

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

FORM 10-K

(Mark One)

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the fiscal year ended December 31, 2018

Or

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the transition period from _____ to _____
Commission File Number 001-36471

MobileIron, Inc.

(Exact name of registrant as specified in its charter)

Delaware
(State or other jurisdiction of
incorporation or organization)

26-0866846
(I.R.S. Employer
Identification Number)

401 East Middlefield Road
Mountain View, CA 94043
(650) 919-8100

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

Title of each class	Name of each exchange on which registered
Common Stock, par value \$0.0001 per share	The Nasdaq Global Select Market

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

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

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

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

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files).
Yes No

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

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

Large accelerated filer	<input type="checkbox"/>	Accelerated filer	<input checked="" type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/>	Smaller reporting company	<input type="checkbox"/>
		Emerging growth company	<input checked="" type="checkbox"/>

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

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

As of June 30, 2018, the aggregate market value of shares of common stock held by non-affiliates of the registrant was \$282 million based on the number of shares held by non-affiliates as of June 30, 2018 and based on the closing sale price of the registrant's common stock as reported on the Nasdaq Stock Market on June 30, 2018 of \$4.45 per share. Shares of common stock held by officers, directors and holders of more than 5% of the outstanding common stock have been excluded from this calculation because such person may be deemed to be affiliates. This determination of affiliate status is not necessarily a conclusive determination for other purposes.

The number of outstanding shares of the registrant's common stock was 106,793,168 as of February 15, 2019.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the information called for by Part III of this Annual Report on Form 10-K, to the extent not set forth herein, are hereby incorporated by reference from registrant's definitive proxy statement for the 2019 Annual Meeting of Stockholders to be filed with the Securities and Exchange Commission within 120 days after the end of the registrant's fiscal year ended December 31, 2018.

Table of Contents

	Page No.
<u>PART I</u>	
Item 1. Business	4
Item 1A. Risk Factors	11
Item 1B. Unresolved Staff Comments	36
Item 2. Properties	36
Item 3. Legal Proceedings	37
Item 4. Mine and Safety Disclosures	37
<u>PART II</u>	
Item 5. Market For Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities	38
Item 6. Selected Financial Data	40
Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations	43
Item 7A. Quantitative and Qualitative Disclosures About Market Risk	65
Item 8. Financial Statements and Supplementary Data	67
Item 9. Changes in and Disagreements With Accountants on Accounting and Financial Disclosure	97
Item 9A. Controls and Procedures	97
Item 9B. Other Information	98
<u>PART III</u>	
Item 10. Directors, Executive Officers and Corporate Governance	99
Item 11. Executive Compensation	99
Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters	99
Item 13. Certain Relationships and Related Transactions, and Director Independence	99
Item 14. Principal Accountant Fees and Services	99
<u>PART IV</u>	
Item 15. Exhibits and Financial Statement Schedules	100
Exhibit Index	101
Item 16. Form 10-K Summary	105
Signatures	106

“MobileIron,” the MobileIron logos and other trademark or service marks of MobileIron, Inc. appearing in this Annual Report on Form 10-K are the property of MobileIron, Inc. Trade names, trademarks and service marks of other companies appearing in this report are the property of their respective holders.

SPECIAL NOTE REGARDING FORWARD LOOKING STATEMENTS

This Annual Report on Form 10-K contains forward-looking statements within the meaning of the Private Securities Litigation Reform Act of 1995. In some cases you can identify these statements by forward-looking words such as “believe,” “may,” “will,” “might,” “estimate,” “continue,” “anticipate,” “intend,” “could,” “should,” “would,” “potentially,” “predict,” “plan,” “outlook,” “target,” “expect,” “future” or similar expressions, or the negative or plural of these words or expressions. These forward-looking statements include, but are not limited to, statements concerning the following:

- beliefs and objectives for future operations, results and growth;
- our business plan and our ability to effectively manage our expenses;
- our ability to timely and effectively scale and adapt our existing technology;
- our ability to innovate new products and bring them to market in a timely manner;
- our ability to expand internationally;
- our ability to attract new customers and further penetrate our existing customer base;
- our expectations concerning renewal rates for subscriptions and services by existing customers;
- our expectations concerning the mix of our sales of subscriptions and perpetual licenses;
- cost of revenue, including changes in costs associated with hardware, royalties, customer support, and data center operations;
- operating expenses, including changes in research and development, sales and marketing, and general and administrative expenses;
- our expectations concerning relationships with third parties, including channel partners;
- economic and industry trends or trend analysis; and
- the sufficiency of our existing cash and investments to meet our cash needs for at least the next 12 months.

In addition, statements that “we believe” and similar statements reflect our beliefs and opinions on the relevant subject. These statements are based upon information available to us as of the date of this Annual Report on Form 10-K, and while we believe such information forms a reasonable basis for such statements, such information may be limited or incomplete, and our statements should not be read to indicate that we have conducted an exhaustive inquiry into, or review of, all potentially available relevant information. These statements are inherently uncertain and investors are cautioned not to unduly rely upon these statements.

These forward-looking statements are based on current expectations and assumptions that are subject to risks and uncertainties, which could cause our actual results to differ materially from those reflected in the forward-looking statements. These risks are not exhaustive. These statements are within the meaning of the “safe harbor” provisions of the Private Securities Litigation Reform Act of 1995. These statements appear throughout this Annual Report on Form 10-K and are statements regarding our intent, belief, or current expectations, primarily with respect to our business and related industry developments. You should not place undue reliance on these forward-looking statements, which apply only as of the date of this Annual Report on Form 10-K. Our actual results could differ materially from those anticipated in these forward-looking statements for many reasons, including the risks faced by us and described in Part I, Item 1A, entitled “Risk Factors,” and in Part II, Item 7, “Management’s Discussion and Analysis of Financial Condition and Results of Operations” in this Annual Report on Form 10-K. We undertake no obligation to update any forward-looking statements for any reason to conform these statements to actual results or to changes in our expectations.

Item 1. Business

Overview

Mobile and cloud computing are the catalysts for modern work. Mobile lets employees make better decisions and take faster actions because the information and tools they need to do their jobs are always available. Cloud lets developers build innovative services quickly and lets employees start using them easily.

However, this comes with new risks. The traditional, locked-down, perimeter-based approach to security no longer applies to mobile endpoints and cloud services that operate outside the network. Data no longer resides behind the firewall on locked-down PCs and servers, and so it cannot be secured by firewall-based solutions. Instead, data is spread across an information fabric that spans a wide variety of modern endpoints including Android, iOS, macOS, and Windows 10, as well as cloud services such as Box, Concur, Microsoft Office 365, Netsuite, Salesforce, Workday and custom cloud applications.

This shift to mobile and cloud technologies introduces three main challenges that CIOs and CISOs need to address:

1. Drive business innovation by allowing employees to securely use mobile, cloud, and other endpoints for work.
2. Enforce corporate security without impacting the user experience.
3. Redefine enterprise security strategies to address a perimeter-less environment.

To solve these challenges, many organizations are in the early stages of investigating a zero trust enterprise security framework. Zero trust assumes that bad actors are already in the network and secure access is determined by an “always verify, never trust” approach.

We are a leader in defining a zero trust, mobile-centric framework, one that goes beyond traditional approaches to security by utilizing a more comprehensive set of attributes to grant secure access. At MobileIron, we validate the device, establish user context, check app authorization, verify the network, and detect and mitigate threats before granting secure access to a device or user. We believe traditional identity-based and gateway approaches to zero trust fall short because they provide only limited visibility into devices, apps, and threats.

We are redefining how customers build a secure foundation in a perimeter-less world. Our security platform is built on the foundation of unified endpoint management (UEM) with additional zero trust capabilities including single sign-on (SSO), multifactor authentication (MFA), and mobile threat defense (MTD). Together they create a more seamless mobile experience by automating access control decisions across users, endpoints, operating systems, clouds, networks, threats, and vulnerabilities so that only trusted resources can access corporate data.

Our Business Model

Our customers can deploy MobileIron as either a cloud service or on-premises software. They can choose subscription-based or perpetual licensing. We primarily target midsize and large enterprises around the world across a broad range of industries including financial services, government, healthcare, legal, manufacturing, professional services, retail, technology, and telecommunications.

Our business model is based on winning new customers, growing existing customers through seat expansion and product upsell, and renewing subscriptions and software support agreements. Our channel partners include distributors, resellers, service providers, and system integrators. Our revenue grew to \$193.2 million in 2018 and we have experienced rapid growth in our customer base, having sold our platform to over 18,000 cumulative customers since 2009. In 2018, we generated over three-fourths of our gross billings from recurring sources (subscriptions and software support agreements).

Our Products

The MobileIron security platform includes:

- **MobileIron unified endpoint management (UEM)** is a comprehensive security platform that provides the fundamental visibility and IT controls needed to secure, manage, and monitor any corporate or employee-owned mobile device or desktop that accesses business-critical data. UEM is a proven, secure, scalable, and enterprise-ready architecture that puts the user experience first while also maintaining the highest quality security standards. MobileIron's partner ecosystem extends our policy engine through a set of APIs that enable other security and infrastructure solutions to either pull data from or trigger actions in MobileIron. MobileIron can be deployed as either a cloud service (**MobileIron Cloud**) or as on-premises software (**MobileIron Core**), and supports Android, iOS, macOS, and Windows 10.
- **MobileIron Access** blocks untrusted devices and apps from accessing cloud services based on security posture and compliance. Access also provides single sign-on (SSO) and multifactor authentication (MFA) across applications on the device so that users do not have to repeatedly enter their passwords. In addition, **MobileIron Tunnel** provides secure connectivity through a per-app VPN to connect applications to back-end services.
- **MobileIron Threat Defense** uses machine learning-based analytics to identify zero-day threats on the device, across networks, and within client apps, and then initiates a security response, from notification to remediation of the threat.
- **MobileIron Secure Applications for End-user Productivity** include **Apps@Work** (enterprise app store), **Docs@Work** (secure content), **Email+** (secure email and PIM), **Help@Work** (remote troubleshooting), and **Web@Work** (secure browsing). In addition, **MobileIron AppConnect** is an SDK and wrapper that third-party developers can integrate into their applications to provide a higher level of security through additional encryption and advanced security controls.

