Qumu Corp
Form 10-K
March 15, 2019

FORM 10-K
U.S. SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549
x ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(D) OF THE SECURITIES EXCHANGE ACT OF 1934
FOR THE FISCAL YEAR ENDED December 31, 2018
OR
o 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	41-1577970
State or other jurisdiction of incorporation or organization	(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:	Common Stock, $.01 par value Preferred Stock Purchase Rights
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 o No x
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 o No x
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 x No o
Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted and posted 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 and post such files). Yes x No o
Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K is not contained herein, and will not be contained, to the best of registrant’s knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K. o
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 o Accelerated Filer o
Non-Accelerated Filer x Smaller Reporting Company x Emerging Growth Company o

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. o

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

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 $17,095,000.

As of March 12, 2019, the registrant had 9,740,392 outstanding shares of common stock.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's definitive proxy statement for its 2019 Annual Meeting of Shareholders, to be filed within 120 days after the end of the fiscal year covered by this report, are incorporated by reference into Part III hereof.

TABLE OF CONTENTS

		Page
PART I		3
Item 1.	Business	3
Item 1A.	Risk Factors	7
Item 1B.	Unresolved Staff Comments	17
Item 2.	Properties	17
Item 3.	Legal Proceedings	17
Item 4.	Mine Safety Disclosures	17
PART II		18
Item 5.	Market for Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities	18
Item 6.	Selected Financial Data	19
Item 7.	Management’s Discussion and Analysis of Financial Condition and Results of Operations	20
Item 7A.	Quantitative and Qualitative Disclosures About Market Risk	31
Item 8.	Financial Statements and Supplementary Data	32
Item 9.	Changes in and Disagreements with Accountants on Accounting and Financial Disclosure	63
Item 9A.	Controls and Procedures	63
Item 9B.	Other Information	63
PART III		64
Item 10.	Directors, Executive Officers and Corporate Governance	64
Item 11.	Executive Compensation	64
Item 12.	Security Ownership of Certain Beneficial Owners and Management and Related Stockholders Matters	64
Item 13.	Certain Relationships and Related Transactions and Directors Independence	64
Item 14.	Principal Accountant Fees and Services	64
PART IV		65
Item 15.	Exhibits and Financial Statement Schedules	65
SIGNATURES		66

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,” “c 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 tools 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. Qumu’s customers, which include some of the world’s largest organizations, leverage the Qumu platform for a variety of cloud, on-premise and hybrid deployments. Use cases include 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.
Qumu 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 single year agreements for thousands of dollars to multi-year agreements 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)	
	2018	2017	2016	2017 to 2018	2016 to 2017	2017 to 2018	2016 to 2017
Software licenses and appliances	$5,814	$5,982	$5,839	$(168)	$143	(3)%	2 %
Service	19,199	22,185	25,843	(2,986)	(3,658)	(13)%	(14)%
Total revenues	$25,013	$28,167	$31,682	$(3,154)	$(3,515)	(11)%	(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.

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.

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., videoconferencing systems), business applications (e.g., Skype, WebEx, Zoom, Outlook) and broader 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:

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

The Qumu platform encompasses four distinct elements:

- 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

4

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.

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, SharePoint, Skype for Business, Yammer, IPTV, Jive, IBM Connections, Polycom, Pexip and Citrix.

5

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 five primary markets being 1) Banking, Finance and Insurance, 2) Manufacturing, 3) Services and Consulting, 4) Telecom and Technology, and 5) Biotech and Health Care. 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 organizations as small as 1,000 employees. Across all deployment types (cloud, on-premise and hybrid) and in all five 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 33% of revenues for the year ended December 31, 2018 and 27% for each of the years ended December 31, 2017 and 2016. During each of the years ended December 31, 2017 and 2016, 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 year ended December 31, 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 Microsoft's Skype and Stream technologies for video. While some view Microsoft as a competitor to Qumu, we believe that the Microsoft and Qumu technologies can be seamlessly integrated for the customer and provide the customer with greater flexibility and improved manageability than use of a Microsoft technology alone. For certain customers, Qumu also competes with the IT infrastructure and resources the customer has developed on its own to manage its video content.

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 $7.0 million, $7.3 million and $8.5 million for the years ended December 31, 2018, 2017 and 2016, respectively.

As of December 31, 2018, the Company employed 34 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.

6

Intellectual Property

Qumu currently maintains four U.S. patents and has one non-provisional utility patent application pending in the U.S. 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 $200,000 in 2019.

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," "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, 2018, the Company had 97 employees, of which 34 were involved in research and development, 27 in sales and marketing, 18 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

Qumu maintains a website at www.qumu.com. Qumu files reports with the Securities and Exchange Commission and its 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 Securities Exchange Act of 1934, are available on its website, as soon as reasonably practicable after these documents are filed 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" and all current EDGAR reports are available for viewing. A copy of any report filed by the Company with the SEC will also be furnished without charge to any shareholder who requests it in writing to: Secretary, Qumu Corporation 510 1st Avenue North, Suite 305, Minneapolis, MN 55403.

ITEM 1A. RISK FACTORS

If any of the following risks actually occur, our results of operations, cash flows 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 estimated bookings, revenue, or cash flow from our operating activities, 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.

7

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 acceptance 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 acceptance. 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 and we may violate our covenants under the ESW Holdings credit agreement.

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, and sell additional products and services to new and existing customers.

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. Additionally, our January 12, 2018 credit agreement with ESW Holdings contains covenants relating to minimum core bookings, maximum non-current deferred revenue, minimum subscription, and maintenance and support revenue, and minimum subscription and maintenance and support dollar renewal rates. Our failure to attract new customers, retain existing customers, and expand our sales to new and existing customers may lead to challenges in complying with these credit agreement covenants.

We are projecting compliance with the covenants for the remainder of the term of the loan, which matures on January 10, 2020. However, if an event of default occurs due to the Company not maintaining compliance with these covenants, ESW Holdings may accelerate the repayment of outstanding obligations, which could negatively impact our ability to fund our working capital requirements, capital expenditures and general corporate expenses.

We will need additional capital to fund repayment of our $4 million term loan due in January 2020 and any additional capital we seek may not be available in the amount or at the time we need it.

In the year ended December 31, 2018, we had an operating loss of $6.9 million, used $2.8 million of net cash in continuing operating activities, and ended 2018 with $8.6 million in cash and cash equivalents.

On January 12, 2018, we replaced our prior $8.0 million term loan with a new $10.0 million term loan credit agreement with ESW Holdings, Inc. Interest on the term loan accrues and compounds monthly at a variable rate per annum equal to the prime rate plus 4%. On July 19, 2018, we paid $6.5 million of outstanding debt under our credit agreement with ESW Holdings, consisting of principal of $6.0 million and accrued interest of $463,000. At December 31, 2018, we had approximately $4.0 million in outstanding debt under the ESW Holdings term loan credit agreement. Under the ESW Holdings term loan credit agreement interest accrued at 9.50% and accrued and unpaid interest was $172,000 as of December 31, 2018. The term loan is scheduled to mature on January 10, 2020, at which time all outstanding principal and then accrued interest will be due and payable in full. At maturity, assuming no earlier repayment of the term loan, the total amount of principal and interest due will be approximately $4.6 million.

Over the last several years including 2016 and into 2019, we have implemented an ongoing expense reduction program that, when combined with expected revenue performance in 2019, we believe will allow us to attain our goal of becoming cash flow breakeven in the third quarter of 2019.

While we expect that our cash balance at the time of maturity of the ESW Holdings obligation will be sufficient to fund repayment, the use of our then existing cash for this short-term purpose would require us to obtain additional capital to execute our business plan and pursue our growth objectives in the long-term. Accordingly, to fund this short-term capital need, we will need to secure additional capital to repay the term loan at maturity.

We may obtain capital to repay, or to combine with our cash to repay, the term loan with ESW Holdings by incurring indebtedness, from an offering or sales of our equity securities or a combination of any of these. We cannot assure you that additional financing will be available in the amount or at the time we need it, or that it will be available on acceptable terms or at all.

Our expected financing needs to repay the ESW Holdings debt are based upon management estimates as to future revenue, cash flows and expense. Our business plan and financing needs are subject to change based upon, among other factors, our ability to generate revenue and our ability to effectively manage costs. If our estimates of our financing needs change, we may need additional capital more quickly than we expect or we may need a greater amount of capital.

If we cannot timely raise the funds needed to repay the full amount due to ESW Holdings in January 2020, we may be forced to make further substantial reductions in our operating expenses in order to ensure we have sufficient cash to repay ESW Holdings and to continue our business thereafter. Any such substantial reductions in our operating expenses could limit our sales and marketing efforts, adversely affect our ability to attract and retain qualified personnel, limit our ability to develop and enhance our solutions, make it more difficult for us to respond to competitive pressures or unanticipated working capital requirements, and otherwise adversely affect our ability to pursue our growth objectives.

If we fail to repay the ESW Holdings obligations when due, ESW Holdings may exercise its rights and remedies as a secured lender pursuant to the credit agreement and related agreements we have entered into giving ESW Holdings a security interest in substantially all of our properties, rights and assets (including equity interests of our subsidiaries).

Additionally, if we are not able to become cash flow breakeven in the third quarter of 2019 by increasing revenue and controlling expenses, we may need to raise capital in the future to execute our business plan and pursue our growth objectives. We believe the key factors to funding our long-term capital needs will be our ability to increase revenue and bookings and generate significant positive cash flow from our operations. Because of the mandatory prepayment provisions of our credit agreement with ESW Holdings, we will be required to repay the term loan in full before we would be able to use any of the net proceeds from the issuances of equity or debt securities or other loan proceeds to fund any long-term capital needs.

If we raise additional equity financing, our shareholders may experience significant dilution of their ownership interests and the value of shares of our common stock could decline. Our efforts to raise additional funds from the sale of equity may be hampered by the currently depressed trading price of our common stock and low trading volumes. New investors may demand rights, preferences or privileges senior to those of existing holders of common stock. Any additional debt we incur would likely have covenants that would affect the manner in which we conduct our business, including by restricting our ability to incur additional indebtedness, preventing us from creating liens or requiring specified financial covenants. In addition, we may face challenges in securing additional debt financing if our future cash flow from operations is not sufficient to support debt service payments.

We have a history of losses and while our goal is to become cash flow breakeven in the third quarter of 2019, we may not achieve that goal or achieve or sustain cash flows or profitability in the future.

We experienced consolidated net losses of $3.6 million, $11.7 million and $11.2 million for the years ended December 31, 2018, 2017 and 2016, 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 2019. Over the last several years including 2016 and into 2019, we have implemented an ongoing expense reduction program that, when combined with expected revenue performance in 2019, we believe will allow us to attain our goal of becoming cash flow breakeven in the third quarter of 2019.

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 the third quarter of 2019, particularly if the benefits we expect to realize from some of our recent expense reduction efforts do not materialize in the timeframes or the amount of reduction to expenses that we have planned. 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, or we may be required to raise additional capital more quickly than we expect or we may need more capital than we expect.

