owners of such shares.
- (3) Based upon a Schedule 13G dated February 28, 2020 and filed on March 3, 2019 by the following reporting persons: BLR Partners LP, a Texas limited partnership (“BLR Partners”), BLRPart, LP, a Texas limited partnership (“BLRPart GP”), BLRGP Inc., a Texas S corporation (“BLRGP”), Fondren Management, LP, a Texas limited partnership (“Fondren Management”), FMLP Inc., a Texas S corporation (“FMLP”) and Bradley L. Radoff. BLRPart GP serves as the general partner of BLR Partners. BLRGP serves as the general partner of BLRPart GP. Fondren Management serves as the investment manager of BLR Partners. FMLP serves as the general partner

of Fondren Management. Mr. Radoff serves as the sole shareholder and sole director of each of BLRGP and FMLP. By virtue of these relationships, BLRPart GP, BLRGP, Fondren Management, FMLP and Mr. Radoff may be deemed to beneficially own the shares owned directly by BLR Partners. The reporting persons report that as of March 2, 2020, they have sole voting and dispositive power over 1,020,000 shares and may be deemed to be the beneficial owners of such shares.

- (4) Based upon a Schedule 13G dated and filed on March 8, 2018 in which the reporting person indicates that ESW Capital, LLC has beneficial ownership over 925,000 shares of common stock issuable upon the exercise of an outstanding warrant and Joseph A. Liemandt is the sole voting member of ESW Capital, LLC as of February 28, 2018.
- (5) Based on an Amendment No. 6 to Schedule 13G filed on February 13, 2020 in which Renaissance Technologies LLC reports sole voting power over 748,072 shares, sole dispositive power over 761,426 shares and shared dispositive power over 11,430 shares as of December 31, 2019. Renaissance Technologies Holdings Corporation is the majority owner of Renaissance Technologies LLC.
- (6) Director.
- (7) Named executive officer.
- (8) Includes 47,845 shares held by the Robert F. Olson Revocable Trust of which Mr. Olson and his spouse are trustees.
- (9) Includes 101,560 shares held by the Fishback Family Revocable Trust, of which Mr. Fishback is a trustee.
- (10) Includes shares held by Harbert Fund (see footnote 2 for a description of the relationship between Mr. Lucas and Harbert Fund). Mr. Lucas specifically disclaims beneficial ownership of the shares held by Harbert Fund, except to the extent of his pecuniary interest therein.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS AND DIRECTOR INDEPENDENCE

Certain Relationships and Related Person Transactions

Since the beginning of 2019, we have not entered into any transaction and there are no currently proposed transactions, in which we were or are to be a participant and the amount involved exceeds the lesser of \$120,000 or one percent of the average of Qumu's total assets at year end for the last two completed fiscal years and in which any related person had or will have a direct or indirect material interest.

The charter of our Audit Committee provides that the Audit Committee is responsible for reviewing and approving the terms and conditions of all transactions we enter into in which an officer, director or 5% or greater shareholder or any affiliate of these persons has a direct or indirect material interest. Our Code of Ethics and Business Conduct, which is applicable to all of our employees and directors, also prohibits our employees, including our executive officers, and our directors from engaging in conflict of interest transactions. Requests for waivers by our executive officers and directors from the provisions of, or requests for consents by our executive officers and directors under, our Code of Ethics and Business Conduct must be made to the Audit Committee.

We also have adopted a related person transaction approval policy, which sets forth our policies and procedures for the review, approval or ratification by the Audit Committee of any transaction required to be reported in our filings with the Securities and Exchange Commission. Our policy applies to any financial transaction, arrangement or relationship or any series of similar transactions, arrangements or relationships in which our company is a participant and in which a related person has a direct or indirect interest.

Board Independence

Each director serving on the board of directors of Qumu is independent according to the "independence" definition of the Nasdaq Listing Rules, with the exception of Mr. Hanzlik. Mr. Hanzlik is not independent under the Nasdaq Listing Rules because he was employed by, and served as an executive officer of, Qumu in 2019. Mr. Hanzlik is not a member of the Compensation Committee, the Audit Committee, or the Governance Committee. As of December 31, 2019, the following directors comprised our committees:

- *Audit Committee.* Kenan Lucas (Chair), Mary E. Chowning, and Neil E. Cox.
- *Compensation Committee.* Daniel R. Fishback (Chair), Robert F. Olson, and Neil E. Cox.
- *Governance Committee.* Neil E. Cox (Chair), Robert F. Olson, and Edward Horowitz.

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES**Accountant Fees and Services**

On March 19, 2019, we engaged RSM US LLP as our independent registered public accounting firm to audit our consolidated financial statements for the year ending December 31, 2019 and to perform other appropriate audit-related and tax services. Also on March 19, 2019, we dismissed KPMG LLP as our independent registered public accounting firm.

During the fiscal year ended December 31, 2018 and the subsequent interim period through March 19, 2019, there were no disagreements between us and KPMG LLP on any matter of accounting principles or practices, financial statement disclosure, or auditing scope or procedure, which disagreements if not resolved to the satisfaction of KPMG LLP would have caused it to make reference thereto in its reports on the financial statements for such years. During the fiscal year ended December 31, 2018 and the subsequent interim period through March 19, 2019, there were no reportable events (as defined in Item 304(a)(1)(v)) of Regulation S-K. The report of KPMG LLP on the financial statements for each of the fiscal year ended December 31, 2018 did not contain an adverse opinion or disclaimer of opinion, or was qualified or modified as to uncertainty, audit scope or accounting principles except as follows: KPMG's report on our consolidated financial statements as of and for the years ended December 31, 2018 and 2017, contained a separate paragraph stating "As discussed in Note 1 to the financial statements, the Company has changed its method of accounting for revenue in 2018 due to the adoption of FASB Accounting Standards Codification (Topic 606), *Revenue from Contracts with Customers*."

During the fiscal year ended December 31, 2018 and the subsequent interim period through March 19, 2019, we did not consult with RSM US LLP regarding any matters described in Item 304(a)(2)(i) or (ii) of Regulation S-K.