Our Competitive Strengths

Customers buy the MobileIron solution when data security is a priority. Our strengths are:

- **Government-grade security.** We protect data on the device and across the network and enforce secure access to back-end business services. This end-to-end approach simplifies the deployment of security policies for our customers. We were the first company to receive Common Criteria certification against Version 2.0 of the Protection Profile for Mobile Device Management. Common Criteria is an internationally recognized set of guidelines (ISO/IEC 15408) used by governments, banks, and other organizations to assess the security capabilities of technology products. We have been positioned in the Leaders Quadrant of the Gartner Magic Quadrant for Enterprise Mobility Management Suites eight years in a row because of our strength in modern security¹. We have been granted 81 patents in our solution category as of December 31, 2018, which we believe is more than any of our competitors.
- **Cross-stack architecture.** We have extensive support for Android, iOS, macOS, and Windows 10 endpoints. Our standards-based, adaptive access architecture allows us to protect cloud services across vendors such as Box, Concur, Google G Suite, Microsoft Office 365, Netsuite, Salesforce, ServiceNow, Tableau, and Workday. Our cross-stack architecture lets our customers securely deploy best-of-breed cloud services and endpoints.
- **Global customer support organization.** The capability and quality of our solution, combined with the strength of our global customer support organization, has been a competitive differentiator. In 2018, we received our second straight year of the Service Capability & Performance (SCP) Standards certification for our customer support operations. In addition, we were named a 2018 Gartner Peer Insights Customers' Choice for Unified Endpoint Management Tools, scoring a higher customer satisfaction rating than all other UEM vendors.

¹Gartner "Magic Quadrant for Unified Endpoint Management Tools" by Chris Silva, Rich Doheny, Bryan Taylor, Rob Smith, Manjunath Bhat, 23 July 2018 .

- **Platform extensibility and ecosystem breadth.** We provide extensive product support across the OS ecosystem (Apple, Google, and Microsoft) with zero-day compatibility for new releases. Our **AppConnect** technology allows customers and independent software vendors (ISVs) to build applications that can be secured by MobileIron. Our **ServiceConnect** technology allows customers to deploy integrated workflows between MobileIron and their existing security and infrastructure solutions. We believe that our best-of-breed ecosystem is a competitive advantage over the single-stack lock-in of some of our competitors. As of December 31, 2018, our set of 350+ **AppConnect** (client-side) and **ServiceConnect** (server-side) technology integrations with ISVs is the largest UEM ecosystem of secure apps and infrastructure.

Gartner does not endorse any vendor, product or service depicted in its research publications, and does not advise technology users to select only those vendors with the highest ratings or other designation. Gartner research publications consist of the opinions of Gartner's research organization and should not be construed as statements of fact. Gartner disclaims all warranties, expressed or implied, with respect to this research, including any warranties of merchantability or fitness for a particular purpose. The Gartner Report(s) described herein, (the "Gartner Report(s)") represent(s) research opinion or viewpoints published, as part of a syndicated subscription service, by Gartner, Inc. ("Gartner"), and are not representations of fact. Each Gartner Report speaks as of its original publication date (and not as of the date of this Form 10-K) and the opinions expressed in the Gartner Report(s) are subject to change without notice.

Customers

Our customers include leading enterprises in a broad range of industries, including financial services, government, healthcare, legal, manufacturing, professional services, retail, technology and telecommunications. No single industry verticals accounted for more than 20% of our gross billings in the three year period ended 2018. Medium to large enterprises accounted for a majority of our billings. We have sold our products to over 18,000 customers globally, including more than 500 companies on the Forbes Global 2000 Leading Companies list, as of December 31, 2018. Our channel partners include resellers, service providers and system integrators. We recognized 42%, 47% and 46% of total revenue from customers with a billing address in the United States in 2018, 2017 and 2016, respectively. We recognized 16%, 13% and 13% of total revenue from customers with a billing address in Germany in 2018, 2017 and 2016, respectively. No other country exceeded 10% of the total revenue in 2018, 2017 or 2016. AT&T, Inc., as a reseller, accounted for approximately 10%, 13% and 15% of our total revenue in 2018, 2017 and 2016, respectively. No end user of our products accounted for more than 5% of our total revenue in 2018, 2017 or 2016.

Backlog

As is typical in the software industry, we expect a significant portion of our software license orders to be received in the last month of each quarter. We do not believe that our backlog at any particular time is meaningful because it has historically been immaterial relative to our total revenue and is not necessarily indicative of future revenue in any given period.

Sales and Marketing

We sell the substantial majority of our products through indirect sales channels and, as a result, maintain a sales force that works closely with our channel partners to develop sales opportunities. We have an outside salesforce focused on large organizations and an inside salesforce focused on mid-sized organizations. Our channel team works with our service providers to address small to mid-sized organizations. Our marketing team focuses on driving customer demand, building brand reputation, expanding market awareness, and enabling our internal and extended (channel) sales teams.

Our sales organization is supported by sales engineers with deep technical expertise and responsibility for pre-sales technical support and the technical training of our channel partners. Our sales organization has strong alignment with our customer success organization. Our sales cycle ranges from a few weeks for small businesses to many months for large enterprises.

We work with mobile and security focused channel partners to sell our platform to customers. We focus on building in-depth relationships with a number of solutions-oriented partners that have strong industry expertise. These channel partners include both traditional IT resellers as well as service providers. We operate a formal accreditation program for the sales and technical professionals of our channel partners.

Research and Development

We have invested significant time and financial resources in the development of our platform and believe that continued research and development is critical to our ongoing success. Research and development investments drive innovation and keep pace with the rapidly evolving mobile and cloud ecosystem. We believe that innovation and timely development of new features and products are essential to meeting the needs of our customers and channel partners and improving our competitive position.

Competition

We operate in a highly competitive industry that is characterized by constant change and innovation. Changes in the devices, operating systems, applications and technology landscape result in evolving customer requirements.

Our competitors fall into three primary categories:

- diversified technology companies such as Microsoft, VMware, and IBM;
- mobile specialists such as BlackBerry; and
- mobile security vendors such as Lookout and Symantec.

The principal competitive factors in our market include:

- product features, reliability, performance and effectiveness;
- price and total cost of ownership;
- depth of customer relationships;
- product extensibility and ability to integrate with other technology infrastructures;
- flexibility between cloud and on-premise deployment;
- mobile IT expertise and focus;
- channel depth and breadth;
- strength of sales and marketing efforts;
- brand awareness and reputation; and
- focus on customer service and success.

We believe we compare favorably with our competitors on the basis of these factors. However, many of our competitors have substantially greater financial and technical resources, stronger name recognition, larger sales and marketing budgets, broader distribution and more entrenched relationships. Some of them embed their competitive solutions into broader software and services bundles. For more information about the competitive risks we face, refer to Item 1A. “Risk Factors” included elsewhere in this Annual Report on Form 10-K.

Intellectual Property

We protect our core technology and intellectual property by relying on federal, state, common law and international intellectual property rights, including patents, trade secrets, copyrights and trademarks. We also rely on confidentiality and contractual restrictions, including confidentiality and invention assignment agreements with our employees and contractors and confidentiality agreements with third parties.

We pursue registration of our patents, trademarks and domain names in the United States and certain locations outside the United States. We actively seek patent protection covering inventions originating from the Company and acquire patents we believe may be useful or relevant to our business. As of December 31, 2018, we owned 81 patents worldwide covering various innovations of our modern unified endpoint management (UEM) technology. The U.S. patents have expiration dates ranging from July 28, 2028 to May 24, 2037.

Circumstances outside our control could pose a threat to our intellectual property rights. For example, effective intellectual property protection may not be available outside the United States. Also, the efforts we have taken to protect our proprietary rights may not be sufficient or effective.

Companies in the mobile and other technology industries or non-practicing entities may own large numbers of patents, copyrights and trademarks and may frequently request license agreements, threaten litigation or file suit against us based on allegations of infringement or other violations of intellectual property rights. We have faced, and expect to face in the future, suits or allegations that we have infringed the trademarks, copyrights, patents and other intellectual property rights of third parties, including those of our competitors and non-practicing entities. As we face increasing competition and as our business grows, we will likely face more claims of infringement.

Employees

As of December 31, 2018, we had 889 full-time employees, 349 of whom were primarily engaged in research and development, 276 of whom were primarily engaged in sales and marketing, 156 of whom were primarily engaged in customer success and 108 of whom were primarily engaged in administration and finance. 399 of those employees were located outside of the United States. None of our United States employees are represented by a labor organization or are party to any collective bargaining arrangement. Employees in certain European countries have the benefits of collective bargaining arrangements at the national level. We have never had a work stoppage, and we consider our relationship with our employees to be good.

Facilities

Our principal executive offices are located in Mountain View, California and include two buildings totaling approximately 78,000 square feet under leases expiring from June 2020 to May 2023. We have additional office locations in the United States and in various international locations, including offices in the United Kingdom, Netherlands, Germany, Japan, Singapore and India.

We may add new facilities or expand existing facilities as we add employees, and we believe that suitable additional or substitute space will be available on commercially reasonable terms to meet our future needs.

Legal Proceedings

We continually evaluate uncertainties associated with litigation and record an accrual equal to at least the minimum estimated liability for a loss contingency when both of the following conditions are met: (i) information available prior to issuance of the financial statements indicates that it is probable that a liability has been incurred at the date of the financial statements and (ii) the loss or range of loss can be reasonably estimated. If we determine that a loss is possible and a range of the loss can be reasonably estimated, we disclose the range of the possible loss in the Notes to the Consolidated Financial Statements. We evaluate, on a quarterly basis, developments in our legal matters that could affect the amount of liability that has been previously accrued, if any, and the matters and related ranges of possible losses disclosed, and make adjustments and changes to our disclosures as appropriate. Significant judgment is required to determine both likelihood of there being and the estimated amount of a loss related to such matters. Until the final resolution of such matters, there may be an exposure to loss, and such amounts could be material. We record litigation accruals for legal matters which are both probable and estimable. For legal proceedings for which there is a reasonable possibility of loss (meaning those losses for which the likelihood is more than remote but less than probable), we have determined we do not have material exposure on an aggregate basis .