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 acceptance 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 content to businesses. Qumu occasionally encounters organizations utilizing Microsoft's Skype and Stream technologies. While some view Microsoft as a competitor to Qumu, we believe that the Microsoft and Qumu technologies can be seamlessly integrated for the customer and provide the customer with greater flexibility and improved manageability than use of a Microsoft technology 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, such as our equity award programs, may not always 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 the 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 harm our business.

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;
- 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.

In addition, the use of the Internet as a business tool could be adversely affected due to delays in the development or adoption of new standards and protocols to handle increased demands of Internet activity, security, reliability, cost, ease of use, accessibility, and quality of service. The performance of the Internet and its acceptance as a business tool has been adversely affected by "viruses," "worms" and similar malicious programs and the Internet has experienced a variety of outages and other delays as a result of damage to portions of its infrastructure. If the use of the Internet is adversely affected by these issues, demand for our applications could suffer.

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.

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.

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.

15

As of December 31, 2018, 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;
- 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, 2018, we had 9,624,060 shares of common stock outstanding. The average daily trading volume in our common stock, as reported by the Nasdaq Stock Market, for the 63 trading days beginning October 1, 2018 and ending December 31, 2018 was approximately 17,100 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.

Provisions of Minnesota law, our bylaws and other agreements may deter a change of control of our company and may have a possible negative effect on our stock price.

Certain provisions of Minnesota law, our bylaws and other agreements may make it more difficult for a third-party to acquire, or discourage a third-party from attempting to acquire, control of our company, including:

- the provisions of Minnesota law relating to business combinations and control share acquisitions;
- the provisions of our bylaws regarding the business properly brought before shareholders;

- the right of our board of directors to establish more than one class or series of shares and to fix the relative rights and preferences of any such different classes or series;

- the provisions of our stock incentive plans allowing for the acceleration of vesting or payments of awards granted under the plans in the event of specified events that result in a “change in control”;
- the provisions of our agreements provide for severance payments to our executive officers in the event of certain terminations following a “change in control”; and
- the provisions of our credit agreement requiring prepayment in full of our term loan upon a change in control.

These measures could discourage or prevent a takeover of our company or changes in our management, even if an acquisition or such changes would be beneficial to our shareholders. This may have a negative effect on the price of our common stock.

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	$ 18,000	(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	$ 34,000	(3)	5,500	September 2019
Hyderabad, India	Software development and testing	$ 8,000		4,800	November 2019

(1) Effective January 18, 2019, the lease was amended, resulting in the leased space being reduced from approximately 16,500 square feet to approximately 13,000 square feet, with a corresponding reduction in the monthly rent. The amended agreement has escalating lease payments ranging from approximately $18,000 to $20,000 per month during the course of the lease.

(2) The agreement has escalating lease payments ranging from approximately $15,000 to $17,000 per month during the course of the lease.

(3) Effective January 1, 2018, approximately 2,750 square feet of the leased space was sublet for approximately $12,000 per month through September 2019.

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." The following table sets forth, for the periods indicated, the range of low and high sales prices for Qumu's common stock as reported on The Nasdaq Stock Market.

	Year Ended December 31,			
	2018		2017	
	Low	High	Low	High
First Quarter	$1.45	$2.39	$1.80	$2.97
Second Quarter	$1.67	$2.49	$2.45	$3.23
Third Quarter	$2.18	$2.95	$2.50	$3.12
Fourth Quarter	$1.90	$2.83	$2.08	$3.28

Shareholders

As of March 12, 2019, there were 96 shareholders of record of Qumu's common stock.

Dividends

The Company did not pay a dividend in 2018, 2017 or 2016 and does not expect to pay a dividend in 2019. The payment by Qumu of dividends, if any, on its common stock in the future is subject to the discretion of the Board of Directors and will depend on Qumu's future earnings, financial condition, capital requirements and other relevant factors. Under the Company's January 12, 2018 credit agreement with ESW Holdings, the Company is prohibited from making dividends, distributions or payments on its capital 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, 2018, 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.

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, 2018 was associated with satisfaction of employee tax withholding requirements on vesting of restricted stock awards. Under the credit agreement with ESW Holdings, the Company is prohibited from repurchasing or redeeming its stock, subject to certain exceptions relating to the exercise or vesting of equity awards. Information on the Company's repurchases of its common stock during each month of the fourth quarter ended December 31, 2018, 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	Maximum Number of Shares That May Yet Be purchased

			Plans or Programs	Under the Plans or Programs (at end of period)
October 2018	—	$ —	—	778,365
November 2018	798	$ 2.35	—	778,365
December 2018	2,295	$ 2.16	—	778,365

Other Information Regarding Equity Compensation Plans

The following table sets forth information regarding Qumu's equity compensation plans in effect as of December 31, 2018. 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.

	Securities Authorized for Issuance Under Equity Compensation Plans		
Plan category	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	1,341,750	$ 3.28	527,988
Equity compensation plans not approved by shareholders(2)	100,000	$ 6.62	—
Total	1,441,750	$ 3.51	527,988

____

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

(2) Consists of outstanding non-qualified stock option grant on November 26, 2012 to Vern Hanzlik, the Company’s President and Chief Executive Officer, on the start date of his employment with Qumu. The stock option was granted outside of the Company’s current equity incentive plan, the 2007 Stock Incentive Plan, as “inducement awards” pursuant to Nasdaq Listing Rules. The option has an exercise price equal to the closing price of the Company’s common stock as reported by the Nasdaq Stock Market on the grant date, vests in four equal installments on each of the first four anniversaries of the date of grant and has a term of seven years. In other respects, the option was structured to mirror the terms of options granted under the Company’s 2007 Stock Incentive Plan and is subject to a stock option agreement entered into by and between the Company and the employee.

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

Qumu Corporation ("Qumu" or the "Company") provides solutions businesses use to create, manage, secure, deliver and measure the success of their videos. The Company's innovative solutions release the power of video to engage and empower employees, partners and clients, allowing organizations around the world to realize the greatest possible value from video they create and publish. Whatever the audience size, viewer device or network configuration, the Company's solutions are how business does video.

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, 2018, 2017 and 2016, the Company generated revenues of $25.0 million, $28.2 million and $31.7 million, respectively.

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. From 1995 to 2011, the Company focused its business on the development and sale of its CD recordable publishing systems and DVD recordable publishing systems.

In response to declines in the disc publishing business due to technology substitutions and the rise of video as a communication and collaboration platform, 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 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. (now known as Rimage Corporation). As a result, the disc publishing business was classified as held for sale and qualified for presentation as discontinued operations effective with the reporting of the Company's financial results for the second quarter of 2014.

On October 3, 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 and provides Kulu Valley's customers with access to industry-leading video content management and delivery capability.

The results of the discontinued disc publishing business and associated financial impacts from the sale of this business have been presented as discontinued operations for the year ended December 31, 2016; there were no such financial impacts to the consolidated financial statements for the years ended December 31, 2018 and 2017. No general corporate charges were allocated to the discontinued business. Other than consolidated amounts reflecting operating results and balances for both the continuing and discontinued operations, all remaining amounts presented in the accompanying consolidated financial statements reflect the financial results and financial position of the Company's continuing enterprise video content management software business.

The following discussion of year-to-year changes and trends in financial statement results under "Management's Discussion and Analysis of Financial Condition and Results of Operations" aligns with the financial statement presentation described above.

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 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 single year agreements for thousands of dollars to multi-year agreements for over a million dollars.

The Company follows a five-step model to assess each contract of a sale or service 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.

With the adoption of ASU No. 2014-09, Revenue from Contracts with Customers (Topic 606) and the related amendments ("Topic 606") beginning January 1, 2018, the Company had a change in the accounting for revenue of its on-premise term software license arrangements. Under the Company's previous revenue accounting ("Topic 605"), the term software license and technical support elements of the combined bundle were recognized over time. In contrast, Topic 606 requires the Company to identify the performance obligations in the contract – that is, those promised goods and services (or bundles of promised goods or services) that are distinct – and allocate the transaction price of the contract to those performance obligations on the basis of standalone selling prices. The transaction price allocated to each performance obligation is then recognized either at a point in time or over time using an appropriate measure of progress. Under Topic 606, the Company has concluded that its 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 now recognized upon transfer of control, which is at fulfillment, resulting in earlier revenue recognition. The revenue allocable to technical support continues to be recognized ratably over the non-cancellable committed term of the agreement.

Other items relating to charges collected from customers include shipping and handling charges and sales taxes charges. Shipping and handling 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. Prior to the adoption of Topic 606, these licenses were recognized ratably over the contractual term, beginning on the commencement date of each contract, which is typically the date the Company’s product has been fulfilled. Under the provisions of Topic 606, term software licenses are now 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.

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 1,239,286 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, 2018. 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 in lieu of the Company's common shares. 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 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. 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.

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 generally 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 also 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.

Results of Operations

The percentage relationships to revenues of certain income and expense items for the years ended December 31, 2018, 2017 and 2016, and the percentage changes in these income and expense items between years, are contained in the following table (all amounts presented reflect only the financial results of the Company's continuing enterprise video content management software business):

	Percentage of Revenues			Percent Increase (Decrease)	
	2018	2017	2016	2017 to 2018	2016 to 2017
Revenues	100.0 %	100.0 %	100.0 %	(11)%	(11)%
Cost of revenues	(34.0)	(36.4)	(39.0)	(17)	(17)
Gross profit	66.0	63.6	61.0	(8)	(7)
Operating expenses:					
Research and development	27.9	25.9	27.0	(4)	(15)
Sales and marketing	33.6	35.6	36.4	(16)	(13)
General and administrative	28.5	30.4	30.7	(17)	(12)
Amortization of purchased intangibles	3.6	3.2	2.8	—	1
Total operating expenses	93.6	95.1	96.9	(12)	(13)
Operating loss	(27.6)	(31.5)	(35.9)	(22)	(22)
Other income (expense), net	14.3	(11.4)	(0.2)	(212)	4,765
Loss before income taxes	(13.3)	(42.9)	(36.1)	(73)	6
Income tax expense (benefit)	1.2	(1.3)	(0.8)	(183)	42
Net loss	(14.5)%	(41.6)%	(35.3)%	(69)%	5 %

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)	
	2018	2017	2016	2017 to 2018	2016 to 2017	2017 to 2018	2016 to 2017
Software licenses and appliances	$5,814	$5,982	$5,839	$(168)	$143	(3)%	2 %
Service							

Subscription, maintenance and support	17,132	19,374	21,443	(2,242)	(2,069)	(12)	(10)
Professional services and other	2,067	2,811	4,400	(744)	(1,589)	(26)	(36)
Total service	19,199	22,185	25,843	(2,986)	(3,658)	(13)	(14)
Total revenues	$25,013	$28,167	$31,682	$(3,154)	$(3,515)	(11)%	(11)%

Revenues can vary year to year based on the type of contract the Company enters into with each customer. 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

23

$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 retrospective 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 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.