The following is an explanation of the fees billed to us by KPMG LLP for the following categories of professional services rendered for the year ended December 31, 2018.

<u>Category</u>	<u>Fees 2018</u>
Audit Fees (1)	\$ 301,400
Audit-Related Fees (2)	5,000
Tax Fees (3)	114,300
All Other Fees (4)	—
Total	<u>\$ 420,700</u>

(1) Services related to the audit of our annual financial statements, review of financial statements included in our Forms 10-Q and work relating to our internal controls over financial reporting, or other services normally provided by KPMG LLP in connection with statutory and regulatory filings or engagements.

(2) Assurance and related professional services by KPMG LLP that are reasonably related to the performance of the audit or review of our financial statements that are not reported under "Audit Fees."

(3) Services related to tax compliance, tax advice, and tax planning, including preparation of federal and state tax returns.

(4) Fees other than those described above.

The following is an explanation of the fees billed to us by RSM US LLP for the following categories of professional services rendered for the years interim period beginning March 19, 2019 through December 31, 2019.

<u>Category</u>	<u>Fees 2019</u>
Audit Fees (1)	\$ 283,600
Audit-Related Fees (2)	32,000
Tax Fees (3)	—
All Other Fees (4)	—
Total	<u>\$ 315,600</u>

(1) Services related to the audit of our annual financial statements, review of financial statements included in our Forms 10-Q and work relating to our internal controls over financial reporting, or other services normally provided by RSM US LLP in connection with statutory and regulatory filings or engagements.

(2) Assurance and related professional services by RSM US LLP that are reasonably related to the performance of the audit or review of our financial statements that are not reported under "Audit Fees."

(3) Services related to tax compliance, tax advice, and tax planning, including preparation of federal and state tax returns.

(4) Fees other than those described above.

Audit Committee Pre-Approval Procedures

We have adopted pre-approval policies and procedures for the Audit Committee that require the Audit Committee to pre-approve all audit and all permitted non-audit engagements and services (including the fees and terms thereof) by the independent auditors, except that the Audit Committee may delegate the authority to pre-approve any engagement or service less than \$25,000 to one of its members, but requires that the member report such pre-approval at the next full Audit Committee meeting. The Audit Committee may not delegate its pre-approval authority for any services rendered by our independent auditors relating to internal controls. These pre-approval policies and procedures prohibit delegation of the Audit Committee's responsibilities to our management. Under the policies and procedures, the Audit Committee may pre-approve specifically described categories of services which are expected to be conducted over the subsequent twelve months on its own volition, or upon application by management or the independent auditor.

All of the services described above for 2019 were pre-approved by the Audit Committee or a member of the Audit Committee before RSM US LLP and KPMG LLP were engaged to render the services.

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

(a) Financial Statements. See Part II, Item 8 of this report

(b) Exhibit Index

Exhibit No.	Description
2.1	Agreement and Plan of Merger and Reorganization, dated as of February 11, 2020, by and among Synacor, Inc., Quantum Merger Sub I, Inc. and Qumu Corporation (Incorporated by reference to Exhibit 2.1 to the Company's Current Report on Form 8-K dated February 10, 2020).
3.1	1992 Restated Articles of Incorporation of Rimage Corporation (Incorporated by reference to Exhibit 3.1 to the Company's Annual Report on Form 10-K for the year ended December 31, 2017).
3.2	Articles of Amendment to 1992 Restated Articles of Incorporation of Rimage Corporation (Incorporated by reference to Exhibit 4.2 to the Company's Registration Statement on Form S-8 (File No. 333-69550)).
3.3	Amended and Restated Bylaws of Rimage Corporation, as amended (Incorporated by reference to Exhibit 3.2 to the Company's Current Report on Form 8-K dated March 7, 2007).
3.4	Articles of Amendment to Articles of Incorporation of Rimage Corporation as filed with the Minnesota Secretary of State effective as of September 16, 2013 (Incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K dated September 16, 2013).
3.5	Amendments effective March 2, 2016 to Bylaws of Qumu Corporation (Incorporated by reference to Exhibit 3.1 to the Company's Current Report on Form 8-K dated March 2, 2016).
4.1	Description of the Registrant's Securities Registered Pursuant to Section 12 of the Securities Exchange Act of 1934.
10.1	Second Amended and Restated 2007 Stock Incentive Plan * (Incorporated by reference to Appendix A to the Company's Proxy Statement for the 2018 Annual Meeting of Shareholders held on May 10, 2018).
10.2	Form of Non-Employee Director Restricted Stock Unit Agreement with Deferral Election *(Incorporated by reference to Exhibit 10.18 of the Company's Annual Report on Form 10-K for the year ended December 31, 2009).
10.3	Amended and Restated Form of Severance/Change in Control Letter Agreement dated February 21, 2013, between the Company and certain executive officers * (Incorporated by reference to Exhibit 10.3 of the Company's Current Report on Form 8-K dated February 21, 2013).
10.4	Building Lease dated March 5, 2015 by and between Qumu Corporation, as Tenant, and Butler North, LLC, as Landlord (Incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K dated March 5, 2015).
10.5	Amendment No. 3 dated January 18, 2019 to Building Lease dated March 5, 2015 by and between Qumu Corporation, as Tenant, and Butler North, LLC, as Landlord (Incorporated by reference to Exhibit 10.1 to the Company's Quarterly Report on Form 10-Q for the quarter ended March 31, 2019).
10.6	Warrant to Purchase 314,286 shares of Common Stock issued by Qumu Corporation to HCP-FVD, LLC on October 21, 2016 (Incorporated by reference to Exhibit 10.3 to the Company's Current Report on Form 8-K dated October 21, 2016).
10.7	Letter Agreement effective December 15, 2017 regarding Offer of Employment by Qumu Corporation and David Ristow * (Incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K dated December 15, 2017).
10.8	Amended and Restated Warrant No. 2R Dated January 12, 2018 to Purchase 925,000 shares of Common Stock Issued by Qumu Corporation to ESW Holdings, Inc. (Incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K dated February 28, 2018).
10.9	Form of Qumu Support Agreement (Incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K dated February 11, 2020).
10.10	Form of Synacor Support Agreement (Incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K dated February 11, 2020).
10.11	Letter Agreement effective March 3, 2020 by and between Qumu Corporation and David G. Ristow *
21.1	Subsidiaries of Qumu Corporation.
23.1	Consent of RSM US LLP, Independent Registered Public Accounting Firm.
23.2	Consent of KPMG LLP, Independent Registered Public Accounting Firm.
31.1	Certificate of Chief Executive Officer pursuant to Rules 13a-14(a) and 15d-14(a) of the Exchange Act.
31.2	Certificate of Chief Financial Officer pursuant to Rules 13a-14(a) and 15d-14(a) of the Exchange Act.
32	Certification pursuant to 18 U.S.C. §1350.
101.INS	XBRL Instance Document.
101.SCH	XBRL Taxonomy Extension Schema Document.
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document.
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document.
101.LAB	XBRL Taxonomy Extension Label Linkbase Document.
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document.