Indemnification

Under the indemnification provisions of our standard sales related contracts, we agree to defend and/or settle claims brought by third parties against our customers and channel partners alleging that our software or the customer's use thereof infringes the third party's intellectual property right, such as a patent right. These indemnification obligations are typically not subject to limitation; however if we believe such a claim is reasonably likely to occur and if it is commercially impractical for us to either procure the right for the customer to continue to use our software or modify our software so that it's not infringing, we can terminate the customer agreement and refund the customer a portion of the

license fees paid (prorated over the three year period from initial delivery for software licensed on a perpetual basis). We also on occasion indemnify our customers for other types of third party claims. In addition, we indemnify our officers, directors, and certain key employees while they are serving in such capacities in good faith. Through December 31, 2018, we have not received any material written claim for indemnification.

Corporate Information

Our principal executive offices are located at 401 East Middlefield Road, Mountain View, CA 94043, and our telephone number is (650) 919-8100. Our website is www.mobileiron.com. The information posted on our website is not incorporated into this Annual Report on Form 10-K. Our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K and amendments to reports filed or furnished pursuant to Sections 13(a) and 15(d) of the Securities Exchange Act of 1934, as amended, are available free of charge on our investor relations website as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC.

Item 1A. Risk Factors

You should carefully consider the following risk factors, in addition to the other information contained in this Annual Report on Form 10-K, including the section of this report titled “Management’s Discussion and Analysis of Financial Condition and Results of Operations” and our financial statements and related notes. If any of the events described in the following risk factors and the risk described elsewhere in this report occur, our business, operating results and financial condition could be seriously harmed and the trading price of our common stock could decline. This Annual Report on Form 10-K also contains forward-looking statements that involve risks and uncertainties. Our actual results could differ materially from those anticipated in the forward-looking statements as a result of factors that are described below and elsewhere in this report.

Risks Related to Our Business and Industry

We have a limited operating history, which makes it difficult to evaluate our prospects and future financial results and may increase the risk that we will not be successful.

As a result of our limited operating history, our ability to forecast our future operating results is limited and subject to a number of uncertainties, including our ability to plan for and model future growth. We have encountered and expect to continue to encounter risks and uncertainties frequently experienced by growing companies in rapidly changing markets. If our assumptions regarding these uncertainties are incorrect or change in reaction to changes in our markets, or if we do not manage or address these risks successfully, our results of operations could differ materially from our expectations, and our business could suffer. Any success that we may experience in the future will depend, in large part, on our ability to, among other things:

- retain and expand our customer base on a cost-effective basis;
- increase revenues from existing customers as they add users or devices;
- increase revenues from existing customers as they purchase additional solutions;
- successfully compete in our markets;
- continue to add features and functionality to our solutions to meet customer demand;
- gain market traction with our MobileIron Cloud platform and our more recently introduced products and services such as MobileIron Access and MobileIron Threat Defense;
- continue to invest in research and development and bring new products to market;
- scale our engineering and internal business operations in an efficient and cost-effective manner;
- scale our global Customer Success organization to make our customers successful in their mobile IT deployments;
- continue to expand our solutions across mobile and modern operating systems and device platforms;
- hire, integrate and retain professional and technical talent;
- make our service provider partners successful in their deployments of our solutions and technology;
- successfully expand our business domestically and internationally; and
- successfully protect our intellectual property and defend against intellectual property infringement claims.

We have had net losses each year since our inception and may not achieve or maintain profitability in the future.

We have incurred net losses each year since our inception, including net losses of \$43.1 million, \$53.4 million and \$65.5 million in 2018, 2017 and 2016, respectively. As of December 31, 2018, our accumulated deficit was \$404.1 million. Our revenue growth rate has slowed and we may not be able to sustain or increase our growth rate or achieve or sustain profitability in the future. The revenue growth rate has slowed, and may additionally slow or revenue may decline, for a number of reasons, including, but not limited to our customers' and/or prospective customers' failure to widely deploy mobile apps within their businesses, increasing and entrenched competition, changes in pricing model, customers' failure to renew or expand their deployments of our software, product and billing model mix shift, a decrease in size or growth of the mobile IT market, or any failure to capitalize on market opportunities. We plan to continue to invest for future growth, in part by making additional investments in research and development, and as a result, we do not expect to be profitable for the foreseeable future. In addition, we will need to increase operating efficiency, which may be challenging given our operational complexity, the expenses outlined above, expenses associated with being a public company, and increasing sales of subscriptions that bear royalties. As a result of these increased expenditures, we will have to generate and sustain increased revenues to achieve future profitability. We may incur significant losses in the future for a number of reasons, including without limitation the other risks and uncertainties described in this Annual Report on Form 10-K. Additionally, we may encounter unforeseen operating expenses, difficulties, complications, delays and other unknown factors that may result in losses in future periods. If these losses exceed our expectations or our revenue growth expectations are not met in future periods, our financial performance will be harmed.

Our operating results may fluctuate significantly, which makes our future results difficult to predict and could cause our operating results to fall below expectations or our guidance.

Our quarterly operating results have fluctuated in the past and may fluctuate significantly in the future. The timing and size of sales of our solutions makes our revenue highly variable and difficult to predict and can result in significant fluctuations in our revenue from period to period. Historically, a substantial portion of our revenue has been generated from sales of software solutions sold as perpetual licenses to large enterprise companies, which tend to close near the end of a given quarter. Further, our customers' and prospective customers' buying patterns and sales cycles can vary significantly from quarter to quarter and are not subject to an established pattern over the course of a quarter. Accordingly, at the beginning of a quarter, we have limited visibility into the level of sales that will be made in that quarter. If expected revenue at the end of any quarter is reduced or delayed for any reason, we may not be able to reduce our costs sufficiently to compensate for an unexpected shortfall in revenue, and even a small shortfall in revenue could disproportionately and adversely affect our operating margin, operating results or other key metrics for a given quarter.

Our operating results may fluctuate due to a variety of other factors, many of which are outside of our control, and any of which may cause our stock price to fluctuate. In addition to other risks listed in this "Risk Factors" section, factors that may affect our operating results include, but are not limited to:

- the inherent complexity, length and associated unpredictability of our sales cycles for our solutions;
- the extent to which our customers and prospective customers delay or defer purchase decisions in a quarter, particularly in the last few weeks of the quarter, which is when we typically complete a large portion of our sales for a quarter;
- our ability to develop and release in a timely manner new solutions, features and functionality that meet customer requirements;
- changes in pricing due to competitive pricing pressure or other factors;
- reductions and reprioritizations in customers' IT budgets and delays in the purchasing cycles of our customers and prospective customers;

- variation in sales channels or in mix of solutions sold, including the mix of solutions sold on a perpetual license versus a subscription or monthly recurring contract, or MRC, basis ¹;
- the timing of recognizing revenue in any given quarter as a result of revenue recognition accounting rules, including the extent to which revenue from sales transactions in a given period may not be recognized until a future period or, conversely, the satisfaction of revenue recognition rules in a given period resulting in the recognition of revenue from transactions initiated in prior periods;
- changes in our mix of revenue as a result of our different deployment options and licensing models and the ensuing revenue recognition effects;
- the effect of litigation;
- changes in foreign currency exchange rates; and
- general economic conditions in our domestic and international markets.

¹ In the MRC model, revenue and billings are based on active devices or users of the service provider's customer and are reported to us by the service provider on a monthly basis over time and billed by us one month in arrears. Under the usage-based MRC model, we receive no billings or revenue for MRC at the time the deal is booked, but instead the MRC is billed and revenue is recognized each month based on active usage. Unlike one-year and other term subscriptions, MRC is not reflected in unearned revenue unless the customer commits for a longer period of time.

The cumulative effects of these factors could result in large fluctuations and unpredictability in our quarterly operating results. As a result, comparing our operating results on a period-to-period basis may not be meaningful. You should not rely on our past results as an indication of our future performance.

If our customers do not place significant follow-on orders to deploy our solutions widely throughout their companies, or if they do not renew with us or if they do not purchase additional solutions, our future revenue and operating results will be harmed.

In order to increase our revenues we must continually grow our customer base and increase the depth and breadth of the deployments of our solutions with our existing customers. While customers may initially purchase a relatively modest number of licenses, it is important to our revenue growth that they later expand the use of our software on substantially more devices or for more users throughout their business. We also need to upsell—to sell additional solutions—to the same customers. Our strategy also depends on our existing customers renewing their software support or subscription agreements with us. Because of the number of participants, consolidation in the mobile IT market and competing priorities within customers' IT budgets, customers may delay making initial purchase orders or expanding orders as they take into account the evolving mobile IT landscape. Also, if we do not successfully develop and market new solutions, features and functionality that meet our customers' needs, they may not place upsell orders or expand orders. The rate at which our customers purchase additional solutions depends on a number of factors, including the relative prioritization of the IT budget allocated to mobile projects versus other IT projects, perceived need for additional solutions, features or functionality, the reliability of our solutions and other competitive factors, such as pricing and competitors' offerings. If our efforts to sell additional licenses to our customers and to upsell additional solutions to our customers are not successful, our business may suffer. In addition, we have entered into enterprise license arrangements with certain large customers under which they pay an amount up front and in turn can deploy an unlimited number of devices in a certain period, thereby lowering potential future additional orders from those customers.