The $3.5 million decrease in total revenues from 2016 to 2017 reflects a $3.7 million decrease in service revenues, partially offset by a $143,000 increase in software licenses and appliances revenues. The $3.7 million decrease in service revenues from 2016 to 2017 resulted from a $2.1 million decrease in subscription, maintenance and support revenues driven primarily by approximately $800,000 of decreased recurring revenue resulting from the loss of a large customer in the fourth quarter of 2017 and the prior year inclusion of $1.2 million of previously deferred subscription, maintenance and support revenue contingent on a customer's acceptance, which was received in the fourth quarter of 2016. The $1.6 million decrease in professional services revenues was driven by the timing of professional services related to perpetual product license contracts entered into in 2017 and the prior year recognition of $0.4 million of previously deferred professional service revenue contingent on a customer's acceptance, which was received in the fourth quarter of 2016.

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 software license or a SaaS, 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.

Cost of Revenues and Gross Profit

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)	
	2018	2017	2016	2017 to 2018	2016 to 2017	2017 to 2018	2016 to 2017
Gross profit:							
Software licenses and appliances	$3,537	$3,575	$3,365	$(38)	$210	(1)%	6 %
Service	12,983	14,330	15,957	(1,347)	(1,627)	(9)	(10)
Total gross profit	$16,520	$17,905	$19,322	$(1,385)	$(1,417)	(8)%	(7)%
Gross margin:							
Software licenses and appliances	60.8 %	59.8 %	57.6 %	1.0 %	2.2 %		
Service	67.6 %	64.6 %	61.7 %	3.0 %	2.9 %		
Total gross margin	66.0 %	63.6 %	61.0 %	2.4 %	2.6 %		

For the years ended December 31, 2018, 2017 and 2016, gross margins are inclusive of the impact of approximately $1.0 million, $1.2 million and $1.3 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 18, 26 and 28 service personnel at December 31, 2018, 2017 and 2016, respectively. Severance expense included in cost of revenues relating to cost reduction initiatives was $116,000 in 2016 and was insignificant for 2018 and 2017.

Gross margin percentages by category and in total increased for both 2018 and 2017, compared to the respective prior years. 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 and decreased amortization expense as certain purchased intangible assets became fully amortized during 2018.

The 2.6% improvement in gross margin in 2017, compared to 2016, was primarily due to a 2.9% improvement in service gross margin primarily driven by improved economies of scale on increased revenue in software licenses and appliances and a reduction in headcount.

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 2019 is expected to include approximately $0.5 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)	
	2018	2017	2016	2017 to 2018	2016 to 2017	2017 to 2018	2016 to 2017
Operating expenses:							
Research and development	$7,013	$7,279	$8,541	$(266)	$(1,262)	(4)%	(15)%
Sales and marketing	8,394	10,026	11,529	(1,632)	(1,503)	(16)	(13)
General and administrative	7,122	8,567	9,722	(1,445)	(1,155)	(17)	(12)
Amortization of purchased intangibles	904	904	891	—	13	—	1
Total operating expenses	$23,433	$26,776	$30,683	$(3,343)	$(3,907)	(12)%	(13)%

Operating expenses for the year ended December 31, 2018 reflect the continued benefit of cost savings initiatives in 2016 through 2018 across all functional expense categories. Operating expenses for 2018, 2017 and 2016 included severance expense of $237,000, $256,000 and $447,000, respectively, relating the cost reduction initiatives and executive transitions.

Research and development

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

	Year Ended December 31,			Increase (Decrease)		Percent Increase (Decrease)	
	2018	2017	2016	2017 to 2018	2016 to 2017	2017 to 2018	2016 to 2017
Compensation and employee-related	$5,215	$5,475	$6,238	$(260)	$(763)	(5)%	(12)%
Overhead and other expenses	1,211	1,064	1,201	147	(137)	14	(11)
Outside services and consulting	409	473	685	(64)	(212)	(14)	(31)
Depreciation and amortization	28	133	210	(105)	(77)	(79)	(37)
Equity-based compensation	150	134	207	16	(73)	12	(35)
Total research and development expenses	$7,013	$7,279	$8,541	$(266)	$(1,262)	(4)%	(15)%

Total research and development expenses for the years ended December 31, 2018, 2017 and 2016 represented 28%, 26% and 27% of revenues, respectively. The Company had 34, 41 and 61 research and development personnel at December 31, 2018, 2017 and 2016, respectively.

The $266,000 and $1.3 million decreases in total expense in 2018 and 2017, respectively, compared to the corresponding prior years, was driven primarily by less utilization of contractors and lower employee costs due to fewer research and development personnel. Depreciation and amortization expense also decreased during 2018 as certain fixed assets became fully depreciated. Increased hosting service expense included in overhead and other expenses partially offset the decreases in 2018. Research and development expenses for 2018, 2017 and 2016 included severance expense of $61,000, $22,000 and $13,000, respectively, relating to cost reduction initiatives.

Sales and marketing

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

Year Ended December 31,			Increase (Decrease)		Percent Increase (Decrease)	
2018	2017	2016	2017 to 2018	2016 to 2017	2017 to 2018	2016 to 2017

Compensation and employee-related	$6,199	$7,806	$9,175	$(1,607)	$(1,369)	(21)%	(15)%
Overhead and other expenses	1,230	1,046	1,172	184	(126)	18	(11)
Outside services and consulting	802	935	844	(133)	91	(14)	11
Depreciation and amortization	12	58	128	(46)	(70)	(79)	(55)
Equity-based compensation	151	181	210	(30)	(29)	(17)	(14)
Total sales and marketing expenses	$8,394	$10,026	$11,529	$(1,632)	$(1,503)	(16)%	(13)%

Total sales and marketing expenses for the years ended December 31, 2018, 2017 and 2016 represented 34%, 36% and 36% of revenues, respectively. The Company had 27, 33 and 37 sales and marketing personnel at December 31, 2018, 2017 and 2016, respectively.

The $1.6 million and $1.5 million decreases in total expense in 2018 and 2017, respectively, compared to the corresponding prior years, were driven primarily by lower employee costs due to fewer sales and marketing personnel. Sales and marketing expenses for 2018, 2017 and 2016 included severance expense of $111,000, $234,000 and $356,000, respectively, relating to cost reduction initiatives.

General and administrative

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

	Year Ended December 31,			Increase (Decrease)		Percent Increase (Decrease)	
	2018	2017	2016	2017 to 2018	2016 to 2017	2017 to 2018	2016 to 2017
Compensation and employee-related	$2,797	$3,525	$3,920	$(728)	$(395)	(21)%	(10)%
Overhead and other expenses	1,028	1,078	1,708	(50)	(630)	(5)	(37)
Outside services and consulting	2,159	2,404	2,383	(245)	21	(10)	1
Depreciation and amortization	391	724	756	(333)	(32)	(46)	(4)
Equity-based compensation	747	836	955	(89)	(119)	(11)	(12)
Total general and administrative expenses	$7,122	$8,567	$9,722	$(1,445)	$(1,155)	(17)%	(12)%

Total general and administrative expenses for the years ended December 31, 2018, 2017 and 2016 represented 29%, 30% and 31% of revenues, respectively. The Company had 18, 21 and 24 general and administrative personnel at December 31, 2018, 2017 and 2016, respectively.

The $1.4 million and $1.2 million decreases in total expenses in 2018 and 2017, respectively, compared to the corresponding prior years, was driven primarily by lower employee costs due to fewer general and administrative personnel. General and administrative expenses for 2018 and 2016 included severance expense of $65,000 and $78,000, respectively, relating to cost reduction initiatives and executive transition initiatives; no significant severance expense was incurred in 2017.

Amortization of Purchased Intangibles

Operating expenses include $904,000, $904,000 and $891,000 in 2018, 2017 and 2016, 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 2019 are expected to include approximately $0.8 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)	
	2018	2017	2016	2017 to 2018	2016 to 2017	2017 to 2018	2016 to 2017
Gain on sale of BriefCam, Ltd.	$6,602	$—	$—	$6,602	$—	n/a	n/a
Loss on extinguishment of debt	(1,189)	—	—	(1,189)	—	n/a	n/a
Interest expense, net	(1,809)	(2,852)	(287)	1,043	(2,565)	(37)%	894 %
Decrease in fair value of warrant liability	368	74	137	294	(63)	397	(46)
Other, net	(378)	(433)	84	55	(517)	(13)	(615)
Total other income (expense), net	$3,594	$(3,211)	$(66)	$6,805	$(3,145)	(212)%	4,765 %

As of December 31, 2017, the Company held an investment 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.

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. Under the term loan credit agreement, any voluntary prepayment by the Company from the net proceeds received from the disposition of the Company’s investment in BriefCam will not trigger a prepayment fee. 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.

The Company recognized interest expense on its term loans and capital leases of $1.8 million, $2.9 million and $287,000 in 2018, 2017 and 2016, respectively, which includes the accrual of interest on the Company's term loans, as well as the amortization of deferred financing costs. During 2017, concurrent with the Company's modification its term loan credit agreement with Hale Capital Partners, LP, 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. In connection with this refinancing plan, upon loan modification, the Company accelerated the amortization of deferred financing costs by recognizing the unamortized deferred financing costs over the expected remaining term of the Hale credit agreement. As a result of the loan modification, the Company had unamortized debt discount and debt issuance costs of $2.0 million on November 6, 2017, of which it 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.

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, 2018. 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 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. 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. During 2018, 2017 and 2016, the Company recorded a non-cash gain from the change in fair value of the warrant liability of $368,000, $74,000 and $137,000, respectively. These gains resulted from changes in inputs for 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 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 income (expense) 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. Subsequent to December 31, 2018, 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 one of its two office spaces in London, England was no longer needed and, in December 2017, ceased using the leased 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. Accordingly, the Company recorded a liability at fair value of $194,000, which is reported in accrued liabilities as of December 31, 2017, for the future contractual lease payments, net of expected sublease receipts. The Company also recorded a loss related to the exit activity of $72,000, which is included in other income (expense) for the year ended December 31, 2017.

Other income also included the net gains (losses) on foreign currency transactions of $(55,000), $(356,000) and $162,000 in 2018, 2017 and 2016, 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 expense was $298,000 for the year ended December 31, 2018 and net income tax benefit was $358,000 and $252,000 for the years ended December 31, 2017 and 2016, respectively.

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 that will affect 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). The SEC issued Staff Accounting Bulletin No. 118, which allows companies to record reasonable estimates of enactment impacts where the underlying analysis and calculations are not yet complete. As of December 31, 2018, the impacts of The Act have been finalized. 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 expense for the year ended December 31, 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 in 2017 is primarily attributable to provisional estimates recorded as a result of the Tax Act and to research credits from UK operations. Income tax benefit in 2016 is primarily attributable to research credits from UK 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,	
	2018	2017
Cash and cash equivalents	$8,636	$7,690
Working capital	$865	$(1,467)
Financing obligations	$209	$1,050
Term loan	3,431	7,605
Financing obligations and term loan	$3,640	$8,655

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, which includes the proceeds of the debt financing completed in the first quarter of 2018 and proceeds received in July 2018 from the sale of the Company’s interest in BriefCam, as well as any cash flows that may be generated from current operations. Based on expected revenue performance and continued management of expenses, the Company expects that it will be cash flow breakeven in the third quarter of 2019. The Company expects that it will be able repay the principal and accrued interest due to ESW Holdings on January 10, 2020, and, as required, the Company would secure a facility sufficient to meet working capital requirements. If the Company is unable to meet its revenue expectations or secure an alternative facility, it is positioned to further reduce costs to mitigate the impact on its cash reserves for at least the next 12 months.