* Indicates a management contract or compensatory plan or arrangement

Effective September 16, 2013, Rimage Corporation changed its corporate name to Qumu Corporation.

ITEM 16. FORM 10-K SUMMARY

Not applicable.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

Dated: March 6, 2020

QUMU CORPORATION

By: /s/ Vernon J. Hanzlik

Vernon J. Hanzlik
Chief Executive Officer

By: /s/ David G. Ristow

David G. Ristow
Chief Financial Officer

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated. Each person whose signature appears below constitutes and appoints Vernon J. Hanzlik and David G. Ristow as his or her true and lawful attorneys-in-fact and agents, each acting alone, with full power of substitution and re-substitution, for him or her and in his or her name, place and stead, in any and all capacities, to sign 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 U.S. Securities and Exchange Commission, granting unto said attorneys-in-fact and agents, each acting alone, full power and authority to do and perform each and every act and thing requisite and necessary to be done in and about the premises, as fully to all intents and purposes as he or she might or could do in person, hereby ratifying and confirming all said attorneys-in-fact and agents, each acting alone, or his substitute or substitutes, may lawfully do or cause to be done by virtue thereof.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Vernon J. Hanzlik</u> Vernon J. Hanzlik	Chief Executive Officer (Principal Executive Officer), Director	March 6, 2020
<u>/s/ David G. Ristow</u> David G. Ristow	Chief Financial Officer (Principal Financial and Accounting Officer)	March 6, 2020
<u>/s/ Mary E. Chowning</u> Mary E. Chowning	Director	March 6, 2020
<u>/s/ Neil E. Cox</u> Neil E. Cox	Director	March 6, 2020
<u>/s/ Daniel R. Fishback</u> Daniel R. Fishback	Director	March 6, 2020
<u>/s/ Edward Horowitz</u> Edward Horowitz	Director	March 6, 2020
<u>/s/ Kenan Lucas</u> Kenan Lucas	Director	March 6, 2020
<u>/s/ Robert F. Olson</u> Robert F. Olson	Director	March 6, 2020

**DESCRIPTION OF THE REGISTRANT'S SECURITIES
REGISTERED PURSUANT TO SECTION 12 OF THE
SECURITIES EXCHANGE ACT OF 1934**

The authorized capital stock of Qumu Corporation ("Qumu," "we," "our," or "us") consists of 30,000,000 shares of capital stock, \$0.01 par value. Unless otherwise established by our board of directors, all shares of capital stock are common stock. Qumu has one class of securities registered under Section 12 of the Securities Exchange Act of 1934, as amended: its common stock, \$0.01 par value.

The following summary of the general terms and provisions of our capital stock does not purport to be complete and is based upon and qualified by reference to our articles of incorporation and bylaws, which are filed as exhibits to our Annual Report on Form 10-K and are incorporated by reference herein. We encourage you to read our articles of incorporation, our bylaws and the applicable provisions of the Minnesota Business Corporation Act, or MBCA, for additional information.

Common Stock

Holders of our common stock are entitled to one vote for each share held of record on all matters submitted to a vote of the shareholders, and do not have cumulative voting rights. Holders of common stock have no preemptive, conversion or subscription rights, and there are no redemption or sinking fund provisions applicable to the common stock.

Subject to preferences that may be applicable to any then outstanding preferred stock, holders of common stock are entitled to receive dividends, if any, as and when declared by our board of directors.

All outstanding shares of common stock are fully paid and nonassessable.

The rights, preferences and privileges of the holders of common stock are subject to, and may be adversely affected by, the rights of the holders of shares of any series of preferred stock that we may designate in the future. In the event of any liquidation, dissolution or winding-up of our affairs, holders of common stock will be entitled to share ratably in our assets that are remaining after payment or provision for payment of all of our debts and obligations and after liquidation payments to holders of outstanding shares of preferred stock, if any.

Transfer Agent

The transfer agent and registrar for our common stock is Equiniti Trust Company.

Listing

Our common stock is currently listed on the Nasdaq Capital Market under the symbol "QUMU".

Preferred Stock

From the 30,000,000 shares of Qumu's authorized capital stock, 250,000 shares have been designated as Series A Junior Participating Preferred Shares. We currently have no outstanding Series A Junior Participating Preferred Shares or any other shares of preferred stock. The Series A Junior Participating Preferred Shares are summarized below under "Anti-Takeover Effects of Provisions of our Articles of Incorporation, our Bylaws and Minnesota Law."

Under our articles of incorporation, our board of directors is authorized to establish more than one class or series of shares from our capital stock and to fix the relative rights and preferences of any such different classes or series, without shareholder approval.

Our board of directors could authorize the issuance of additional shares of preferred stock with terms and conditions that could have the effect of discouraging a takeover or other transaction that might involve a premium price for holders of the shares of common stock or otherwise discourage a transaction that holders of common stock might believe to be in their best interests.