Further, existing customers that purchase our solutions have no contractual obligation to purchase additional solutions after the initial subscription or contract period, and given our limited operating history, we are unable to accurately predict our customer expansion or renewal rates. Our customers' expansion and renewal rates may decline or fluctuate as a result of a number of factors, including the level of their satisfaction with our solutions or our customer

support, customer budgets, the pricing and breadth of our solutions compared with the solutions offered by our competitors, and the impact of our competitors' selling UEM or mobile security as a component of a broader suite, any of which may cause our revenue to grow more slowly than expected, if at all. Competition from larger companies has in the past and may in the future lengthen the renewal process and require us to recompute for renewal business.

For smaller or simpler deployments, the switching costs and time are relatively minor compared to traditional enterprise software deployments and a customer may decide not to renew with us and switch to a competitor's offerings. Accordingly, we must invest significant time and resources in providing ongoing value to our customers. If these efforts fail, or if our customers do not renew for other reasons, or if they renew on terms less favorable to us, our revenue may decline and our business will suffer.

We are in a highly competitive market, and competitive pressures from existing and new companies may harm our business, revenues, growth rates and market share. In addition, there has been consolidation in our market, and a number of our current or potential competitors have longer operating histories, greater brand recognition, larger customer bases and significantly greater resources than we do.

Our market is intensely competitive, and we expect competition to increase in the future from established competitors, consolidations and new market entrants. Our major competitors include Blackberry, Citrix, IBM, Lookout, Microsoft, Symantec and VMware. A number of our historical competitors have been purchased by large corporations. For example, AirWatch was acquired by VMware, Good Technology was acquired by Blackberry, and Skycure was acquired by Symantec. These large corporations have longer operating histories, greater name recognition, larger and better established customer bases, more channel partners, and significantly greater financial, technical, sales, marketing and other resources than we have. Because these competitors possess greater resources, they may be able to adapt more quickly to new technologies and changes in customer requirements, devote greater resources to the promotion and sale of their solutions, purchase companies or new technologies, initiate or withstand substantial price competition, and/or develop and expand their products and features more quickly than we can. In addition, certain of our competitors may be able to leverage their relationships with customers based on an installed base of solutions or to incorporate functionality into existing solutions to gain business in a manner that discourages customers from including us in competitive bidding processes, evaluating and/or purchasing our solutions. They have done this in the past, and may in the future do this, by selling at zero or negative margins, through solution bundling or through enterprise license deals. Some potential customers, especially Forbes Global 2000 Leading Companies, have already made investments in, or may make investments in, substantial personnel and financial resources and established deep relationships with these much larger enterprise IT vendors, which may make them reluctant to evaluate our solutions or work with us regardless of solution performance or features. Potential customers may prefer to purchase a broad suite of solutions from a single provider, or may prefer to purchase mobile IT solutions from an existing supplier rather than a new supplier, regardless of performance or features.

We expect competition to intensify in the future as new and existing competitors introduce new solutions into our market. In addition, some of our competitors have entered into partnerships or other strategic relationships or purchased companies to offer a more comprehensive solution than they individually had offered. We expect this trend to continue as companies attempt to strengthen or maintain their market positions in an evolving industry. This competition has resulted in the past and could in the future result in increased pressure on pricing and renewals, increased sales and marketing expenses, or harm to our market share, any of which could harm our business. Competitors' offerings may in the future have better performance or features, lower prices and/or broader acceptance than our solutions. Competitors' products could also include new technologies, which could render our existing solutions obsolete or less attractive to customers, or be bundled with legacy enterprise security and management products as a "one-stop-shop" offering, which certain customers with large installed bases of those legacy products may prefer. If we fail to keep up with technological changes or to convince our customers and potential customers of the value of our solutions, our business, operating results and financial condition could be materially and adversely affected.

We compete in rapidly evolving markets and must develop new solutions and enhancements to our existing solutions. If we fail to predict and respond rapidly to emerging technological trends and our customers' changing needs, we may not be able to remain competitive. In addition, we may not generate positive returns on our research and development investments, which may harm our operating results.

Our markets are characterized by rapidly changing technology, changing customer needs, evolving operating system standards and frequent introductions of new offerings. To succeed, we must effectively anticipate, and adapt in a timely manner to, customer and multiple operating system requirements and continue to develop or acquire new solutions and features that meet market demands and technology trends. Likewise, if our competitors introduce new offerings that compete with ours or incorporate features that are not available in our solutions, we may be required to reposition our solutions or introduce new solutions in response to such competitive pressure. We may not have access to or have adequate notice of new operating system developments, and we may experience unanticipated delays in developing new solutions and cloud services or fail to meet customer expectations for such solutions. If we fail to timely develop and introduce new solutions or enhancements that respond adequately to new challenges in the mobile IT market, our business could be adversely affected, especially if our competitors are able to more timely introduce solutions with such increased functionality.

We have invested significant time and financial resources in the development of our platforms and infrastructure and believe that we must continue to dedicate substantial resources to our research and development efforts to maintain our competitive position. Developing our products is expensive, and the investment in product development may not generate additional revenue in the near-term or at all. The research and development of new technologically advanced products is also a complex and uncertain process requiring high levels of innovation and investment, as well as the accurate forecasts of technology, market trends and consumer needs. Our failure to successfully develop new and improved products, services and technologies may reduce our future growth and profitability and may adversely affect our business, results and financial condition.

We have invested in MobileIron Access and MobileIron Threat Defense but have not yet gained significant market traction in these product lines. Should our MobileIron Access or MobileIron Threat Defense fail to achieve significant market traction, we would lose the value of our investment and our business and operating results may be harmed.

Further, we may be required to commit significant resources to developing new solutions before knowing whether our investments will result in solutions that the market will accept. We are in the process of phasing out our older cloud-based product in favor of MobileIron Cloud, our newer and more scalable cloud-only platform. The failure to successfully market MobileIron Cloud as a replacement and improvement to our older cloud-based product or the failure of our customers and prospective customers to adopt MobileIron Cloud for any reason could result in a decline in our revenue.

These risks are greater in the mobile IT market because our software is deployed on endpoints (E.g., phones, tablets or laptops) that run on different operating systems, and these multiple operating systems change frequently in response to consumer demand. As a result, we may need to release new software updates at a much greater pace than a traditional enterprise software company that supports only traditional PCs. We may experience technical design, engineering, marketing and other difficulties that could delay or prevent the development, introduction or marketing of new solutions and enhancements on both of our technology platforms. As a result, we may not be successful in modifying our current solutions or introducing new ones in a timely or appropriately responsive manner, or at all. If we fail to address these changes successfully, our business and operating results could be materially harmed.

Finally, all of our additional solutions require customers to use our MobileIron platform, whether deployed on-premise or through our cloud service. As such, virtually all of our revenue depends on the continued adoption and use of our MobileIron platform. If customers and prospective customers decided to stop using or purchasing the MobileIron platform, our product strategy and business would be harmed.

An increasing portion of our sales has been generated from subscription licenses, which involves certain risks.

An increasing portion of our sales has been generated from subscription licenses. This mix shift towards subscription licensing, and differing revenue recognition patterns between the different types of subscriptions that we offer under the new revenue accounting guidelines, present a number of risks to us. We recognize a substantial portion of our subscription revenues over the term of the subscription agreement as compared to sales of perpetual licenses, which are recognized up-front at the time of delivery. Under the new revenue accounting guidelines, a portion of subscriptions to on-premises software is recognized up-front, while the remainder of the subscription is recognized over the subscription term. That revenue recognition pattern is different from subscriptions to cloud offerings, for which all revenue is recognized ratably over the term of the subscription. Customers in a subscription arrangement may elect not to renew their contractual arrangement with us upon expiration, or they may attempt to renegotiate pricing or other contract provisions on terms that are less favorable to us. MRC revenue, which is currently included in subscription revenue in our statements of operations, is recognized monthly on the basis of active users or devices and thus will fluctuate from month to month. Service providers that operate on an MRC billing model typically report to us in arrears on a monthly basis the number of actual users or devices deployed, and then we generate invoices based on those reports. Therefore, invoicing and collection logistics often result in a longer collection cycle. In addition, service providers may bundle our solution with their offerings and price aggressively, which could result in a decrease in MRC billings. These factors could negatively affect our cash flow to the extent subscription revenue includes MRC revenue.

Changes in features and functionality by operating system providers and mobile device manufacturers could cause us to make short-term changes in engineering focus or product development or otherwise impair our product development efforts or strategy, increase our costs, and harm our business.

Our platform depends on interoperability with operating systems, such as those provided by Apple, Google and Microsoft, as well as device manufacturers. Because mobile and other modern operating systems are released more frequently than legacy PC operating systems, and we typically have limited advance notice of changes in features and functionality of operating systems and mobile devices, we may be forced to divert resources from our preexisting product roadmap in order to accommodate these changes. As a result of this limited advance notice, we also have a short time to implement and test changes to our product to accommodate these new features, which increases the risk of product defects. In addition, if we fail to enable IT departments to support operating system upgrades upon release, our business and reputation could suffer. This could disrupt our product roadmap and cause us to delay introduction of planned solutions, features and functionality, which could harm our business.

Operating system providers have included, and may continue to include, features and functionality in their operating systems that are comparable to certain of our solutions, features and/or functionality, thereby making our platform less valuable. The inclusion of, or the announcement of an intent to include, functionality perceived to be similar to that offered by our mobile IT solutions in mobile or other modern operating systems may have an adverse effect on our ability to market and sell our solutions. Even if the functionality offered by mobile operating system providers is more limited than our solutions, a significant number of potential customers may elect to accept such limited functionality in lieu of purchasing our solutions. Furthermore, some of the features and functionality in our solutions require interoperability with operating system APIs, and if operating system providers decide to restrict our access to their APIs, that functionality would be lost and our business could be impaired. Finally, we have entered into contractual arrangements with operating systems providers and/or mobile device manufacturers, under which we are obligated to certain development priorities, which can further limit our engineering flexibility.

We have experienced substantial turnover, and the loss of key personnel or an inability to attract, retain and motivate qualified personnel may impair our ability to expand our business.