At December 31, 2018, the Company had aggregate positive working capital of $865,000, up $2.3 million from negative working capital of $1.5 million at December 31, 2017. Working capital includes current deferred revenue of $9.7 million and $8.9 million at December 31, 2018 and December 31, 2017, respectively. The primary contributor to the change in working capital was the increase in cash and cash equivalents by $946,000 driven by $9.8 million of proceeds received from the from the sale of the Company's investment in BriefCam and strong cash collections of accounts receivable, offset by a $6.5 million principal and accrued interest payment on the Company's term loan with HCP-FVD, LLC and a $6.9 million operating loss for the year ended December 31, 2018.

Financing obligations consist of capital leases related to the acquisition of computer and network equipment and furniture and other financing obligations.

As of December 31, 2017, the Company had a $8.0 million term loan with HCP-FVD, LLC, as lender and Hale Capital Partners, LP, as administrative agent, under a term loan credit agreement dated as of October 21, 2016. The term loan was paid in full upon the execution of a $10.0 million credit agreement with ESW Holdings, Inc. on January 12, 2018. The Company used $8.8 million of the $10.0 million term loan proceeds provided through the credit agreement with ESW Holdings, Inc. to pay all outstanding obligations to and terminate the term loan credit agreement with HCP-FVD.

On July 19, 2018, the Company paid $6.5 million on its outstanding credit agreement with ESW Holdings. 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 proceeds from the sale of its investment in BriefCam to fund the prepayment. Under the term loan credit agreement, any voluntary prepayment by the Company from the net proceeds received from the disposition of the Company’s investment in BriefCam will not trigger a prepayment fee.

Following the Company's $6.0 million principal payment during the year ended December 31, 2018, the term loan with ESW Holdings, Inc. has outstanding principal of $4.0 million that is due and payable in full on January 10, 2020. Interest accrues and compounds monthly at a variable rate per annum equal to the prime rate plus 4%. As of December 31, 2018, interest accrued at 9.50% and accrued and unpaid interest was $172,000.

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. 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 $1.9 million as of December 31, 2018. 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.

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

	Year Ended December 31,		
	2018	2017	2016
Cash flows from (used in):			
Operating activities	$(2,843)	$(2,012)	$(9,484)
Investing activities	9,651	(24)	6,174
Financing activities	(5,743)	(747)	6,956
Effect of exchange rate changes on cash	(119)	109	(354)
Net change in cash and cash equivalents	$946	$(2,674)	$3,292
Net change in marketable securities and restricted cash	$—	$—	$(6,249)

Operating activities

Net cash used in operating activities was $2.8 million for 2018 compared to $2.0 million in 2017. The change in operating cash flows for 2018 as compared to 2017 was primarily due to the unfavorable impacts of changes in receivables and accounts payable and other accrued liabilities, offset by a favorable change in deferred revenue. The change in operating cash flows for the 2017 period as compared to the 2016 period was due to the reduction the Company's operating loss and the favorable impacts of changes in accounts payable and other accrued liabilities, deferred revenue, prepaid expenses and other current assets, and accrued compensation.

Investing activities

Net cash provided by investing activities from the sale of the Company's investment in BriefCam totaled $9.8 million in 2018. Net cash used in investing activities for the purchases of property and equipment totaled $127,000 in 2018 compared to $24,000 in 2017. The $6.2 million cash provided by investing activities in 2016 resulted from maturities of marketable securities of $6.3 million, net of related purchases, partially offset by purchases of property and equipment of $76,000.

Financing activities

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 HCP-FVD term loan of $8.0 million and a debt 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 HCP-FVD term loan. 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 Company's HCP-FVD credit agreement of $225,000. Financing activities provided $7.0 million of cash in the comparable period in 2016, primarily from net proceeds from the debt financing of $7.5 million, offset in part by cash used for payments on financing obligations of $513,000.

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, 2018, 2017 and 2016. As of December 31, 2018, 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 ESW Holdings credit agreement, the Company is prohibited from repurchasing or redeeming its stock, subject to certain exceptions for relating to the exercise or vesting of equity awards.

The Company did not declare or pay any dividends during the years ended December 31, 2018, 2017 and 2016. Under the ESW Holdings credit agreement, the Company is prohibited from declaring or paying any dividends.

Contractual Obligations. The following table summarizes the Company's contractual cash obligations at December 31, 2018, 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.

(In thousands)	Payments Due by Period						
Contractual Obligations	2019	2020	2021	2022	2023	Thereafter	Total
Term loan[(1)]	$—	$4,552	$—	$—	$ —	$ —	$4,552
Operating leases	564	433	441	399	21	—	1,858
Capital leases and other financing obligations [(2)]	156	37	26	—	—	—	219
Purchase obligations[(3)]	232	16	43	43	—	—	334
Income tax liabilities under ASC 740 [(4)]	—	—	—	—	—	—	—
Total contractual cash obligations	$952	$5,038	$510	$442	$ 21	$ —	$6,963

(1) Amounts include principal and accrued interest payments as set forth in the Company's credit agreement with ESW Holdings, Inc. dated January 12, 2018.

(2) Amounts include principal and interest.

(3) 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.

(4) The Company does not currently expect any income tax liabilities accrued under ASC 740 as of December 31, 2018 to be paid to the applicable tax authorities in 2019. The full balance of unrecognized tax benefits under ASC 740 of $1.7 million at December 31, 2018, 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.

New Accounting Pronouncements

In February 2016, the FASB issued ASU 2016-02, Leases, which will supersede the existing lease guidance and will require all leases with a term greater than 12 months to be recognized in the statements of financial position and eliminate current real estate-specific lease guidance, while maintaining substantially similar classification criteria for distinguishing between finance leases and operating leases. The FASB subsequently issued ASU 2018-10 and ASU 2018-11 in July 2018, which provide clarifications and improvements to ASU 2016-02 (collectively, the “new lease standard”). ASU 2018-11 also provides the optional transition method, which allows companies to apply the new lease standard at the adoption date instead of at the earliest comparative period presented.

The new lease standard is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2018, with early adoption permitted and requires using the modified retrospective approach. The Company plans to use the alternative modified retrospective method of adoption permitted pursuant to ASU 2018-11, whereby financial information will not be updated, and the disclosure required under the new lease standard will not be provided, for dates and periods before January 1, 2019. In addition, the Company expects to elect 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. However, the Company does not expect to adopt the hindsight practical expedient, and therefore expects to continue to utilize lease terms determined under existing lease guidance.

To date, the Company has developed a project plan to guide the implementation of the new lease standard and has made progress on this plan, including assessing the Company's portfolio of leases and compiling information on active leases. Additionally, the Company implemented a lease accounting software to facilitate adoption of the standard and is currently installing, configuring and testing the software.

While the Company is still evaluating the impact on its consolidated financial statements of adopting this standard, it expects to recognize, upon adoption, right-of-use assets of approximately $1.0 million to $1.3 million and lease liabilities of $1.6 million and $1.9 million. The difference between the assets and liabilities will primarily be attributable to the reclassification of certain existing lease-related assets and liabilities as an adjustment to the right-of-use assets. The Company does not expect the adjustment under the modified retrospective approach to accumulated deficit as of January 1, 2019 to be material. Additionally, the Company does not expect the adoption of the new lease guidance to have a material impact on its consolidated statements of operations or cash flows, or compliance with debt covenants.

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

	Page in Annual Report on Form 10-K For Year Ended December 31, 2018
Report of Independent Registered Public Accounting Firm	33
Consolidated Balance Sheets	34
Consolidated Statements of Operations	35
Consolidated Statements of Comprehensive Income (Loss)	36
Consolidated Statements of Stockholders’ Equity	37
Consolidated Statements of Cash Flows	38
Notes to Consolidated Financial Statements	40

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 sheets of Qumu Corporation and subsidiaries (the Company) as of December 31, 2018 and 2017, the related consolidated statements of operations, comprehensive income (loss), stockholders' equity, and cash flows for each of the years in the three 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 2017, and the results of its operations and its cash flows for each of the years in the three 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 FASB Accounting Standards Codification (Topic 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. 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 audits, 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 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 have served as the Company's auditor since 1989.
Minneapolis, Minnesota
March 15, 2019

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

	December 31, 2018	2017
Assets		
Current assets:		
Cash and cash equivalents	$8,636	$7,690
Receivables, net	6,278	5,529
Contract assets	485	—
Income tax receivable	327	156
Prepaid expenses and other current assets	2,192	1,830
Total current assets	17,918	15,205
Property and equipment, net	545	911
Intangible assets, net	4,247	6,295
Goodwill	6,971	7,390
Deferred income taxes, non-current	55	77
Other assets, non-current	544	4,398
Total assets	$30,280	$34,276
Liabilities and Stockholders’ Equity		
Current liabilities:		
Accounts payable and other accrued liabilities	$2,838	$3,878
Accrued compensation	1,548	1,824
Deferred revenue	9,672	8,923
Deferred rent	45	181
Financing obligations	152	1,047
Warrant liability	2,798	819
Total current liabilities	17,053	16,672
Long-term liabilities:		
Deferred revenue, non-current	1,672	141
Income taxes payable, non-current	563	3
Deferred tax liability, non-current	2	153
Deferred rent, non-current	302	507
Financing obligations, non-current	57	3
Term loan, non-current	3,431	7,605
Other non-current liabilities	195	—
Total long-term liabilities	6,222	8,412
Total liabilities	23,275	25,084
Commitments and contingencies (Note 5)		
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 9,624,060 and 9,364,804, respectively	96	94
Additional paid-in capital	69,072	68,035
Accumulated deficit	(58,875)	(56,197)
Accumulated other comprehensive loss	(3,288)	(2,740)
Total stockholders’ equity	7,005	9,192
Total liabilities and stockholders’ equity	$30,280	$34,276

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,		
	2018	2017	2016
Revenues:			
Software licenses and appliances	$5,814	$5,982	$5,839
Service	19,199	22,185	25,843
Total revenues	25,013	28,167	31,682
Cost of revenues:			
Software licenses and appliances	2,277	2,407	2,474
Service	6,216	7,855	9,886
Total cost of revenues	8,493	10,262	12,360
Gross profit	16,520	17,905	19,322
Operating expenses:			
Research and development	7,013	7,279	8,541
Sales and marketing	8,394	10,026	11,529
General and administrative	7,122	8,567	9,722
Amortization of purchased intangibles	904	904	891
Total operating expenses	23,433	26,776	30,683
Operating loss	(6,913)	(8,871)	(11,361)
Other income (expense):			
Gain on sale of BriefCam, Ltd.	6,602	—	—
Loss on extinguishment of debt	(1,189)	—	—
Interest expense, net	(1,809)	(2,852)	(287)
Decrease in fair value of warrant liability	368	74	137
Other, net	(378)	(433)	84
Total other income (expense), net	3,594	(3,211)	(66)
Loss before income taxes	(3,319)	(12,082)	(11,427)
Income tax expense (benefit)	298	(358)	(252)
Net loss	$(3,617)	$(11,724)	$(11,175)
Net loss per share – basic:			
Net loss per share – basic	$(0.38)	$(1.25)	$(1.21)
Weighted average shares outstanding – basic	9,499	9,347	9,232
Net loss per share – diluted:			
Loss attributable to common shareholders	$(3,778)	$(11,724)	$(11,312)
Net loss per share – diluted	$(0.39)	$(1.25)	$(1.23)
Weighted average shares outstanding – diluted	9,606	9,347	9,232

See accompanying notes to consolidated financial statements.