Anti-Takeover Effects of Provisions of our Articles of Incorporation, our Bylaws and Minnesota Law

Some provisions of Minnesota law, our articles of incorporation and our bylaws contain provisions that could make the following transactions more difficult: acquisition of us by means of a tender offer; acquisition of us by means of a proxy

contest or otherwise; or removal of our incumbent officers and directors. It is possible that these provisions could make it more difficult to accomplish or could deter transactions that shareholders may otherwise consider to be in their best interest or in our best interests, including transactions that might result in a premium over the market price for our shares. These provisions are summarized below:

Series A Junior Participating Preferred Shares

On September 17, 2003, our board of directors adopted resolutions designating a series of 250,000 preferred shares, \$0.01 par value, designated as the Series A Junior Participating Preferred Shares. The Series A Junior Participating Preferred Shares were created in connection with our shareholder rights plan which expired on March 21, 2014.

Under the shareholder rights plan when it was in effect, if any person or group (the "Acquiring Person") became the beneficial owner of 20% or more of our outstanding common stock, all other holders of our common stock would be entitled to purchase from us 1/100 of a Series A Junior Participating Preferred Share at a price of \$35 per 1/100 of a Preferred Share, subject to adjustment. In the event that any person or group became an Acquiring Person, each holder of this Preferred Share purchase right, other than rights that are or were beneficially owned by the Acquiring Person (which would thereafter be void), would thereafter have the right to receive, upon exercise thereof at the then current exercise price of the right, that number of shares of our common stock having a market value of two times the exercise price of the right. The effect of the shareholder rights plan was to dilute the Acquiring Person thereby making the cost of abusive unsolicited takeover practices prohibitive and create an incentive for a potential acquiror to negotiate in good faith with our board of directors.

Although the shareholder rights plan expired on March 21, 2014, our board of directors has the right to reinstate the shareholder rights plan or adopt a new shareholder rights plan without shareholder approval.

The resolutions creating the Series A Junior Participating Preferred Shares provide that the holders of Series A Junior Participating Preferred Shares are entitled, in preference to holders of common stock, to such dividends as our board of directors may declare out of funds legally available for the purpose. Each Series A Junior Participating Preferred Share is entitled to a minimum preferential quarterly dividend payment of \$1 per share but is entitled to an aggregate dividend of 100 times the dividend declared per share of common stock whenever such dividend is declared. In the event of liquidation, the holders of Series A Junior Participating Preferred Shares will be entitled to a minimum preferential liquidation payment of \$100 per share but will be entitled to an aggregate payment of 100 times the payment made per share of common stock. Each Series A Junior Participating Preferred Share will have 100 votes, voting together with common stock. In the event of any merger, consolidation or other transaction in which shares of common stock are exchanged, each Series A Junior Participating Preferred Share will be entitled to receive 100 times the amount received per share of common stock. These rights will be protected by customary anti-dilution provisions. Series A Junior Participating Preferred Shares are not redeemable.

Because of the nature of the Series A Junior Participating Preferred Shares' dividend, liquidation and voting rights, the value of a one one-hundredth interest in a Series A Junior Participating Preferred Share should approximate the value of one share of common stock.

Designation of Capital Stock

The ability of our board of directors to designate classes or series of stock from our authorized capital stock makes it possible for our board of directors to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to change control of us. These provisions may have the effect of deterring hostile takeovers or delaying changes in control or management of our company.

Shareholder Meetings

Under our bylaws, regular meetings of our shareholders may be called only by our board of directors.

Under our bylaws, special meetings of our shareholders may be held at any time and for any purpose and may be called by our president, treasurer, two or more directors or by a shareholder or shareholders holding 10% or more of the voting power of all shares entitled to vote on the matters to be presented to the meeting, except that a special meeting for the purpose of considering any action to directly or indirectly facilitate or affect a business combination, including any action to change or otherwise affect the composition of the board of directors for that purpose, must be called by 25% or more of the voting power of all shares entitled to vote.

Requirements for Advance Notification of Shareholder Nominations and Proposals

Nominations for election to our board of directors may be made by or at the direction of the board of directors or by a shareholder who follows the advance notice procedures described in Section 3.14 of our bylaws. In general, a shareholder must submit a written notice of the nomination to our corporate secretary at least 120 days before the date that is one year after the date of our proxy statement for the prior year's regular meeting, together with required information regarding the shareholder and each person the shareholder proposes to nominate.

Shareholders can propose business, other than nominations to our board of directors, to be considered at a regular meeting of shareholders only if a shareholder follows the advance notice procedures described in Section 2.10 of our bylaws. In general, a shareholder must submit a written notice of the proposal together with required information regarding the shareholder and the shareholder's interest in the proposal to our corporate secretary at least 120 days before the date that is one year after the date of our proxy statement for the prior year's regular meeting.

Unanimous Shareholder Action by Written Consent

Our bylaws permit shareholders to take any action that might be taken at a meeting of the shareholders by written action, but only if it is signed by all of the shareholders entitled to vote on that action.

Provisions of Minnesota Law

We are governed by the provisions of Section 671 (Control Share Act), Section 673 (Business Combination Act) and Section 675 (Takeover Provisions) of the MBCA. These provisions may have an effect of delaying, deferring or preventing an unsolicited takeover of Qumu and deprive our shareholders of an opportunity to sell their shares at a premium over the market price. The following description of certain provisions of the MBCA is only a summary and does not purport to be complete and is qualified in its entirety by reference to the MBCA.