Our success is substantially dependent upon the continued service and performance of our senior management team and key technical, marketing, sales and operations personnel. Over the last four years, we have experienced substantial turnover in our sales, engineering and executive teams, and this could continue in the future. The replacement of any members of our senior management team or other key personnel likely would involve significant time and costs and may harm our business, operating results and financial condition. Our future success also depends, in part, on our

ability to continue to attract, integrate and retain highly skilled personnel, in particular engineers and sales personnel. Competition for highly skilled personnel is frequently intense, especially in the San Francisco Bay Area, where we have a substantial presence and need for highly skilled personnel, including, in particular, engineers. We must offer competitive compensation and opportunities for professional growth in order to attract and retain these highly skilled employees. Failure to successfully attract, integrate or retain qualified personnel to fulfill our current or future needs may negatively impact our growth.

A failure of our product strategy could harm our business.

Our product and business strategy is highly dependent on current and future customers continuing to adopt our solutions, features, and functionality, including expanding to newer products, such as MobileIron Access and MobileIron Threat Defense, and with existing on-premise customers migrating to MobileIron Cloud. Slow adoption by enterprises of mobile business applications may slow the adoption of our platform, because customers who are not deploying business apps other than email may not see value in our more advanced application security and management capabilities. If customers shift from client-side apps to web apps as the preferred interface for end-users, it would reduce the value of our security solution because less confidential data would reside on the endpoint. Operating system providers and larger software companies could harm our strategy by creating competitive solutions and/or bundling those solutions in a broader portfolio of products. For example, Microsoft bundled certain UEM capabilities into Microsoft 365 in an attempt to dissuade customers from using solutions like MobileIron. If our product strategy is not successful for these or other reasons, the value of our investment would be lost and our results of operations would be harmed.

If we are not able to scale our business and manage our expenses, our operating results may suffer.

We have expanded, decreased and/or relocated specific functions over time in order to scale efficiently, including restructurings in 2016 and 2017 to improve our cost structure and help scale our business. Our need to scale our business has placed, and will continue to place, a significant strain on our administrative and operational business processes, infrastructure, facilities and other resources. Our ability to manage our operations will require significant expenditures and allocation of valuable management resources to improve internal business processes and systems, including investments in automation. Further international expansion may also be required for our continued business growth, and managing any international expansion will require additional resources and controls. If our operations infrastructure and business processes fail to keep pace with our business and customer requirements, customers may experience disruptions in service or support or we may not scale the business efficiently, which could adversely affect our reputation and adversely affect our revenues. There is no guarantee that we will be able to continue to develop and expand our infrastructure and business processes at the pace necessary to scale the business, and our failure to do so may have an adverse effect on our business. If we fail to efficiently expand our engineering, operations, customer support, professional services, cloud infrastructure, IT and financial organizations and systems, or if we fail to implement or maintain effective internal business processes, controls and procedures, our costs and expenses may increase more than we planned or we may fail to execute on our product roadmap or our business plan, any of which would likely seriously harm our business, operating results and financial condition.

A security breach of our cloud service infrastructure or a disruption of our cloud service availability for any reason could result in liabilities, lost business and reputational harm.

In connection with providing our cloud service to customers, we obtain access to certain data, such as employees' names, registration credentials, mobile device ID, geolocation of last device check-in, business email addresses, mobile phone numbers, business contact information and the list of applications installed on the mobile devices. Any security breach of the systems used to provide the cloud service, whether through third-party action or employee error or malfeasance, could result in damage, loss, misuse or theft of such data. A breach could also give rise to litigation or require us to incur financial and operational expenses in connection with fulfillment of certain indemnity obligations to our cloud service customers, settling or defending claims made against us, or complying with specific laws or regulations such as breach notification requirements. Techniques used to sabotage or obtain unauthorized access to information processing systems change frequently. In addition, they generally are not recognized until launched against a target. As a result, we may be unable to anticipate these techniques or to implement adequate preventative or mitigation measures in a timely manner. Because our software is designed to enable IT administrators to secure and manage customers' data transmitted to or stored on employees' mobile devices, the publicity associated with an actual or

perceived breach of our cloud service infrastructure would likely result in reputational damage, as well as loss of potential sales and existing customers. In addition, unexpected increases in demand at one customer may affect the overall service in unanticipated ways and may cause a disruption in service for other customers of this platform. We have experienced, and may in the future experience, disruptions, outages and other performance problems with our cloud service. These problems may be caused by a variety of factors, including, but not limited to, infrastructure changes, human or software errors, viruses, malicious code, denial of service or other security attacks, fraud, spikes in customer usage and interruption or loss of critical third party hosting, power or Internet connectivity services. If we sustain disruptions of our cloud services for any reason, our reputation, business and results of operations would be seriously harmed.

Defects in our solutions could harm our business, including as a result of customer dissatisfaction, data breaches or other disruption, and subject us to substantial liability.

Because the mobile IT market involves multiple operating platforms, we provide frequent incremental releases of solution updates and functional enhancements. Such new versions frequently contain undetected errors when first introduced or released. We have found defects in new releases of our solutions, and new errors in our existing solutions may be detected in the future. Defects in our solutions may also result in vulnerability to security attacks, which could result in claims by customers and users for losses that they sustain.

Because our customers use our solutions for important aspects of their business, any errors, defects, disruptions in service or other performance problems with our solutions could hurt our reputation and may damage our customers' businesses. In certain instances, our customers have stopped using or failed to expand use of, our solutions as a result of defects, and this may happen in the future. In addition, customers may delay or withhold payment to us, elect not to renew and make warranty claims or other claims against us. In addition, we rely on positive customer experience in order to sell additional products to other customers or sell to new customers. Defects or disruptions in our solution could result in reputational harm and loss of future sales. In addition, regardless of the party at fault, errors of these kinds divert the attention of our engineering personnel from our development efforts, damage our reputation and the reputation of our solutions, cause significant customer relations problems and can result in product liability claims.

Security breaches and other disruptions of our information systems could significantly impair our operations, compromise our ability to conduct our business and deliver our products and services, and result in significant data losses, theft of our intellectual property, significant liability, damage to our reputation, and loss of current and future business.

We rely on our IT systems for almost all of our business operations, including internal operations, product development, sales and marketing, and communications with customers and other business partners. The secure processing, maintenance and transmission of both our own sensitive information and our customers' data is critical to our operations and business strategy. Despite our security measures, our information technology systems and infrastructure may be vulnerable to attacks by hackers or breached due to employee error, compromised networks of our third party service providers, malfeasance or other disruptions. Any cyber security attack could result in the damage, loss, theft or misappropriation of our proprietary information or our customers' data and/or cause interruptions of our internal business operations or the delivery of our solutions to customers. Because the techniques used by unauthorized persons to access or sabotage networks change frequently and may not be recognized until launched against a target, we may be unable to anticipate these techniques or readily detect or take remedial action against an attack. Further, if unauthorized access or sabotage remains undetected for an extended period of time, the effects of such breach could be exacerbated. We also depend on our employees to handle confidential data appropriately and deploy our information resources in a secure fashion that does not expose our network systems to security breaches and the loss of data. Any breach as a result of cyber criminals or employee malfeasance or error could compromise our networks and the information stored there could be accessed, publicly disclosed, lost or stolen. Our insurance may not be sufficient to cover all of our losses from any future breaches of our systems. We have also outsourced a number of our business functions to third parties, and we rely on distributors, resellers, system vendors, and system integrators to sell our products and services. Thus our business operations also depend, in part, on their cybersecurity measures. Any unauthorized access, disclosure or other loss of information could result in legal claims or proceedings, investigations by law enforcement or regulatory bodies, liability under laws that protect the confidentiality of personal information, regulatory penalties, could disrupt our operations and the solutions we provide to customers, could compromise our

ability to protect our intellectual property rights, and could damage our reputation, which could adversely affect our business, financial condition, and operating results.

We depend and rely upon technologies from third parties to operate our products, and interruptions or performance problems with these technologies may adversely affect our business and results of operations.

We rely on applications from third parties in order to operate critical functions of our products. If these services become unavailable due to extended outages, interruptions, errors or defects or because they are no longer available on commercially reasonable terms, our expenses could increase, our ability to manage finances could be interrupted and supporting our customers could be impaired until equivalent services, if available, are identified, obtained and implemented, all of which could adversely affect our business.

Real or perceived errors, failures or bugs in our software could adversely affect our business, results of operations, financial condition, and growth prospects.

Our software is complex, and therefore, undetected errors, failures or bugs may occur in the future. Our software is used in IT environments with different operating systems, system management software, applications, devices, databases, servers, storage, middleware, custom and third-party applications and equipment and networking configurations, which may cause errors or failures in the IT environment into which our software is deployed. This diversity increases the likelihood of errors or failures in those IT environments. Despite testing by us, real or perceived errors, failures or bugs may not be found until our customers use our software. Real or perceived errors, failures or bugs in our products could result in negative publicity, loss of or delay in market acceptance of our software and harm our brand, weakening of our competitive position, claims by customers for losses sustained by them or failure to meet the stated service level commitments in our customer agreements. In such an event, we may be required, or may choose, for customer relations or other reasons, to expend significant additional resources in order to help correct the problem. Any errors, failures or bugs in our software could impair our ability to attract new customers, retain existing customers or expand their use of our software, which would adversely affect our business, results of operations and financial condition.

Disruptions of the third-party data centers that host our cloud service could result in delays or outages of our cloud service and harm our business.