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

	Year Ended December 31,		
	2018	2017	2016
Net loss	$(3,617)	$(11,724)	$(11,175)
Other comprehensive income (loss):			
Net change in foreign currency translation adjustments	(543)	1,167	(2,387)
Change in net unrealized loss on marketable securities, net of tax	—	—	1
Total other comprehensive income (loss)	(543)	1,167	(2,386)
Total comprehensive loss	$(4,160)	$(10,557)	$(13,561)

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, 2015	9,189	$ 92	$ 65,484	$ (33,298)	$ (1,521)	$ 30,757
Net loss	—	—	—	(11,175)	—	(11,175)
Other comprehensive loss, net of taxes	—	—	—	—	(2,386)	(2,386)
Issuance of restricted stock	45	—	—	—	—	—
Redemption of stock to cover tax withholding for employee stock plans	(7)	—	(26)	—	—	(26)
Net tax reductions relating to expiration of stock options	—	—	(15)	—	—	(15)
Stock-based compensation	—	—	1,421	—	—	1,421
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 restricted stock	144	2	(2)	—	—	—
Redemption of stock to cover tax withholding for employee stock plans	(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 restricted stock	277	2	(12)	—	—	(10)
Redemption of stock to cover tax withholding for employee stock plans	(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

See accompanying notes to consolidated financial statements.

37

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

	Year Ended December 31,		
	2018	2017	2016
Operating activities:			
Net loss	$(3,617)	$(11,724)	$(11,175)
Adjustments to reconcile net loss to net cash used in continuing operating activities:			
Depreciation and amortization	2,366	3,045	3,303
Stock-based compensation	1,082	1,190	1,421
Accretion of debt discount and issuance costs	1,321	2,013	152
Loss on disposal of property and equipment	—	—	4
Gain on sale of BriefCam, Ltd.	(6,602)	—	—
Loss on debt extinguishment	1,189	—	—
Loss on lease contract termination	177	72	—
Decrease in fair value of warrant liability	(368)	(74)	(137)
Deferred income taxes	(131)	(166)	(229)
Changes in operating assets and liabilities:			
Receivables	(786)	2,101	3,244
Contract assets	65	—	—
Income taxes receivable / payable	375	167	266
Prepaid expenses and other assets	449	1,166	(138)
Accounts payable and other accrued liabilities	(1,196)	1,656	(1,406)
Accrued compensation	(263)	(574)	(1,575)
Deferred revenue	3,092	(573)	(2,673)
Deferred rent	(144)	(311)	(265)
Other non-current liabilities	148	—	(226)
Net cash used in continuing operating activities	(2,843)	(2,012)	(9,434)
Net cash used in discontinued operating activities	—	—	(50)
Net cash used in operating activities	(2,843)	(2,012)	(9,484)
Investing activities:			
Proceeds from sale of BriefCam, Ltd.	9,778	—	—
Sales and maturities of marketable securities	—	—	6,250
Purchases of property and equipment	(127)	(24)	(76)
Net cash provided by (used in) investing activities	9,651	(24)	6,174
Financing activities:			
Proceeds from term loan and warrant issuance	10,000	—	8,000
Principal payments on term loans	(14,000)	—	—
Payments for term loan and warrant issuance costs	(1,308)	(225)	(505)
Principal payments on capital lease obligations	(402)	(505)	(513)
Common stock repurchases to settle employee withholding liability	(33)	(17)	(26)
Net cash provided by (used in) financing activities	(5,743)	(747)	6,956
Effect of exchange rate changes on cash	(119)	109	(354)
Net increase (decrease) in cash and cash equivalents	946	(2,674)	3,292
Cash and cash equivalents, beginning of year	7,690	10,364	7,072
Cash and cash equivalents, end of year	$8,636	$7,690	$10,364

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,		
	2018	2017	2016
Supplemental disclosures of net cash paid (received) during the year:			
Income taxes	$52	$(190)	$22
Interest	$505	$853	$211
Non-cash investing and financing activities:			
Financing obligations related to prepaid expenses and other assets	$264	$73	$182
Financing obligations related to property and equipment	$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 tools 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.
The Company previously conducted its operations through two businesses consisting of 1) its enterprise video content management software business and 2) its disc publishing business. On June 27, 2014, the Company's shareholders approved the sale of the disc publishing assets and on July 1, 2014, the sale was completed. The results of the discontinued disc publishing business and associated financial impacts from the sale of this business have been presented as discontinued operations in the statement of cash flows for the year ended December 31, 2016; there were no such financial impacts to the consolidated financial statements for the years ended December 31, 2018 and 2017. Accordingly, effective June 27, 2014, the Company had one remaining reportable segment, the enterprise video content management software business. All remaining amounts presented in the accompanying consolidated financial statements and notes reflect the financial results and financial position of the Company's continuing enterprise video content management software business.
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 $2.8 million at December 31, 2018 is based on the Company's estimates of assumptions that market participants would use in pricing the liabilities (Level 3 inputs; see Note 6–"Fair Value Measurements"); and a term loan having a carrying value of $3.4 million at December 31, 2018, for which the fair value of $3.4 million at December 31, 2018 is estimated using a discounted cash flow analysis based on the Company's current incremental borrowing rate and the contractual terms of the loan (Level 2 inputs; see Note 4–"Commitments and Contingencies").
Revenue Recognition
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

single year agreements for thousands of dollars to multi-year agreements for over a million dollars.

The Company follows a five-step model to assess each contract of a sale or service 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.

With the adoption of Topic 606 (defined herein under "Recently Adopted Accounting Standards") beginning January 1, 2018, the Company had a change in the accounting for revenue of its on-premise term software license arrangements. Under the Company's previous revenue accounting, the term software license and technical support elements of the combined bundle were recognized over time. In contrast, Topic 606 requires the Company to identify the performance obligations in the contract – that is, those promised goods and services (or bundles of promised goods or services) that are distinct – and allocate the transaction price of the contract to those performance obligations on the basis of standalone selling prices. The transaction price allocated to each performance obligation is then recognized either at a point in time or over time using an appropriate measure of progress. Under Topic 606, the Company has concluded that its 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 now recognized upon transfer of control, which is at fulfillment, resulting in earlier revenue recognition. The revenue allocable to technical support continues to be recognized ratably over the non-cancellable committed term of the agreement.

Other items relating to charges collected from customers include shipping and handling charges and sales taxes charges. Shipping and handling 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 $527,000 and $309,000 at December 31, 2018 and 2017, respectively. Deferred commission costs in other assets, non-current were $33,000 and $46,000 at December 31, 2018 and 2017, respectively. The Company recognized commissions expense of $1.3 million and $1.7 million during the years ended December 31, 2018 and 2017, 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. As of December 31, 2017, cash and cash equivalents included certain funds required to be segregated for debt repayment. Such funds were under the Company's control as of December 31, 2017 and were subsequently released from such requirement upon the Company's refinancing of its term loan on January 12, 2018, as described in Note 5–"Commitments and Contingencies."

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,		
Allowance for Doubtful Accounts:	2018	2017	2016
Balance at beginning of year	$21	$34	$24
Write-offs	—	(11)	(11)
Change in provision	40	(2)	21
Balance at end of year	$61	$21	$34

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 $191,000 and $227,000 as of December 31, 2018 and 2017, 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, 2018, 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."

42

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, 2018. 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 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.

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 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. 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 charged to research and development expense 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 also 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 gains (losses) on foreign currency transactions for the years ended December 31, 2018, 2017 and 2016 were $(55,000), $(356,000) and $162,000, 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, options and restricted stock units. 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 warrants that are classified as a liability but may be settled in shares. For the years ended December 31, 2018 and 2016, 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

Revenue from Contracts with Customers

On January 1, 2018, the Company adopted ASU No. 2014-09, Revenue from Contracts with Customers (Topic 606) and the related amendments ("Topic 606") using the modified retrospective transition method. Under this method, the Company evaluated contracts that were in effect at the beginning of fiscal 2018 as if those contracts had been accounted for under Topic 606. The Company did not evaluate individual modifications for those periods prior to the adoption date, but the aggregate effect of all modifications as of the adoption date and such effects are provided below. Under the modified retrospective transition approach, periods prior to the adoption date were not adjusted and continue to be reported in accordance with historical, pre-Topic 606 accounting. A cumulative catch up adjustment was recorded to beginning accumulated deficit to reflect the impact of all existing arrangements under Topic 606.

At the adoption date, the Company adjusted accumulated deficit by $939,000, primarily driven by uncompleted contracts for which revenue will not be recognized in future periods under Topic 606, partially offset by the incremental originating costs associated with those contracts. The cumulative effect of the changes made to our January 1, 2018 consolidated balance sheet from the modified retrospective adoption of Topic 606 is as follows (in thousands):

	December 31, 2017	Adjustments	January 1, 2018
Assets:			
Contract assets	$ —	$ 550	$ 550
Prepaid expenses and other current assets	1,830	(99)	1,731
Other assets, non-current	4,398	(10)	4,388
Liabilities:			
Deferred revenue	8,923	(493)	8,430
Deferred revenue, non-current	141	—	141
Stockholders' equity:			
Accumulated deficit	(56,197)	939	(55,258)
Accumulated other comprehensive loss	(2,740)	(5)	(2,745)

The most significant impact of the adoption of Topic 606 was on the Company's term software licenses that, under the Company's previous revenue accounting ("Topic 605"), would have continued to be recognized into revenue ratably in 2018 and beyond. However, under Topic 606 the standalone selling price attributable to the license is recognized upon transfer of control resulting in up-front recognition, typically upon fulfillment. The timing of revenue recognition for perpetual software licenses, hardware, and professional services remains substantially unchanged. See Note 8–"Revenue" for the Company's revenue recognition policy after the adoption of Topic 606.