In general, Section 671 of the MBCA provides that shares of an "issuing public corporation," such as Qumu, acquired by an "acquiring person" in a "control share acquisition" that exceed the threshold of voting power of any of the three ranges identified below will not have voting rights, unless the issuing public company's shareholders vote to accord such shares the voting rights normally associated with such shares. A "control share acquisition" is an acquisition, directly or indirectly, by an "acquiring person" (as defined in the MBCA) of beneficial ownership of shares of an issuing public corporation that, but for Section 671, would, when added to all other shares of the issuing public corporation beneficially owned by the acquiring person, entitle the acquiring person, immediately after the acquisition, to exercise or direct the exercise of a new range of voting power of the issuing public corporation with any of the following three ranges: (i) at least 20 percent but less than 33.33 percent; (ii) at least 33.33 percent but less than or equal to 50 percent; and (iii) over 50 percent. Shares acquired in a control share acquisition in excess of any of the three thresholds will have not voting rights, unless voting rights are accorded such shares by an affirmative vote by the issuing public company's shareholders. Acquisition of beneficial ownership of shares includes the acquisition of the power to vote or direct the voting of shares, whether that power is shared within a group or is held by one shareholder. Certain acquisitions of voting power are exempt from Section 671, including acquisitions directly from the issuing public company. The issuing public company also has an option to call for redemption all, but not less than all, shares acquired in the control share acquisition that exceed 20% of the outstanding voting power (or such higher threshold of voting power for which shareholder approval has not been obtained) at a price equal to the fair market value of the shares at the time the call is given if (i) the acquiring person fails to deliver the information statement to the issuing public company by the tenth day after the control share acquisition; or (ii) shareholders have voted not to accord voting rights to the shares acquired in the control share acquisition.

In general, Section 673 of the MBCA prohibits a public Minnesota corporation from engaging in a business combination with an interested shareholder for a period of four years after the date of the transaction in which the person became an interested shareholder, unless either the business combination or the acquisition by which such person becomes an interested shareholder is approved in a prescribed manner before the person became an interested shareholder. The term "business combination" includes mergers, asset sales and other transactions resulting in a financial benefit to the interested shareholder. An "interested shareholder" is a person who is the beneficial owner, directly or indirectly, of 10% or more of a corporation's voting stock, or who is an affiliate or associate of the corporation, and who, at any time within four years before the date in question, was the beneficial owner, directly or indirectly, of 10% or more of the corporation's outstanding voting stock. Section 673 does not apply if a committee of our board of directors consisting of one or more of our disinterested directors (excluding our current and former officers and employees) approves the proposed transaction or the interested shareholder's acquisition of shares before

the share acquisition date or on the share acquisition date but before the interested shareholder becomes an interested shareholder.

If a takeover offer is made for our stock, Section 675 of the MBCA precludes the offeror from acquiring additional shares of stock (including in acquisitions pursuant to mergers, consolidations or statutory share exchanges) within two years following the completion of the takeover offer, unless shareholders selling their shares in the later acquisition are given the opportunity to sell their shares on terms that are substantially the same as those contained in the earlier takeover offer. A “takeover offer” is a tender offer which results in an offeror who owned ten percent or less of a class of our shares acquiring more than ten percent of that class, or which results in the offeror increasing its beneficial ownership of a class of our shares by more than ten percent of the class, if the offeror owned ten percent or more of the class before the takeover offer. Section 675 does not apply if a committee of our board of directors approves the proposed acquisition before any shares are acquired pursuant to the earlier tender offer. The committee must consist solely of directors who were directors or nominees for our board of directors at the time of the first public announcement of the takeover offer, and who are not our current or former officers and employees, offerors, affiliates or associates of the offeror or nominees for our board of directors by the offeror or an affiliate or associate of the offeror.

RETENTION AGREEMENT

THIS RETENTION AGREEMENT (“Agreement”) is made by and between David G. Ristow (“Employee”) and Qumu Corporation (“Company”), and is dated as of March 3, 2020.

WHEREAS, pursuant to an Agreement and Plan of Merger and Reorganization dated as of February 11, 2020 by and among Synacor, Inc., a Delaware corporation (“Synacor”), Quantum Merger Sub I, Inc., a Minnesota corporation and a direct, wholly owned subsidiary of Synacor (“Merger Sub”), and the Company (the “Merger Agreement”), Merger Sub will be merged with and into the Company (the “Merger”), and the Company will continue as the surviving corporation in the Merger and as a wholly owned subsidiary of Synacor;

WHEREAS, Employee is an employee of the Company; and

WHEREAS, in recognition of the pending Merger, the Company and Employee wish to enter into this Agreement to address Employee’s continued services to the Company through the Term (as defined below).

NOW, THEREFORE, in consideration of the premises and the mutual promises hereinafter contained, the parties hereto agree as follows:

1. Scope and Term of Services.

1.1 Employee will continue employment with the Company as an at-will employee from the date of execution of this Agreement through July 31, 2020 (“Term”).

1.2 During the Term, Employee shall continue to perform the job duties and responsibilities of Employee’s position with the Company under the terms of any employment agreement then in effect with Company and the Company’s policies and procedures. Nothing herein changes the current terms of employment, any current employment agreement nor any severance/change in control letter agreement between the Employee and the Company.

1.3 Except as otherwise provided in this Agreement, so long as Employee remains employed by the Company through the end of the Term, and subject to receipt of an executed release in the form attached as Exhibit A and dated as of and no earlier than the end of the Term, and Employee does not revoke the release, Employee shall receive a lump sum cash bonus in the amount of \$54,000.00 (the “Stay Bonus”). The Stay Bonus shall be payable no later than the first pay period following the end of the Term, receipt of the executed release and expiration of any applicable revocation right or waiting period, net of applicable payroll taxes and withholdings, in addition to any wages, salary or other compensation payable by the Company through the end of the Term. Notwithstanding any other provision of the Agreement, all rights of Employee will be discontinued and forfeited, and the Company will have no further obligation under this Agreement to Employee, if Employee breaches any non-competition, nonsolicitation or confidentiality agreement or any statutory or common law duty of loyalty and trade secrets owed by Employee to the Company.