We currently host our cloud service from third-party data center facilities operated by several different providers located around the world, such as Equinix and Amazon Web Services. Any damage to, or failure of, our cloud service that is hosted by these third parties, whether as a result of our actions, actions by the third-party data centers, actions by other third parties, or acts of God, could result in interruptions in our cloud service and/or the loss of data. While the third-party hosting centers host the server infrastructure, we manage the cloud services through our site reliability engineering team and need to support version control, changes in cloud software parameters and the evolution of our solutions, all in a multi-OS environment. As we continue to add data centers and capacity in our existing data centers, we may move or transfer our data and our customers' data. Despite precautions taken during this process, any unsuccessful data transfers may impair the delivery of our service. In some cases, we have entered into contractual service level commitments to maintain uptime of at least 99.9% for our cloud services platform and if we or our third-party data center facilities fail to meet these service level commitments, we may have to issue credits to these customers. Impairment of, or interruptions in, our cloud services may reduce our subscription revenues, subject us to claims and litigation, cause our customers to terminate their subscriptions and adversely affect our subscription renewal rates and our ability to attract new customers. Our business will also be harmed if our customers and potential customers believe our services are unreliable.

We do not control, or in some cases have limited control over, the operation of the data center facilities we use, and they are vulnerable to damage or interruption from earthquakes, floods, fires, power loss, telecommunications failures and similar events. They may also be subject to break-ins, sabotage, intentional acts of vandalism and similar misconduct, and to adverse events caused by operator error. We cannot rapidly switch to new data centers or move customers from one data center to another in the event of any adverse event. Despite precautions taken at these facilities, the occurrence of a natural disaster, an act of terrorism or other act of malfeasance, a decision to close the facilities

without adequate notice, or other unanticipated problems at these facilities could result in lengthy interruptions in our service and the loss of customer data and business.

The prices of our solutions may decrease or we may change our licensing and subscription programs, renewal programs or bundling arrangements, which may reduce our revenue and adversely impact our financial results.

The prices for our solutions may decline for a variety of reasons, including competitive pricing pressures, discounts, a change in our mix of solutions toward subscription, enterprise-wide licensing arrangements, bundling of solutions, features and functionality by us or our competitors, potential changes in our pricing, anticipation of the introduction of new solutions, or promotional programs for customers or channel partners. Competition and consolidation continue to increase in the markets in which we participate, and we expect competition to further increase in the future, leading to increased pricing pressures. Larger competitors with more diverse product lines may reduce the price of solutions or services that compete with ours or may bundle their solutions with other solutions and services. Furthermore, we anticipate that the sales prices and gross profits for our solutions will decrease over product life cycles. If we are unable to increase sales to offset any decline in our prices, our business and results of operations would be harmed.

We continually re-evaluate our licensing and subscription programs and renewal programs, including specific license and subscription models and terms and conditions. We have in the past implemented, and could in the future implement, new licensing and subscription programs, renewal programs or bundling arrangements, including promotional programs or specified enhancements to our current and future solutions, enterprise licensing arrangements, discounted pricing and/or conversion of service providers or customers from one billing model to another. Such billing model, renewal programs or licensing and subscription arrangement changes may result in delayed revenue recognition.

Our ability to sell our solutions is highly dependent on the quality of our support, which is made complex by the requirements of mobile IT. Our failure to deliver high quality support would have a material adverse effect on our sales and results of operations.

Once our solutions are deployed, our customers depend on our support organization or that of our channel partners to resolve any issues relating to our solutions. Our failure to provide effective support has in the past, and could in the future, adversely affect our ability to sell our solutions or increase the number of licenses sold to existing customers. Our customer support is especially critical because the mobile IT market requires relatively frequent software releases. Mobile IT requires a complex set of features, functionality and controls, which makes support critical and difficult. In addition, we target companies on the Forbes Global 2000 Leading Companies list, many of whom have complex networks and require higher levels of support than smaller customers. As customers deploy more licenses and purchase a broader array of our solutions, the complexity and difficulty of our support obligations increase. If we fail to meet the requirements of the larger customers, it may be more difficult to increase our deployments either within our existing Forbes Global 2000 Leading Companies list or other customers or with new Forbes Global 2000 Leading Companies list customers. We face additional challenges in supporting our non-U.S. customers, including the employment and retention of qualified support personnel and the need to rely on channel partners to provide support.

We rely substantially on channel partners for the sale and distribution of our solutions and, in some instances, for the support of our solutions. A loss of certain channel partners, a decrease in revenues from certain of these channel partners or any failure in our channel strategy could adversely affect our business.

A substantial portion of our sales are through channel partners – either telecommunications carriers, which we call service providers, or other resellers – and thus we depend on our channel partners and on our channel partner strategy for the vast majority of our revenue. Our international resellers often enter into agreements directly with our mutual customers to host our software and provide other value-added services, such as IT administration.

Our service provider partners often provide support to our customers and enter into similar agreements directly with our mutual customers to host our software and/or provide other value-added services. Our agreements and operating relationships with our service provider partners are complex and require a significant commitment of internal time and resources. In addition, our service provider partners are large corporations with multiple strategic businesses and relationships, and thus our business may not be significant to them in the overall context of their much larger enterprise.

These partnerships may require us to adhere to outside policies, which may be administratively challenging and could result in a decrease in our ability to complete sales. Even if the service provider partner considers us to be an important strategic relationship, internal processes at these large partners are sometimes difficult and time-consuming to navigate. Thus, any loss of a major channel partner or failure of our channel strategy could adversely affect our business. AT&T, as a reseller, is our largest service provider partner and was responsible for 10% of our total revenue in 2018.

Our agreements with AT&T and our other channel partners are non-exclusive and most of our channel partners have entered, and may continue to enter, into strategic relationships with our competitors. Our channel partners may terminate their respective relationships with us with limited or no notice and with limited or no penalty, pursue other partnerships or relationships, or attempt to develop or acquire solutions or services that compete with our solutions. If our channel partners do not effectively market and sell our solutions, if they choose to place greater emphasis on solutions of their own or those offered by our competitors, or if they fail to provide adequate support or otherwise meet the needs of our customers, our ability to grow our business and sell our solutions may be adversely affected. The loss of our channel partners, in particular AT&T, the failure to recruit additional channel partners, or any reduction or delay in sales of our solutions by our channel partners could materially and adversely affect our results of operations.

In addition, we have sold and will sell directly to end-user customers, which may adversely affect our relationship with our channel partners.

Our sales cycles for large enterprises are often long, unpredictable and expensive. As a result, our sales and revenue are difficult to predict and may vary substantially from period to period, which may cause our operating results to fluctuate significantly.

Our sales efforts involve educating our customers about the use and benefits of our solutions, including the technical capabilities of our solutions and the business value of our solutions. Many of our large customers have very complex IT systems, mobile environments and data privacy and security requirements. Accordingly, many of these customers undertake a significant evaluation process, which frequently involves not only our solutions, but also those of our competitors, and has resulted in lengthy sales cycles. We spend substantial time, money and effort on our sales activities without any assurance that our efforts will produce any sales. In addition, purchases of our solutions are frequently subject to budget constraints, multiple purchase approvals, lengthy contract negotiations and unplanned administrative, processing and other delays. Moreover, the evolving nature of the mobile IT market may lead prospective customers to postpone their purchasing decisions pending adoption of technology by others or pending potential consolidation in the market, and may require evaluation of our product by multiple functions within their company. As a result of our lengthy sales cycle, it is difficult to predict whether and when a sale will be completed, and our operating results may vary significantly from quarter to quarter. Even if sales are completed, the revenues we receive from these customers may not be sufficient to offset our upfront investments.

We seek to sell our solutions to large enterprises. Sales to and support of these types of enterprises involve risks that could harm our business, financial position and results of operations.

Our growth strategy is dependent, in part, upon increasing sales of our solutions to large enterprises. Sales to large customers involve risks that may not be present (or that are present to a lesser extent) with sales to smaller entities. These risks include:

- more complicated network requirements, which result in more difficult and time-consuming implementation processes;
- more intense and time-consuming customer support practices;
- increased purchasing power and leverage held by large customers in negotiating contractual arrangements with us;
- more customer-favorable contractual terms, including penalties;

- longer sales cycles and the associated risk that substantial time and resources may be spent on a potential customer that ultimately elects not to purchase our solution or purchases fewer licenses than we had anticipated;
- closer relationships with, and dependence upon, large technology companies that offer competitive solutions;
- an RFP process that may favor incumbent or larger technology companies;
- increased reputational risk as a result of data breaches or other problems involving high profile customers; and
- more pressure for discounts.

If we are unable to increase sales of our solutions to large enterprises while mitigating the risks associated with serving such customers, our business, financial position and results of operations may suffer.

Our failure to comply with privacy and data protection laws could have a material adverse effect on our business.

Personal privacy and data protection have become significant issues in the United States, Europe and elsewhere where we offer our solutions. We collect contact and other personal or identifying information from our customers, and our customers increasingly use our cloud services to store and process personal information and other regulated data. We also maintain personal data of our employees in connection with our HR and benefits administration and share that information with third party payroll and benefits providers.

Many federal, state and foreign government bodies and agencies have adopted or are considering adopting laws and regulations regarding the collection, use, disclosure and retention of personal information, with which we must comply. The variety, complexity and changing nature of the privacy law landscape worldwide is challenging. If our solutions fail to adequately separate personal information and to maintain the security of enterprise applications and data, the market perception of the effectiveness of our solutions could be harmed, employee adoption of mobile initiatives could be slowed, we could lose potential sales and existing customers, and we could incur significant liabilities.

If any of our customers or prospective customers decide not to purchase our software as a result of this regulatory uncertainty, our revenues could decline and our business could suffer. Any inability to adequately address privacy concerns, whether valid or not, or to comply with applicable privacy or data protection laws, regulations and privacy standards, could result in additional cost and liability to us, damage our reputation, inhibit sales of our solutions and harm our business. Furthermore, the attention garnered by the National Security Agency's bulk intelligence collection programs may result in further concerns surrounding privacy and technology products, which could harm our business.