Revenue generated under Topic 606 was $201,000 higher than revenue would have been under Topic 605 for the year ended December 31, 2018. The following table summarizes the effects of adopting Topic 606 on the Company's consolidated statement of operations and comprehensive income (loss) for the year ended December 31, 2018:

	Year Ended December 31, 2018		
	As reported under Topic 606	Adjustments	Balances without adoption of Topic 606
Revenues	$25,013	$ (201)	$24,812
Cost of revenues	8,493	33	8,526
Sales and marketing	8,394	62	8,456
Net loss	(3,617)	(296)	(3,913)
Net change in foreign currency translation adjustments	(543)	15	(528)
Total comprehensive loss	(4,160)	(281)	(4,441)

The following table summarizes the effects of adopting Topic 606 on the Company's consolidated balance sheet as of December 31, 2018:

	December 31, 2018		
	As reported under Topic 606	Adjustments	Balances without adoption of Topic 606
Assets:			
Contract assets	485	(485)	—

Prepaid expenses and other current assets	2,192	13	2,205
Other assets, non-current	544	1	545
Liabilities:			
Deferred revenue	9,672	768	10,440
Deferred revenue, non-current	1,672	(24)	1,648
Stockholders’ equity:			
Accumulated deficit	(58,875)	(1,235)	(60,110)
Accumulated other comprehensive loss	(3,288)	20	(3,268)

The Company’s net cash used in operating activities for the year ended December 31, 2018 did not change due to the adoption of Topic 606. The following table summarizes the effects of adopting Topic 606 on the financial statement line items of the Company’s consolidated statement of cash flows for the year ended December 31, 2018:

	Year Ended December 31, 2018		
	As reported under Topic 606	Adjustments	Balances without adoption of Topic 606
Operating activities:			
Net loss	$(3,617)	$ (296)	$(3,913)
Adjustments to reconcile net loss to net cash used in operating activities:			
Changes in operating assets and liabilities:			
Contract assets	65	(65)	—
Prepaid expenses and other assets	449	95	544
Deferred revenue	3,092	266	3,358

Financial Instruments

In January 2016, the FASB issued ASU 2016-01, Financial Instruments – Overall, which the Company adopted on January 1, 2018, modifying its accounting and required disclosures for its equity investment previously accounted for under the cost basis method of accounting.

The Company’s equity investment consisted of its investment totaling $3.1 million in convertible preferred stock of privately-held BriefCam, Ltd. (“BriefCam”), as described in Note 4–"Investment in Software Company," which is included in other assets in the consolidated balance sheets as of December 31, 2017. The new standard eliminated the cost method of accounting for investments in equity securities that do not have readily determinable fair values and permits the election of a measurement alternative that allows such securities to be 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. The Company adopted the provisions of the new standard applicable to its investment in BriefCam on a prospective basis and elected the measurement alternative for non-marketable investments previously accounted for under the cost method of accounting.

On July 6, 2018, the Company sold its investment in BriefCam, which had a carrying value of $3.1 million as of December 31, 2017, resulting in a gain on sale of $6.6 million during the year ended December 31, 2018. From the date of adoption of the new accounting standard 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.

Income Taxes

In March 2018, the Company adopted ASU 2018-05, Income Taxes (Topic 740): Amendments to SEC Paragraphs Pursuant to SEC Staff Accounting Bulletin No. 118, which updates the income tax accounting in U.S. GAAP to reflect the SEC interpretive guidance released on December 22, 2017, when the Tax Cuts and Jobs Act of 2017 was signed into law. Additional information regarding the adoption of this standard is contained in Note 11–"Income Taxes."

Accounting Standards Not Yet Adopted

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 February 2018, the FASB issued 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). This guidance is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2018, with early adoption permitted during interim or annual periods. The Company does not believe the impact of adopting this standard will be material to its consolidated financial statements.

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, 2019. The Company does not believe the impact of adopting this standard will be material to its consolidated financial statements.

In February 2016, the FASB issued ASU 2016-02, Leases, which will supersede the existing lease guidance and will require all leases with a term greater than 12 months to be recognized in the statements of financial position and eliminate current real estate-specific lease guidance, while maintaining substantially similar classification criteria for distinguishing between finance leases and operating leases. The FASB subsequently issued ASU 2018-10 and ASU 2018-11 in July 2018, which provide clarifications and improvements to ASU 2016-02 (collectively, the "new lease standard"). ASU 2018-11 also provides the optional transition method, which allows companies to apply the new lease standard at the adoption date instead of at the earliest comparative period presented.

The new lease standard is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2018, with early adoption permitted and requires using the modified retrospective approach. The Company plans to use the alternative modified retrospective method of adoption permitted pursuant to ASU 2018-11, whereby financial information will not be updated, and the disclosure required under the new lease standard will not be provided, for dates and periods before January 1, 2019. In addition, the Company expects to elect 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. However, the Company does not expect to adopt the hindsight practical expedient, and therefore expects to continue to utilize lease terms determined under existing lease guidance.

To date, the Company has developed a project plan to guide the implementation of the new lease standard and has made progress on this plan, including assessing the Company's portfolio of leases and compiling information on active leases. Additionally, the Company implemented a lease accounting software to facilitate adoption of the standard, and is currently installing, configuring and testing the software.

While the Company is still evaluating the impact on its consolidated financial statements of adopting this standard, it expects to recognize, upon adoption, right-of-use assets of approximately $1.0 million to $1.3 million and lease liabilities of $1.6 million and $1.9 million. The difference between the assets and liabilities will primarily be attributable to the reclassification of certain existing lease-related assets and liabilities as an adjustment to the right-of-use assets. The Company does not expect the adjustment under the modified retrospective approach to accumulated deficit as of January 1, 2019 to be material. Additionally, the Company does not expect the adoption of the new lease guidance to have a material impact on its consolidated statements of operations or cash flows, or compliance with debt covenants.

2) Property and Equipment

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

	December 31,	
	2018	2017
Computer, network equipment and furniture	$2,565	$3,681
Leasehold improvements	789	1,908
Total property and equipment	3,354	5,589
Less accumulated depreciation and amortization	(2,809)	(4,678)
Total property and equipment, net	$545	$911

Depreciation and amortization expense associated with property and equipment was $438,000, $944,000 and $1.2 million for the years ended December 31, 2018, 2017 and 2016, respectively.

3) Intangible Assets and Goodwill

Intangible Assets

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

	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

	December 31, 2017			
	Customer Relationships	Developed Technology	Trademarks / Trade-Names	Total
Original cost	$4,928	$ 8,225	$ 2,184	$15,337
Accumulated amortization	(2,194)	(6,043)	(805)	(9,042)
Net identifiable intangible assets	$2,734	$ 2,182	$ 1,379	$6,295

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

	Year Ended December 31,		
	2018	2017	2016
Amortization expense associated with the developed technology included in cost of revenues	$1,024	$1,197	$1,251
Amortization expense associated with other acquired intangible assets included in operating expenses	904	904	891
Total amortization expense	$1,928	$2,101	$2,142

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

Year Ending December 31,	
2019	$1,210
2020	938
2021	732
2022	539
2023	298
Thereafter	530
Total	$4,247

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 $7.0 million at December 31, 2018 reflects the impact of foreign currency exchange rate fluctuations since the acquisition date.

As of December 31, 2018, 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) 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., 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 $9,678,000 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 the year ended December 31, 2018.

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 is taxable in the U.S. and is offset for federal income tax purposes by current or prior-year tax losses but is subject to applicable state income taxes. The gain on sale is not taxable in Israel.

5) Commitments and Contingencies

Leases and Other Financing Obligations

Balances for assets acquired under capital lease obligations and included in property and equipment were as follows (in thousands):

	December 31,	
	2018	2017
Computer and network equipment	$609	$511
Furniture	287	287
Assets acquired under capital lease obligations	896	798
Accumulated depreciation	(763)	(613)
Assets acquired under capital lease obligations, net	$133	$185

The current and long-term portions of capital leases and other financing obligations were as follows (in thousands):

	December 31,	
	2018	2017
Capital leases and other financing obligations, current	$152	$1,047
Capital leases and other financing obligations, noncurrent	57	3
Total capital leases and other financing obligations	$209	$1,050

The Company leases certain of its facilities and some of its equipment under non-cancellable operating lease arrangements. The rental payments under these leases are charged to expense on a straight-line basis over the non-cancellable term of the lease. Future minimum payments under capital lease obligations, other financing obligations, and non-cancellable operating leases, excluding property taxes and other operating expenses as of December 31, 2018 are as follows (in thousands):

	Capital leases and other financing obligations	Operating leases	Total
Years ending December 31,			
2019	$ 156	$ 564	$720

2020	37	433	470
2021	26	441	467
2022	—	399	399
2023	—	21	21
Thereafter	—	—	—
Total minimum lease payments	219	$ 1,858	$2,077
Less amount representing interest	(10)		
Present value of net minimum lease payments	$ 209		

49

Rent expense under operating leases was $899,000, $1.3 million and $1.3 million for the years ended December 31, 2018, 2017 and 2016, respectively.

Lease Contract Termination

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 income (expense) 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. Subsequent to December 31, 2018, 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 one of its two office spaces in London, England was no longer needed and, in December 2017, ceased using the leased 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. Accordingly, the Company recorded a liability at fair value of $194,000, which is reported in accrued liabilities as of December 31, 2017, for the future contractual lease payments, net of expected sublease receipts. The Company also recorded a loss related to the exit activity of $72,000, which is included in other income (expense) for the year ended December 31, 2017.

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

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

Term Loans

The Company's term loans are reported in the consolidated balance sheets as follows (in thousands):

	December 31, 2018	December 31, 2017
Term loan, at face value	$ 4,000	$ 8,000
Unamortized original issue discount	(481)	(121)
Unamortized debt issuance costs	(88)	(274)
Term loan	$ 3,431	$ 7,605

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 the Hale term note plus a 10% prepayment penalty of $800,000 on January 12, 2018.

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 to fund the prepayment. Under the term loan credit agreement, any voluntary prepayment by the Company from the net proceeds received from the disposition of the Company's investment in BriefCam will not trigger a prepayment fee. 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.

The term loan is scheduled to mature on January 10, 2020. Interest accrues and compounds monthly at a variable rate per annum equal to the prime rate plus 4.0%. As of December 31, 2018, interest was payable at 9.50%. The Company may prepay the term loan at any time with the payment of a prepayment fee of 10% of the amount prepaid. However, no prepayment fee will be incurred for any prepayment made from the proceeds of the Company's sale of its investment in BriefCam.

The term loan had an estimated fair value of $3.4 million as of December 31, 2018. The fair value of the term loan is estimated using a discounted cash flow analysis based on the Company's current incremental borrowing rate. As the contractual terms of the loan provide all the necessary inputs for this calculation, the term loan is classified as Level 2 within the fair value hierarchy. The estimated fair value is not necessarily indicative of the amount that would be realized in a current market exchange.

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, 2018. See Note 6–"Fair Value Measurements" for further discussion of the warrant.

Credit Agreement – Hale Capital Partners, LP

The term loan balance as of December 31, 2017 consisted of a term loan credit agreement (the "Hale credit agreement") with HCP-FVD, LLC as lender and Hale Capital Partners, LP as administrative agent, under which the Company borrowed $8.0 million as a term loan on October 21, 2016. The term loan was scheduled to mature on October 21, 2019 and required payment of interest monthly at the prime rate plus 6.0%. The term loan required a prepayment fee of 10% of the amount prepaid.