1.4 If Employee resigns from employment with the Company for any reason at any time during the Term of this Agreement or Employee is terminated by the Company for Cause (as defined below), Employee will not be entitled to receive the Stay Bonus described in Section 1.3, and any and all of Employee's rights with respect to this Agreement will terminate and be forfeited. If Employee is terminated by the Company without Cause at any time during the Term of this Agreement, upon execution of a release of claims against the Company in the form attached hereto as Exhibit A, dated on or after the Employee's termination date, and expiration of any applicable revocation right or waiting period, the Company will pay Employee the Stay Bonus. For purposes of this Agreement, "Cause" shall be defined as (i) Employee's conviction, plea of guilty, no contest or *nolo contendere* for any felony under the laws of the United States or any State; (ii) Employee's commission of fraud, theft, embezzlement, misappropriation, or breach of fiduciary duty; (iii) Employee materially fails to comply with the Company's written policies or rules, or materially or persistently fails or neglects to perform or carry out his/her duties and obligations under or otherwise violates the terms of this Agreement, any confidentiality, proprietary information and inventions agreement with the Company or the Employee's employment agreement with the Company if applicable), including but not limited to any restrictive covenants after reasonable notice and an opportunity to cure; (iv) Employee materially or persistently refuses or neglects to comply with any lawful and reasonable order given to Employee by the Company's management; or (v) Employee's failure to cooperate in good faith with a governmental or internal investigation of the Company, or their directors, officers or employees, if the Company has requested Employee's cooperation.

1.5 Notwithstanding any earlier payment date, any payment of a Stay Bonus made under this Agreement shall be paid within seventy-five (75) days following the end of the Term (or such earlier termination date as set forth in Section 1.4 of this Agreement), provided that Employee has executed and submitted the release in the form attached as Exhibit A, and further provided that the payment will be paid in the second taxable year if the seventy-five (75)-day period begins in one taxable year and ends in the subsequent taxable year. This Agreement is intended to satisfy the requirements of Internal Revenue Code of 1986 ("Code") §409A and regulations thereunder. The Company will, to the extent reasonably possible, administer and interpret this Agreement to comply with the requirements of Code §409A and regulations thereunder. No payment under this Agreement or any payment in substitution for a payment under this Agreement will be accelerated or deferred, except as provided in this Agreement, or as may be permitted in accordance with Code § 409A and regulations thereunder. If at the time of a payment to Employee there shall be outstanding any indebtedness from Employee to the Company, the Company may, at its option, by notice in writing to Employee, apply and offset all or any part of the indebtedness, whether or not then due or payable, against all or any part of any payment otherwise to be made under the Agreement.

2. Additional Obligations.

2.1 Employee agrees that Employee will not, orally or in writing, at any time, for any reason, directly or indirectly, disparage, discredit, or otherwise adversely criticize the Company or any of its subsidiaries, parents or affiliates, or their respective agents, officers, directors, members, employees, customers, suppliers or contractors, or the business of the Company or the

services or products sold or offered for sale by the Company, for the purpose of causing harm or damage to the Company or the business reputation of the Company or any of its subsidiaries, parents or affiliates, or their respective agents, officers, members, directors, employees, customers, suppliers or contractors.

2.2. Employee will hold in strictest confidence and will not, without the prior written approval of the Company, use for Employee's benefit or the benefit of any third party or disclose to any person or entity outside of the Company (other than as required by law) any Confidential Information. Intending that the term shall be broadly construed to include anything protectable under applicable state or federal law relating to trade secrets, "Confidential Information" means all information, and all documents and other tangible items which record information, relating to the Company's business and, after the Effective Time (as defined in the Merger Agreement), relating to the business of Synacor, which at the time or times concerned is protectable as a trade secret, and which has been from time to time disclosed to or known by Employee as a result of his/her relationship with the Company. Confidential Information does not mean or include such information which is (i) readily available to others from sources other than the Company or Employee, or (ii) in the public domain. By signing this Agreement, Employee acknowledges that Employee has not used or disclosed, and agrees that Employee will not at any time use or disclose, directly or indirectly, to any other entity or person, any Confidential Information. Notwithstanding the foregoing, an individual shall not be held criminally or civilly liable under any federal or state trade secret law for the disclosure of a trade secret that (A) is made (i) in confidence to a federal, state, or local government official, either directly or indirectly, or to an attorney; and (ii) solely for the purpose of reporting or investigating a suspected violation of law; or (B) is made in a complaint or other document filed in a lawsuit or other proceeding, if such filing is made under seal. Nothing in this Agreement is intended to conflict with 18 U.S.C. § 1833(b) or create liability for disclosures of trade secrets that are expressly allowed by 18 U.S.C. § 1833(b). Also, the Company will not retaliate against Employee for disclosing Employee's own wages under applicable local, state, or federal law. In addition, nothing herein prohibits Employee from engaging in protected speech under the National Labor Relations Act.

2.3. Employee specifically recognizes that any breach of Sections 2.1 and 2.2 will cause irreparable injury to the Company and that actual damages would be difficult to ascertain, and in any event, would be inadequate. Accordingly, Employee agrees that in the event of any such breach, the Company shall be entitled to injunctive relief in addition to such other legal and equitable remedies that may be available, without the posting of a bond or other security (to the extent waiver of such posting is permissible by law) or making a showing of any special damages or irreparable injury and that it will result in immediate termination of Employee for Cause and no Stay Bonus will be paid to Employee.

2.4. Employee agrees to cooperate with and assist the Company in any investigations, proceedings, or actions relating to any matter in which Employee was involved or of which Employee had knowledge while an Employee of the Company, subject to reimbursement for approved expenses, and for a period of six (6) months Employee agrees to keep the Company advised of any changes in the Employee's home address or telephone number. Employee further agrees that, unless compelled by law to do so, Employee will not assist any person or entity in the

investigation or prosecution of any claim, proceeding or lawsuit against the Company. In return, should Employee be called on to cooperate and assist the Company in any way, the Company agrees to provide Employee with reasonable notification whenever possible.

2.5 Employee agrees to keep this Agreement and the terms hereof strictly confidential and not to disclose the existence of this Agreement or its terms to anyone except the Employee's spouse, legal and financial advisors.