The European Union data protection law, the General Data Protection Regulation ("GDPR"), which became enforceable in May 2018, is wide-ranging in scope. To adapt to these new requirements, we have invested and will continue to invest resources necessary to enhance our policies and controls across our business units, products and services relating to how we collect and use personal data relating to customers, distributors, resellers, personnel and suppliers. Additionally, we expect that the international transfer of personal data will present ongoing compliance challenges and complicate our business transactions as we negotiate and implement suitable arrangements with international customers and international and domestic suppliers. Failure to comply may lead to fines of up to €20 million or up to 4% of the annual global revenues of the infringer, whichever is greater. EU data protection laws and their interpretations continue to develop, and may be inconsistent from jurisdiction to jurisdiction, which may further impact our information processing activities. Further, laws such as the EU's proposed e-Privacy Regulation are increasingly aimed at the use of personal information for marketing purposes, and the tracking of individuals' online activities. In addition, countries outside the EU are considering or have passed legislation that requires local storage and processing of data, which could increase the cost and complexity of delivering our products and services. Our current

arrangements for the transfer of personal data will need to continue to adapt to future judicial decisions and regulatory activity as laws on privacy and the protection of personal data continue to evolve in the countries in which we and our customers do business. If we do not adapt to such changes in the laws or regulations, our business and reputation could be harmed.

The implementation of GDPR has led other jurisdictions to either amend, or propose legislation to amend their existing data privacy and cybersecurity laws to resemble the requirements of GDPR. For example, on June 27, 2018, California adopted the California Consumer Privacy Act of 2018 (“CaCPA”). The CaCPA has been characterized as the first “GDPR-like” privacy statute to be enacted in the United States because it mirrors a number of the key provisions in the GDPR. Because of this, we may need to engage in additional compliance efforts, including data mapping to identify the personal information we are collecting and the purposes for which such information is collected and enhanced consumer controls with respect to their data. All of this will need to be done before the effective date of the CaCPA on January 2, 2020. If we are unable to meet these new standards, our business could be harmed.

The failure of third parties to comply with privacy and data security laws could harm our business.

The regulatory framework for privacy and data security issues worldwide is currently evolving and is likely to remain uncertain for the foreseeable future, in particular as it relates to cloud computing vendors. Our existing contractual provisions may not protect us from claims for data loss or regulatory noncompliance made against cloud computing providers with whom we contract. Any failure by us or our channel partners or cloud computing vendors to comply with posted privacy policies, other privacy-related or data protection laws and regulations, or the privacy and security commitments contained in contracts could result in legal or regulatory proceedings and/or fines, which could harm our business and reputation.

Employee adoption of mobile initiatives depends on the credible and clear separation of enterprise applications and data and personal information on the device, as well as the employee’s data privacy. For our customers, it is also essential to maintain the security of enterprise data properly while retaining the native experience users expect. While we contractually obligate our customers to make the required disclosures, gain the required consents from their employees and otherwise comply with applicable law regarding the processing of personally identifiable information that the employer may access, we do not control whether they in fact do so. Any claim by an employee that his or her employer had not complied with applicable privacy and data security laws in connection with the deployment and use of our software on the employee’s mobile device could harm our reputation and business and subject us to liability, whether or not warranted.

We may acquire other businesses which could require significant management attention, disrupt our business, dilute stockholder value and adversely affect our operating results.

As part of our business strategy, we may make investments in complementary companies, solutions or technologies. We may not be able to find suitable acquisition candidates, and we may not be able to complete such acquisitions on favorable terms, if at all. If we do complete acquisitions, we may not ultimately strengthen our competitive position or achieve our goals. In addition, if we are unsuccessful at integrating such acquisitions or developing the acquired technologies, the revenue and operating results of the combined company could be adversely affected. We have in the past and could in the future record impairment losses in connection with acquisitions. Further, the integration of an acquired company typically requires significant time and resources, and we may not be able to manage the process successfully. We may not successfully evaluate or utilize the acquired technology or personnel or accurately forecast the financial impact of an acquisition transaction, including accounting charges. We may have to pay cash, incur debt or issue equity securities to pay for any such acquisition, each of which could adversely affect our financial condition or the value of our common stock. The sale of equity or issuance of debt to finance any such acquisitions could result in dilution to our stockholders. The incurrence of indebtedness would result in increased fixed obligations and could also include covenants or other restrictions that would impede our ability to manage our operations.

We have indemnity obligations under our contracts with our customers and channel partners, which could have a material adverse effect on our business.

The mobile industry has been characterized by substantial patent infringement lawsuits. In our agreements with customers and channel partners, we typically agree to indemnify them for losses related to, among other things, claims by third parties of intellectual property infringement and sometimes data breaches resulting in the compromise of personal data. If any such indemnification obligations are triggered, we could face substantial liabilities or be forced to make changes to our solutions or terminate our customer agreements and refund monies. In addition, provisions regarding limitation of liability in our agreements with customers or channel partners may not be enforceable in some circumstances or jurisdictions or may not protect us from claims and related liabilities and costs. We maintain insurance to protect against certain types of claims associated with the use of our solutions, but our insurance may not adequately cover any such claims. In addition, even claims that ultimately are unsuccessful could result in expenditures of and divert management's time and other resources. Furthermore, any legal claims from customers and channel partners could result in reputational harm and the delay or loss of market acceptance of our solutions.

A portion of our revenues are generated by sales to heavily regulated organizations and governmental entities, which are subject to a number of challenges and risks.

Some of our customers are either in highly regulated industries or are governmental entities and may be required to comply with more stringent regulations in connection with the implementation and use of our solutions. Selling to these entities can be highly competitive, expensive and time consuming, often requiring significant upfront time and expense without any assurance that we will successfully complete a sale or that the organization will deploy our solution at scale. Highly regulated and governmental entities often require contract terms that differ from our standard arrangements and impose compliance requirements that are complicated, require preferential pricing or "most favored nation" terms and conditions, or are otherwise time-consuming and expensive to satisfy. If we are unable to gain any required federal clearance or certificate in a timely manner, or at all, we would likely be prohibited from selling to particular federal customers. In addition, government demand and payment for our solutions and services may be impacted by public sector budgetary cycles and funding authorizations, particularly in light of U.S. budgetary challenges, with funding reductions or delays adversely affecting public sector demand for our solutions. The additional costs associated with providing our solutions to governmental entities and highly regulated customers could harm our margins. Moreover, changes in the underlying regulatory conditions that affect these types of customers could harm our ability to efficiently provide our solutions to them and to grow or maintain our customer base.

If our solutions do not interoperate with our customers' IT infrastructures, sales of our solutions could be negatively affected.

Our solutions need to interoperate with our customers' existing IT infrastructures, which have varied and complex specifications. As a result, we must attempt to ensure that our solutions interoperate effectively with these different, complex and varied back-end environments. To meet these requirements, we have and must continue to undertake development and testing efforts that require significant capital and employee resources. We may not accomplish these development efforts quickly or cost-effectively, or at all. If our solutions do not interoperate effectively, orders for our solutions could be delayed or cancelled, which would harm our revenues, gross margins and reputation, potentially resulting in the loss of existing and potential customers. The failure of our solutions to interoperate effectively within the enterprise environment may divert the attention of our engineering personnel from our development efforts and cause significant customer relations problems. In addition, if our customers are unable to implement our solutions successfully, they may not renew or expand their deployments of our solutions, customer perceptions of our solutions may be impaired and our reputation and brand may suffer.

Although technical problems experienced by users may not be caused by our solutions, our business and reputation may be harmed if users perceive our solutions as the cause of a device failure.

The ability of our solutions to operate effectively can be negatively impacted by many different elements unrelated to our solutions. For example, a user's experience may suffer from an incorrect setting in his or her mobile device, an issue relating to his or her employer's corporate network or an issue relating to the underlying mobile operating system, none of which we control. Even though technical problems experienced by users may not be caused by

our solutions, users often perceive the underlying cause to be a result of poor performance of our solution. This perception, even if incorrect, could harm our business and reputation.

Our customers may exceed their licensed device or user count, and it is sometimes difficult to collect payments as a result of channel logistics, which could harm our business, financial position and results of operations.

Our customers license our solutions on either a per-device or per-user basis. Because the vast majority of the sales of our solutions are through channel partners, and in some cases multiple tiers of channel partners, the logistics of collecting payments for excess usage can sometimes be time-consuming. We may also encounter difficulty collecting accounts receivable and could be exposed to risks associated with uncollectible accounts receivable. Economic conditions may impact some of our customers' ability to pay their accounts payable. If we are unable to collect from our customers for their excess usage or otherwise or if we have to write down our accounts receivable, our revenues and operating results would suffer.

If the market for our solutions shrinks or does not continue to develop as we expect, our growth prospects may be harmed.

The success of our business depends on the continued growth and proliferation of mobile and other modern IT infrastructure as an increasingly important computing platform for businesses. Our business plan assumes that the demand for mobile and other modern IT solutions and the deployment of business apps on mobile devices will increase. However, the mobile IT market has slowed and may not develop as quickly as we expect, or at all, and businesses may not continue to elect to utilize mobile IT solutions as an advanced business platform. This market for our solutions may not develop for a variety of reasons, including that larger, more established companies will enter the market or that mobile operating system companies will offer substantially similar functionality or that companies may not deploy business apps at scale and thus may be satisfied with less advanced technologies. Accordingly, demand for our solutions may not continue to develop as we anticipate, or at all, and the growth of our business and results of operations may be adversely affected. In addition, because we derive substantially all of our revenue from the adoption and use of our platform, a decline or slowing growth in the mobile IT market would harm the results of our business operations more seriously than if we derived significant revenue from a variety of other products and services.

Our estimates of market opportunity and forecasts of market growth may prove to be inaccurate, and even if the markets in which we compete achieve the forecasted growth, we cannot assure you our business will grow at similar rates, if at all.

Growth forecasts are subject to significant uncertainty and are based on assumptions and estimates, which may not prove to be accurate. Forecasts relating to our market opportunity and the expected growth in the mobile IT market and other markets may prove to be inaccurate. Even if these markets experience the forecasted growth, we may not grow our business at similar rates, or at all. Our growth will be affected by many factors, including our success in implementing our business strategy, which is subject to many risks and uncertainties.

Seasonality may cause fluctuations in our revenue.