On January 12, 2018, the Company repaid all outstanding obligations under the Hale credit agreement using $8.8 million of the $10.0 million term loan proceeds provided through the ESW credit agreement. Concurrently, the Hale credit agreement terminated effective January 12, 2018.

In conjunction with this debt financing, the Company issued a warrant for the purchase of up to 314,286 shares of the Company's common stock, which remained unexercised and outstanding at December 31, 2018. See Note 6–"Fair Value Measurements" for further discussion of the warrant.

Covenant Compliance

The ESW credit agreement contains affirmative and negative covenants and requirements relating to the Company and its operations. The negative covenants of the ESW credit agreement require the Company to meet financial covenants beginning with the quarter ended September 30, 2018 relating to minimum core bookings, maximum non-current deferred revenue, minimum subscription, and maintenance and support revenue, and minimum subscription and maintenance and support dollar renewal rates. The Company was in compliance with all financial covenants during the year ended December 31, 2018.

The Company's monthly, quarterly and annual results of operations are subject to significant fluctuations due to a variety of factors, many of which are outside of the Company's control. These factors include the number and mix of products and solutions sold in the period, timing of customer purchase commitments, including the impact of long sales cycles and seasonal buying patterns, and variability in the size of customer purchases and the impact of large customer orders on a particular period. The foregoing factors are difficult to forecast, and these, as well as other factors, could adversely affect the Company's monthly, quarterly and annual results of operations. Failure to achieve its monthly, quarterly or annual forecasts may result in the Company being out of compliance with covenants or projecting noncompliance in the future. Management actively monitors its opportunity pipeline, forecast, and projected covenant compliance on an ongoing basis.

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.

6) 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, 2018. 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 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.

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 2018, 2017 and 2016, the Company recorded a non-cash gain from the change in fair value of the warrant liability of $368,000, $74,000 and $137,000, respectively. These gains resulted from changes in inputs for 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 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. 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 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, 2018 and 2017 (in thousands):

	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	$ 2,798	$ —	$ —	$ 2,798

	Total Fair Value at December 31, 2017	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 - Hale warrant	$ 819	$ —	$ —	$ 819

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, 2017	$819
Additions to warrant liability	2,347
Change in fair value	(368)
Balance at December 31, 2018	$2,798

7) Stockholders' Equity

Common Stock

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, 2018, 2017 and 2016. As of December 31, 2018, 778,365 shares were available under the Board authorizations. Under the ESW credit agreement, the Company is prohibited from repurchasing or redeeming its stock, subject to certain exceptions relating to the exercise or vesting of equity awards.

8) 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. Prior to the adoption of Topic 606, these licenses were recognized ratably over the contractual term, beginning on the commencement date of each contract, which is typically the date the Company’s product has been fulfilled. Under the provisions of Topic 606, term software licenses are now 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,		
	2018	2017	2016
Software licenses and appliances	$5,814	$5,982	$5,839
Service			
Subscription, maintenance and support	17,132	19,374	21,443
Professional services and other	2,067	2,811	4,400
Total service	19,199	22,185	25,843
Total revenues	$25,013	$28,167	$31,682

	Year Ended December 31,		
	2018	2017	2016
North America	$16,639	$20,494	$23,089
Europe	6,453	6,914	7,924
Asia	1,921	759	669
Total	$25,013	$28,167	$31,682

Significant Judgments

More judgments and estimates are required under Topic 606 than were required under Topic 605. Due to the complexity of certain contracts, the actual revenue recognition treatment required under Topic 606 for the Company’s arrangements may be dependent on contract-specific terms and may vary in some instances.

Our 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. We allocate the transaction price to the distinct performance obligations based on relative standalone selling price ("SSP"). We estimate 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 the Company's software licenses and cloud-hosted SaaS arrangements are highly variable. Thus, we estimate 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 $550,000 and $485,000 as of January 1, 2018 and December 31, 2018, respectively. The Company's balances for contract liabilities, which are included in current and non-current deferred revenue, totaled $8.6 million and $11.3 million as of January 1, 2018 and December 31, 2018, respectively. During the year ended December 31, 2018, the Company recognized $8.2 million of revenue that was included in the deferred revenue balance, as adjusted for Topic 606, 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 $21.6 million as of December 31, 2018, of which the Company expects to recognize $12.8 million of revenue over the next 12 months and the remainder thereafter.

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.

9) 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, 2018, 3,230,320 shares are authorized under the 2007 Plan, of which 527,988 were available for future grant.

In addition to awards granted under the 2007 Plan, the Company granted a non-qualified option to purchase 100,000 shares of its common stock to a newly hired senior management level employee on November 26, 2012, which remained outstanding as of December 31, 2018. The option was granted outside of any shareholder-approved plan as an inducement to accept employment with the Company. The option has an exercise price equal to the closing price of the Company’s common stock as reported by the Nasdaq Stock Market on the date of grant, vests in four equal installments on each of the first four anniversaries of the date of grant and has a term of seven years. In other respects, the option was structured to mirror the terms of options granted under the 2007 Plan and is subject to a stock option agreement between the Company and the employee.

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

	Year Ended December 31,		
	2018	2017	2016
Stock-based compensation cost charged against loss, before income tax benefit			
Stock options	$326	$366	$554
Restricted stock and restricted stock units	566	765	867
Performance stock units	190	59	—
Total stock-based compensation costs	$1,082	$1,190	$1,421
Stock-based compensation cost included in:			
Cost of revenues	$34	$39	$49
Operating expenses	1,048	1,151	1,372
Total stock-based compensation costs	$1,082	$1,190	$1,421

As of December 31, 2018, total stock option compensation expense of $369,000 and $582,000 was not yet recognized related to non-vested option awards and related to non-vested shares and restricted share unit awards, respectively, and is expected to be recognized over a weighted average period of 3.1 years and 2.5 years, respectively.

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,		
	2018	2017	2016
Expected life of options in years	4.54 - 4.75	4.75	4.75
Risk-free interest rate	2.6% - 2.9%	1.7% - 2.0%	1.1% - 1.4%
Expected volatility	69.6% - 70.5%	64.2% - 66.2%	57.4% - 63.7%
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. Effective April 2008, the Company’s Board of Directors approved a change in the contractual term of stock options granted to employees from ten to seven years. Given the reduction in the contractual term of its employee stock option awards and a lack of exercise history or other means to reasonably estimate future exercise behavior, the Company determined it was unable to rely on its historical exercise data as a basis for estimating the expected life of stock options granted to employees subsequent to this change. As such, the Company used the “simplified” method for determining the expected life of stock options granted to employees in 2018, 2017 and 2016, 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.

56

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, 2015	1,813	$ 10.00		
Granted	374	2.86		
Exercised	—	—		
Canceled	(679)	12.66		
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	4.9	$ —
Total vested and expected to vest as of December 31, 2018	1,442	3.51	4.9	$ —
Options exercisable as of:				
December 31, 2016	703	$ 10.06		
December 31, 2017	838	7.85		
December 31, 2018	572	5.29	3.0	$ —

(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,		
	2018	2017	2016
Fair value of options granted	$982	$193	$556
Per share weighted average fair value of options granted	$1.30	$1.17	$1.49
Total intrinsic value of stock options exercised	$—	$—	$—

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, 2015	175	$ 12.05
Granted	120	4.00
Vested	(76)	11.27
Canceled	(29)	13.03
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

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

	Year Ended December 31,		
	2018	2017	2016
Per share weighted average grant-date fair value of restricted stock and restricted stock units granted	$2.17	$2.44	$4.00
Total fair value of restricted stock and restricted stock units vested	$377	$392	$294

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%.

	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

In settlement of the 116,168 of vested 2017 Performance Stock Units, during 2018 the Company issued 25,726 shares, which is equal to the number of vested performance stock units vested multiplied by the weighted percentage

achievement of the performance goals of approximately 22.1%.
10) 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 100% of pretax compensation. The Company matches a percentage of employees’ contributions. Matching contributions totaled $281,000, $343,000 and $428,000 for the years ended December 31, 2018, 2017 and 2016, respectively.

11) Income Taxes

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

	Year Ended December 31,		
	2018	2017	2016
Loss before income taxes:			
Domestic	$(1,631)	$(11,524)	$(10,834)
Foreign	(1,688)	(558)	(593)
Total loss before income taxes	$(3,319)	$(12,082)	$(11,427)

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

	Year Ended December 31,		
	2018	2017	2016
Current:			
U.S. Federal	$(8)	$(175)	$(6)
State	591	35	50
Foreign	(314)	(211)	(249)
Total current	269	(351)	(205)
Deferred:			
U.S. Federal	—	—	—
State	11	(12)	12
Foreign	18	5	(59)
Total deferred	29	(7)	(47)
Total provision for income tax benefit	$298	$(358)	$(252)

Total income tax expense (benefit) differs from the expected income tax expense (benefit), computed by applying the federal statutory rate of 21% in 2018, and 34% in both 2017 and 2016, to earnings before income taxes as follows (in thousands):

	Year Ended December 31,		
	2018	2017	2016
Expected income tax benefit	$(697)	$(4,107)	$(3,885)
Federal R&D credit	(32)	(24)	(17)
Refundable AMT credit	(12)	(172)	—
Effect of deferred rate change	8	11,851	(162)
Foreign tax	38	(87)	(105)
Non-deductible stock issuance costs	85	186	(24)
Foreign unremitted earnings	130	(20)	58
Change in valuation allowance	408	(7,764)	4,566
State income taxes, net of federal tax effect	455	(306)	(789)
Other, net	(85)	85	106
Total provision for income tax expense (benefit)	$298	$(358)	$(252)

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

	December 31,	
	2018	2017
Deferred tax assets:		
Inventory provisions and uniform capitalization	$1	$42
Accounts receivable allowances	13	3
Non-qualified stock option and restricted stock expense	184	447
Deferred revenue	101	147
Loss and credit carryforwards of U.S. subsidiary	24,101	23,996
Loss carryforward of foreign subsidiaries	283	430
Excess interest expense	298	—
Other accruals and reserves	169	407
Fixed assets	3	—
Other	—	58
Total deferred tax assets before valuation allowance	25,153	25,530
Less valuation allowance	(24,153)	(24,285)
Total deferred tax assets	$1,000	$1,245
Deferred tax liabilities:		
Acquired intangibles	$(901)	$(1,321)
Other	(46)	—
Total deferred tax liabilities	$(947)	$(1,321)
Total net deferred tax assets (liabilities)	$53	$(76)

As of December 31, 2018, the Company had $85.6 million of net operating loss carryforwards for U.S. federal tax purposes and $63.3 million of net operating loss carryforwards for various states. The loss carryforwards for federal tax purposes will expire between 2022 and 2037 if not utilized. The loss carryforwards for state tax purposes will expire between 2022 and 2037 if not utilized.

As of December 31, 2018, the Company had federal and state research and development credit carryforwards of $3.2 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, 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. The valuation allowance will be reviewed quarterly and will be maintained until sufficient positive evidence exists to support the reversal of the valuation allowance.