3. Miscellaneous.

3.1 Complete Agreement. This Agreement is the entire agreement between the parties concerning a Stay Bonus and supersedes and replaces any existing arrangement, agreement, representation or understanding between the parties (whether written, oral, implied or otherwise) related to such bonus but does not supersede any employment agreement between the parties. No provision of this Agreement may be waived, modified or superseded other than by means of a written instrument that refers to this Agreement and is executed by the Company and Employee. Notwithstanding the foregoing, if and to the extent that any provision of this Agreement does not comply with Internal Revenue Code §409A, such provision shall be administered and interpreted in a manner consistent with the requirements of Code §409A; if and solely to the extent that any such provision does not comply with Code §409A, the Company will have the authority, without the consent of Employee, to amend this Agreement with respect to that provision to the extent the Company determines in its sole and reasonable judgment to avoid any portion payable under this Agreement to Employee being either retroactively included in taxable income for any taxable period prior to the actual payment or subject to the excise tax under Code §409A.

3.2 Severability. It is further agreed and understood by the parties hereto that if any part, term or provision of this Agreement should be held unenforceable in the jurisdiction in which either party seeks enforcement of the contract, it shall be construed as if not containing the invalid provision or provisions, and the remaining portions or provisions shall govern the rights and obligations of the parties.

3.3 Governing Law. This Agreement shall be construed and enforced in accordance with the internal laws of the State of Minnesota, without regard to conflicts of law provisions.

3.4 Successors and Assigns. This Agreement is personal in nature and cannot be assigned by Employee or the Company. Notwithstanding the foregoing, the Company may assign this Agreement to any corporate parent, affiliate or subsidiary or purchaser of a majority of its stock or assets. The terms, conditions and covenants herein shall be binding upon the heirs and personal representatives of Employee, and the successors, assigns of Company and any parent, subsidiary or affiliate of Company. If the Effective Time occurs prior to the end of the Term, (a) the term "Company" shall expressly include the Company as the surviving corporation in the Merger and (b) Synacor shall be a third party beneficiary of Employee's obligations to the Company under this Agreement, with full rights of enforcement as if a party hereto.

3.5 Enforceability of Rights. No delay or omission by the Company to exercise any right, power, or remedy accruing to it upon any breach or default under this Agreement shall be deemed a waiver of any other breach or default theretofore or thereafter occurring. Any waiver, permit, consent, or approval of any kind or character on the part of the Company of any breach or default under this Agreement must be in writing and shall be effective only to the extent specifically set forth in such writing. All remedies, either under this Agreement or by law or otherwise afforded to either of the parties, shall be cumulative and not alternative.

3.6 Unfunded Status; No Synacor Obligation. This Agreement will at all times be entirely unfunded and no provision will at any time be made with respect to segregating assets of the Company for payment of any benefits hereunder. Employee will not have any interest in any particular assets of the Company by reason of the right to receive a benefit under this Agreement and Employee will have only the rights of a general unsecured creditor of the Company with respect to rights under this Agreement. Employee agrees that all obligations or liabilities based upon or related to this Agreement are those solely of the Company. In furtherance and not in limitation of the foregoing, Employee covenants, agrees and acknowledges that no recourse under this Agreement shall be sought or had against Synacor and Synacor shall not have any obligations or liabilities based upon or related to this Agreement.

3.7. No Trust or Fiduciary Status. Nothing in this Agreement will establish any trust or similar arrangement with regard to the rights of Employee or any beneficiary of Employee, nor will the Company or any officer, employee or service provider become a fiduciary with respect to this Agreement for purposes of the Employee Retirement Income Security Act of 1974, if applicable, or any state trust laws.

3.8 Counterparts. This Agreement may be executed in any number of counterparts, each of which shall be deemed an original and enforceable against the parties actually executing such counterpart, and all of which, when taken together, shall constitute one instrument.

IN WITNESS WHEREOF, the parties have duly executed this Retention Agreement as of the date and year first above written.

COMPANY:

QUMU CORPORATION

By: /s/ Vern Hanzlik

Its: Chief Executive Officer

EMPLOYEE:

/s/ David G. Ristow

David G. Ristow

EXHIBIT A

RELEASE AGREEMENT

I, _____, do hereby release, agree not to sue, and forever discharge QUMU CORPORATION, [SYNACOR, INC.], and any of their subsidiaries, parents, or affiliates, and each of its and their respective present and former shareholders, officers, directors, employees, representatives, consultants, insurers and agents, and the successors and assigns of each, whether in their individual or official capacities (hereafter collectively referred to as "Releasees"), of and from any and all manner of claims, demands, actions, causes of action, administrative claims, liability, damages, claims for punitive or liquidated damages, claims for attorney's fees, costs and disbursements, individual or class action claims, or demands of any kind whatsoever, I have or might have against them or any of them, whether known or unknown, in law or equity, contract or tort, arising out of or in connection with my employment with Qumu Corporation, however originating or existing, from the beginning of time through the date of my signing this Release Agreement.

I release and discharge the Releasees not only from any and all claims that I could bring on my own behalf, but also those that may or could be brought by any other person or organization on my behalf, and agree not to voluntarily become a member of any class or to voluntarily participate in any proceeding or case in which a claim or claims against the Releasees that may arise, in whole or in part, from any event that occurred before or as of the date of signing this Release Agreement.

Without limiting the generality of the foregoing, this release includes, but is not limited to, any claims I may have for wages, bonuses, commissions, penalties, deferred compensation, vacation pay, sick pay, separation benefits, defamation, retaliation, invasion of privacy, negligence, emotional distress, improper discharge (based on contract, common law, or statute, including any federal, state or local statute or ordinance prohibiting discrimination or retaliation in employment), alleged violation of the Minnesota Human Rights Act, the Age Discrimination in Employment Act, as amended, Title VII of the Civil Rights Act, 42 U.S.C. § 2000e et seq., the Americans with Disabilities Act, 42 U.S.C. §12101 et seq., as amended, the Employment Retirement Income Security Act of 1976, 29 U.S.C. § 1001 et seq., the Family Medical Leave Act, and any claim for discrimination, harassment or retaliation based on sex, race, color, creed, religion, age, national origin, marital status, sexual orientation, disability, status with regard to public assistance, sexual harassment, or any other protected status under any other state, local or federal law.

I affirm that I have not caused or permitted, and to the full extent permitted by law will not cause or permit to be filed, any charge, complaint, or action of any nature or type against the Releasees, including but not limited to any action or proceeding raising claims arising in tort or contract, or any claims arising under federal, state, or local laws, or with any state or federal agencies. Notwithstanding the foregoing, I expressly understand that nothing prevents me from filing a charge with the EEOC or participating in any investigation by the EEOC or any of its state or local deferral agencies; although, if I file, or have filed on my behalf, an action of any nature, I agree that the Stay Bonus is in complete satisfaction of any and all claims in connection with such action.

Notice of Rights Pursuant to the Federal Age Discrimination in Employment Act (29 U.S.C. § 629 et seq.). By signing this Release Agreement, I acknowledge and agree that I have been informed that I have the right to consult with an attorney of my choice prior to signing this Release Agreement. I acknowledge that I have been entitled to forty-five (45) calendar days from receipt of this Release Agreement to consider whether the terms are acceptable to me, and that the job titles and ages of those individuals that were part of the decisional unit and offered or not offered the Stay Bonus have been disclosed to me as provided for below, and that if I sign this Release Agreement prior to the end of the forty-five (45) calendar days, it is by my choice and I understand that I am waiving the remaining calendar days.

Department	Job Title	Age	Offered Stay Bonus (Y/N)

I have also been notified by this Release Agreement that I may rescind the release of claims arising under the federal Age Discrimination in Employment Act, 29 U.S.C. §§ 621-634, within seven (7) calendar days of my signing this Release and that I may rescind claims arising under the Minnesota Human Rights Act within fifteen (15) calendar days of my signing this Release. In order to be effective, I understand that my rescission must (i) be in writing; (ii) delivered by hand or mailed to April Hamlin, Attorney at Law, Ballard Spahr LLP, 2000 IDS Center, 80 South Eighth Street, Minneapolis, MN 55402, within the required period; and (iii) if delivered by mail, the rescission must be postmarked within the statutory period, properly addressed to April Hamlin, Attorney at Law, as set forth above, and sent by certified mail, return receipt requested. This Release Agreement will be effective upon expiration of the fifteen (15)-day period without rescission. If I rescind this Release Agreement, I will not receive the Stay Bonus in the Retention Agreement.

I acknowledge that I have read and understand and agree to the terms and conditions set forth herein, and have signed this Release Agreement freely, voluntarily, and with full knowledge and understanding of its meaning.

Dated: _____

[Signature]

SUBSIDIARIES OF QUMU CORPORATION AS OF DECEMBER 31, 2019

Name	Jurisdiction of Incorporation	Percent Owned
Qumu, Inc.	California	100.0%
Qumu UK Holdings, Ltd.	United Kingdom	100.0%
Qumu UK Limited	United Kingdom	100.0% ⁽¹⁾
Qumu Middle East FZ-LLC	Dubai	100.0% ⁽¹⁾
Qumu Ltd.	United Kingdom	100.0% ⁽¹⁾
Qumu Japan Co., Ltd.	Japan	100.0%
Qumu (Singapore) Pte. Ltd	Singapore	100.0%

⁽¹⁾ 100% owned by Qumu UK Holdings, Ltd.

Consent of Independent Registered Public Accounting Firm

We consent to the incorporation by reference in the Registration Statements (Nos. 333-215549, 333-206270, 333-197520, 333-161262, 333-147344, 333-34788, 333-53875, 333-69550, 333-106901, 333-127244, 333-176145, 333-177836, 333-187616 and 333-226694) on Form S-8 and Registration Statements (Nos. 333-215551, 333-213070, 333-224200 and 333-233470) on Form S-3 of Qumu Corporation and its subsidiaries of our report dated March 6, 2020, relating to the consolidated financial statements of Qumu Corporation and its subsidiaries, appearing in this Annual Report on Form 10-K of Qumu Corporation for the year ended December 31, 2019.

/s/ RSM US LLP

Minneapolis, Minnesota
March 6, 2020

Consent of Independent Registered Public Accounting Firm

The Board of Directors and Stockholders
Qumu Corporation:

We consent to the incorporation by reference in the registration statements (No. 333-215549, 333-206270, 333-197520, 333-161262, 333-147344, 333-34788, 333-53875, 333-69550, 333-106901, 333-127244, 333-176145, 333-177836, 333-187616 and 333-226694) on Form S-8 and (No. 333-215551, 333-213070, 333-224200 and 333,233470) on Form S-3 of Qumu Corporation and subsidiaries of our report dated March 15, 2019, with respect to the consolidated balance sheet of Qumu Corporation as of December 31, 2018, and the related consolidated statements of operations, comprehensive income (loss), stockholders' equity, and cash flows for each of the years in the two-year period ended December 31, 2018, and the related notes (collectively, the consolidated financial statements), which report appears in the December 31, 2018 annual report on Form 10-K of Qumu Corporation.

Our report refers to a change in the method of accounting for revenue.

/s/ KPMG LLP

Minneapolis, Minnesota
March 6, 2020

CERTIFICATION

I, Vernon J. Hanzlik, certify that:

1. I have reviewed this Form 10-K of Qumu Corporation;
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(s) 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;
 - (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; and
5. The registrant's other certifying officer(s) 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.

Dated: March 6, 2020

/s/ Vernon J. Hanzlik

Chief Executive Officer

CERTIFICATION

I, David G. Ristow, certify that:

1. I have reviewed this Form 10-K of Qumu Corporation;
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(s) 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;
 - (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; and
5. The registrant's other certifying officer(s) 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.

Dated: March 6, 2020

/s/ David G. Ristow

Chief Financial Officer

CERTIFICATIONS

The undersigned certify pursuant to 18 U.S.C. Section 1350, that:

- (1) The accompanying Qumu Corporation Annual Report on Form 10-K for the year ended December 31, 2019, fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
- (2) The information contained in the accompanying report fairly presents, in all material respects, the financial condition and results of operations of the Company.

March 6, 2020

/s/ Vernon J. Hanzlik

Chief Executive Officer

/s/ David G. Ristow

Chief Financial Officer