The Company generally believes that it is more likely than not that the future results of the operations of its subsidiaries in the U.K. will generate sufficient taxable income due to the reversal of deferred tax liabilities to realize the tax benefits related to its deferred tax assets. As of December 31, 2018, the Company had a cumulative foreign tax loss carryforward of $1.8 million in the U.K. This amount can be carried forward indefinitely.

On December 22, 2017, the Tax Cuts and Jobs Act (the Tax Act) was enacted, significantly altering U.S. corporate income tax law. The SEC issued Staff Accounting Bulletin 118, which allows companies to record reasonable estimates of enactment impacts where all of the underlying analysis and calculations are not yet complete. The provisional estimates must be finalized within a one-year measurement period. The Company recorded several provisional estimates for the year ended December 31, 2017. As of December 31, 2018, the impacts of the Tax Act have been finalized as follows:

•

During 2017, the Company recorded a tax benefit of $172,000 for the impact of the Tax Act. The tax benefit primarily related to the future cash refund of excess AMT credits due to the repeal of the corporate AMT system. AMT credits previously had a full valuation allowance recorded, however a benefit was recorded as the AMT credits were subsequently expected to be realized. During 2018, an additional tax benefit of $12,000 was recorded with the finalization of this analysis.

- During 2017, the Company reduced its net domestic deferred tax asset balance by $11.9 million due to the reduction in corporate tax rate from 34% to 21%. Additionally, no 2017 tax expense was provided for the mandatory repatriation provisions, as the Company had estimated there to be no untaxed accumulated E&P. The finalization of these tax reform matters did not have a material impact as the adjustments were fully offset by a change in the Company's U.S. valuation allowance.

Many of the new elements of the Tax Act became effective during the 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 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 could result in a tax impact to the Company and as such the Company has recorded a deferred tax liability for the future tax consequences of a repatriation.

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,	
	2018	2017
Gross unrecognized tax benefits at beginning of year	$1,136	$1,042
Increases related to:		
Prior year income tax positions	2	70
Current year income tax positions	586	24
Gross unrecognized tax benefits at end of year	$1,724	$1,136

Included in the balance of unrecognized tax benefits at December 31, 2018 are potential benefits of $563,000 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, 2018 will change significantly by December 31, 2019.

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 $5,600 and $1,400 on a gross basis at December 31, 2018 and 2017, 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 $4,200 and $1,300 in 2018 and 2017, respectively.

The Company files income tax returns in the U.S. federal jurisdiction and various state and foreign jurisdictions. As of December 31, 2018, the Company was no longer subject to income tax examinations for taxable years before 2016 in the case of U.S. federal taxing authorities, and taxable years generally before 2014 in the case of state taxing authorities, consisting primarily of Minnesota and California.

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,		
	2018	2017	2016
Net loss per share – basic			
Net loss	$(3,617)	$(11,724)	$(11,175)
Weighted average shares outstanding – basic	9,499	9,347	9,232
Net loss per share – basic	$(0.38)	$(1.25)	$(1.21)
Net loss per share – diluted			
Loss attributable to common shareholders:			
Net loss	$(3,617)	$(11,724)	$(11,175)
Numerator effect of dilutive securities			
Warrants	(161)	—	(137)
Loss attributable to common shareholders	$(3,778)	$(11,724)	$(11,312)
Weighted averages shares outstanding – diluted:			
Weighted average shares outstanding – basic	9,499	9,347	9,232
Denominator effect of dilutive securities			
Warrants	107	—	—
Weighted average shares outstanding – diluted	9,606	9,347	9,232
Net loss per share – diluted	$(0.39)	$(1.25)	$(1.23)

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,	
	2018	2017
Stock options	1,273	1,507
Warrants	348	314
Restricted stock units	150	139
Total anti-dilutive	1,771	1,960

13) Significant Customers and Geographic Data

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

	Year Ended December 31,		
Revenues	2018	2017	2016
Customer A	*	$4,945	$4,402

* No customer exceeded 10% of total revenue

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

	December 31,	
Accounts Receivable	2018	2017
Customer A	$841	*
Customer B	$782	$814
Customer C	$692	*

* Accounts receivable balance did not exceed 10%

62

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

	December 31, 2018	2017
North America	$515	$855
Europe	30	56
Total	$545	$911

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, 2018. 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, 2018.

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, 2018.

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, 2018 that have materially affected, or are reasonable likely to materially affect, the Company’s internal control over financial reporting.

ITEM 9B. OTHER INFORMATION

None.

PART III

ITEM 10. DIRECTORS, EXECUTIVE OFFICERS AND CORPORATE GOVERNANCE

The information required by this item is incorporated herein by reference to the following sections of the Company's Proxy Statement for its 2019 Annual Meeting of Shareholders, which will be filed with the Securities and Exchange Commission pursuant to Regulation 14A within 120 days after the close of the fiscal year for which this report is filed (the "Proxy Statement"):

Ownership of Voting Securities by Principal Holders and Management;
Proposal 1—Election of Directors;
Executive Officers;
Executive Compensation;
Section 16(a) Beneficial Ownership Reporting Compliance;
Corporate Governance; and
Code of Ethics.

ITEM 11. EXECUTIVE COMPENSATION

The information required by this item is incorporated herein by reference to the sections of the Company's Proxy Statement entitled "Executive Compensation" and "Director Compensation."

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

The information required by this item is incorporated herein by reference to the section of the Company's Proxy Statement entitled "Ownership of Voting Securities by Principal Holders and Management," and is incorporated herein by reference to Part II, Item 5 entitled "Market for Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities" of this Annual Report on Form 10-K.

ITEM 13. CERTAIN RELATIONSHIPS AND RELATED TRANSACTIONS AND DIRECTOR INDEPENDENCE

The information required by this item is incorporated by reference to the sections of the Company's Proxy Statement entitled "Certain Relationships and Related Person Transactions" and "Corporate Governance."

ITEM 14. PRINCIPAL ACCOUNTANT FEES AND SERVICES

The information required by this item is incorporated herein by reference to the section of the Company's Proxy Statement entitled "Relationship with Independent Registered Public Accounting Firm."

PART IV

ITEM 15. EXHIBITS AND FINANCIAL STATEMENT SCHEDULES

(a) (1) Financial Statements. See Part II, Item 8 of this report

(2) Exhibits. See Index to Exhibits on page 67 of this report

(b) See Index to Exhibits on page 67 of this report

SIGNATURES

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

Dated: March 15, 2019	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.

Signature	Title	Date
/s/ Vernon J. Hanzlik Vernon J. Hanzlik	Chief Executive Officer (Principal Executive Officer), Director	March 15, 2019
/s/ David G. Ristow	Chief Financial Officer (Principal	March 15, 2019

David G. Ristow	Financial and Accounting Officer)	
/s/ Neil E. Cox Neil E. Cox	Director	March 15, 2019
/s/ Daniel R. Fishback Daniel R. Fishback	Director	March 15, 2019
/s/ Kenan Lucas Kenan Lucas	Director	March 15, 2019
/s/ Thomas F. Madison Thomas F. Madison	Director	March 15, 2019
/s/ Kimberly K. Nelson Kimberly K. Nelson	Director	March 15, 2019
/s/ Robert F. Olson Robert F. Olson	Director	March 15, 2019

66

INDEX TO EXHIBITS

Exhibit No.	Description
2.1	Asset Purchase Agreement dated April 24, 2014 by and among Equus Holdings, Inc., as Parent, Redwood Acquisition, Inc. as Buyer and Qumu Corporation as Seller (Incorporated by reference to Exhibit 2.1 to the Company's Current Report on Form 8-K dated April 24, 2014).
2.2	Majority Share Purchase Agreement dated October 3, 2014 by and among Qumu Corporation and Sellers identified therein (Incorporated by reference to Exhibit 2.1 to the Company's Current Report on Form 8-K dated October 3, 2014).
2.3	Form of Minority Share Purchase Agreement dated October 3, 2014 by and among Qumu Corporation and Sellers identified therein (Incorporated by reference to Exhibit 2.2 to the Company's Current Report on Form 8-K dated October 3, 2014).
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).
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 dated March 12, 2010).
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	Agreement dated March 18, 2015 among Qumu Corporation and Dolphin Limited Partnership III, L.P., Dolphin Associates III, LLC, and Dolphin Holdings Corp. III (Incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K dated March 18, 2015).
10.5	Form of Performance Stock Unit Award Agreement adopted under the 2017 Incentive Plan approved March 8, 2017 * (Incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K dated March 8, 2017).
10.6	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).
10.7	Term Loan Credit Agreement dated October 21, 2016 by and among Qumu Corporation, Qumu, Inc., the Lenders party thereto and Hale Capital Partners, LP as Administrative Agent (Incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K dated October 21, 2016).
10.8	Guaranty and Collateral Agreement dated October 21, 2016 by Qumu Corporation and Qumu, Inc. in favor of Hale Capital Partners, LP as administrative agent (Incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K dated October 21, 2016).
10.9	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).
10.10	

	Amendment No. 1 to Credit Agreement dated as of March 31, 2017 by and among Qumu Corporation, as Borrower, Qumu, Inc., as Guarantor, HCP-FVD, LLC, as Lender and Hale Capital Partners, LP, as Administrative Agent (Incorporated by reference to Exhibit 10.13 of the Company's Annual Report on Form 10-K dated March 31, 2017).
10.11	Amendment No. 2 to Credit Agreement dated November 6, 2017 by and among Qumu Corporation, as Borrower, Qumu, Inc. as Guarantor, HCP-FVD, LLC, as Lender and Hale Capital Partners, LP, as Administrative Agent (Incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K dated November 6, 2017.
10.12	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).
10.13	Standstill Agreement dated December 19, 2017 by and among Qumu Corporation, Harbert Discovery Fund, LP, Harbert Discovery Fund GP, LLC, Harbert Discovery Fund Advisors, Inc. and Harbert Management Corporation (Incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K dated December 19, 2017).
10.14	Amendment No. 1 to Standstill Agreement dated October 25, 2018 by and among Harbert Discovery Fund, LP, Harbert Discovery Fund GP, LLC, Harbert Fund Advisors, Inc. and Harbert Management Corporation (Incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K dated October 25, 2018).
10.15	Term Loan Credit Agreement dated January 12, 2018 by and among Qumu Corporation, Qumu, Inc., the Lenders party thereto and ESW Holdings, Inc. as Administrative Agent (Incorporated by reference to Exhibit 10.1 to the Company's Current Report on Form 8-K dated January 12, 2018).
10.16	Guaranty and Collateral Agreement dated January 12,2018 by Qumu Corporation and Qumu, Inc. in favor of ESW Holdings, Inc. as administrative agent (Incorporated by reference to Exhibit 10.2 to the Company's Current Report on Form 8-K dated January 12, 2018).

67

Exhibit No.	Description
10.17	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).
10.18	Form of Performance Stock Unit Award Agreement Approved March 23, 2018 (Incorporated by reference to Exhibit 10.20 to the Company's Annual Report on Form 10-K for the year ended December 31, 2017). *
21.1	Subsidiaries of Qumu Corporation.
23.1	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.