We believe there are significant seasonal factors that may cause us to record higher revenue in some quarters compared with others. We believe this variability is largely due to our customers' budgetary and spending patterns, as many customers spend the unused portions of their discretionary budgets prior to the end of their fiscal years. For example, we have historically recorded our highest level of total revenue in our fourth quarter, which we believe corresponds to the fourth quarter of a majority of our customers. In addition, the type of budget (operating versus capital) available to a customer may affect its decision to purchase a perpetual license or a subscription license. As our rate of growth has slowed, seasonal or cyclical variations in our operations may become more pronounced, and our business, results of operations and financial position may be adversely affected.

Economic or political uncertainties or downturns could materially adversely affect our business.

Economic downturns or uncertainty could adversely affect our business operations or financial results. Negative conditions in the general economy and political sphere both in the United States and abroad, including conditions resulting from changing tariff and trade policies, financial and credit market fluctuations and terrorist attacks on the

United States, Europe, Asia Pacific or elsewhere, could cause a decrease in corporate spending on enterprise software in general and negatively affect the rate of growth of our business. Economic downturns or economic and/or political uncertainty make it difficult for our customers and us to forecast and plan future business activities accurately, and they could cause our customers to reevaluate their decision to purchase our products, which could delay and lengthen our sales cycles, or to deprioritize the portion of their IT budget focused on mobility. We cannot predict the timing, strength or duration of any economic slowdown, economic or political instability or recovery, generally or within any particular industry or geography. If the economic conditions of the general economy or industries in which we operate worsen from present levels, our business operations and financial results could be adversely affected.

The UK's pending withdrawal from the EU may have a negative effect on global economic conditions, financial markets and our business.

The United Kingdom's (UK) pending withdrawal from the European Union (EU), commonly referred to as "Brexit," has created significant uncertainty concerning the future relationship between the UK and the EU and the impact on global markets. It is unclear what financial, trade, regulatory and legal implications the withdrawal of the UK from the EU will have and how such withdrawal will affect us. Economic and political uncertainty stemming from Brexit may cause our enterprise customers to freeze or decrease their spending on our products. Brexit may also adversely affect and delay our ability to market and sell our products in the UK or may increase our costs of doing business in the UK due to risks such as regulatory uncertainty, including whether new privacy laws are enacted in the UK to replace GDPR. Furthermore, the announcement of Brexit caused significant volatility in global stock markets and currency exchange rate fluctuations, and the pending withdrawal of the UK from the EU may also adversely affect European and global economic and market conditions, which may cause our customers outside of the UK to closely monitor their costs and reduce their spending budgets. Any of these effects of Brexit, among others, could have a material adverse impact on our business, financial condition and results of operations.

Our business is subject to the risks of earthquakes, fire, floods and other natural catastrophic events, and to interruption by manmade problems such as network security breaches, computer viruses or terrorism.

Our corporate headquarters are located in the San Francisco Bay Area, a region known for seismic activity. A significant natural disaster, such as an earthquake, fire or flood, occurring near our headquarters could have a material adverse impact on our business, operating results and financial condition. Despite the implementation of network security measures, our networks also may be vulnerable to computer viruses, break-ins and similar disruptions from unauthorized tampering. In addition, natural disasters, acts of terrorism or war could cause disruptions in our or our customers' businesses or the economy as a whole. We also rely on information technology systems to communicate among our workforce and with third parties. Any disruption to our communications or systems, whether caused by a natural disaster or by manmade problems, such as power disruptions, could adversely affect our business.

If we are unable to implement and maintain effective internal controls over financial reporting in the future, investors may lose confidence in the accuracy and completeness of our financial reports and the market price of our common stock may be negatively affected.

As a public company, we are required to maintain internal controls over financial reporting and to report any material weaknesses in such internal controls. Section 404 of the Sarbanes-Oxley Act of 2002 (the Sarbanes-Oxley Act) requires that we furnish a report by management on, among other things, the effectiveness of our internal control over financial reporting. Management's assessment needs to include disclosure of any material weaknesses identified in our internal controls over financial reporting. Our independent registered public accounting firm will not be required to attest to the effectiveness of our internal controls over financial reporting until our first annual report required to be filed with the Securities and Exchange Commission, or SEC, following the date we are no longer an "emerging growth company," as defined in the JOBS Act. We continued to qualify as an "emerging growth company," as defined in the JOBS Act, and our independent registered public accounting firm is not required to attest to the effectiveness of our internal controls over financial reporting for the year that ended on December 31, 2018. However, we will no longer qualify for the exemption for the year ending December 31, 2019. Implementation of internal controls over financial reporting can be time-consuming, costly and complicated. If we have a material weakness in our internal controls over financial reporting, we may not detect errors on a timely basis and our financial statements may be materially misstated. If we identify material weaknesses in our internal controls over financial reporting, if we are unable to comply with the

requirements of Section 404 in a timely manner, if we are unable to assert that our internal controls over financial reporting are effective, or if our independent registered public accounting firm is unable to express an opinion as to the effectiveness of our internal controls over financial reporting, investors may lose confidence in the accuracy and completeness of our financial reports, and the market price of our common stock could be negatively affected. In addition, we could become subject to investigations by the stock exchange on which our securities are listed, the SEC or other regulatory authorities, which could require additional financial and management resources.

If our estimates relating to our critical accounting policies are based on assumptions or judgments that change or prove to be incorrect, our operating results could fall below expectations of financial analysts and investors, resulting in a decline in our stock price.

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates, assumptions and judgments that affect the amounts reported in the consolidated financial statements and accompanying notes. We base our estimates on historical experience and on various other assumptions that we believe to be reasonable under the circumstances, the results of which form the basis for making judgments about the carrying values of assets, liabilities, equity, revenue and expenses that are not readily apparent from other sources. Our operating results may be adversely affected if our assumptions change or if actual circumstances differ from those in our assumptions, which could cause our operating results to fall below the expectations of financial analysts and investors, resulting in a decline in our stock price. Significant assumptions and estimates used in preparing our consolidated financial statements include those related to revenue recognition, stock-based compensation and income taxes. Moreover, the new revenue recognition guidance, Topic 606 – Revenue from Contracts with Customers, requires more judgment than did the prior guidance.

Impairment of goodwill and other intangible assets would result in a decrease in earnings.

We have in the past and may in the future acquire intangible assets. Current accounting rules require that goodwill and other intangible assets with indefinite useful lives no longer be amortized, but instead be tested for impairment at least annually. These rules also require that intangible assets with definite useful lives be amortized over their respective estimated useful lives to their estimated residual values, and reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. Events and circumstances considered in determining whether the carrying value of amortizable intangible assets and goodwill may not be recoverable include, but are not limited to, significant changes in performance relative to expected operating results, significant changes in the use of the assets, significant negative industry or economic trends, or a significant decline in our stock price and/or market capitalization for a sustained period of time. To the extent such evaluation indicates that the useful lives of intangible assets are different than originally estimated, the amortization period is reduced or extended and the quarterly amortization expense is increased or decreased. Any impairment charges or changes to estimated amortization periods could have a material adverse effect on our financial results.

Risks Related to Our Intellectual Property

We have been sued by third parties for alleged infringement of their proprietary rights and may be sued in the future.

There is considerable patent and other intellectual property development activity in our industry. Our success depends in part on not infringing the intellectual property rights of others. From time to time, our competitors or other third parties have claimed, and we expect they will continue in the future to claim, that we are infringing their intellectual property rights, and we may be found to be infringing such rights.

We may be unaware of the intellectual property rights of others that may cover some or all of our solutions. Any claims or litigation could cause us to incur significant expenses and, if successfully asserted against us, could require that we pay substantial damages or ongoing royalty payments, prevent us from offering our solutions, or require that we comply with other unfavorable terms. If any of our customers are sued, we would in general be required to defend and/or settle the litigation on their behalf. In addition, if we are unable to obtain licenses or modify our solutions to make them non-infringing, we might have to refund a portion of perpetual license fees paid to us and terminate those agreements, which could further exhaust our resources. In addition, we may pay substantial settlement amounts or royalties on future solution sales to resolve claims or litigation, whether or not legitimately or successfully asserted against us. Even if we

were to prevail in the actual or potential claims or litigation against us, any claim or litigation regarding our intellectual property could be costly and time-consuming and divert the attention of our management and key personnel from our business operations. Such disputes, with or without merit, could also cause potential customers to refrain from purchasing our solutions or otherwise cause us reputational harm.

We have been sued by non-practicing entities, or NPEs, for patent infringement in the past and may be sued by NPEs in the future. While we have settled such litigation in the past, these lawsuits, with or without merit, require management attention and can be expensive.

If we are unable to protect our intellectual property rights, our competitive position could be harmed or we could be required to incur significant expenses to enforce our rights.

Our ability to compete effectively is dependent in part upon our ability to protect our proprietary technology. We protect our proprietary information and technology through licensing agreements, third-party nondisclosure agreements and other contractual provisions, as well as through patent, trademark, copyright and trade secret laws in the United States and similar laws in other countries. There can be no assurance that these protections will be available in all cases or will be adequate to prevent our competitors from copying, reverse engineering or otherwise obtaining and using our technology, proprietary rights or solutions. The laws of some foreign countries, including countries in which our solutions are sold, may not be as protective of intellectual property rights as those in the United States, and mechanisms for enforcement of intellectual property rights may be inadequate. In addition, third parties may seek to challenge, invalidate or circumvent our patents, trademarks, copyrights and trade secrets, or applications for any of the foregoing. There can be no assurance that our competitors will not independently develop technologies that are substantially equivalent or superior to our technology or design around our proprietary rights. In each case, our ability to compete could be significantly impaired.

To prevent substantial unauthorized use of our intellectual property rights, it may be necessary to prosecute actions for infringement and/or misappropriation of our proprietary rights against third parties. Any such action could result in significant costs and diversion of our resources and management's attention, and there can be no assurance that we will be successful in such action.

Furthermore, many of our current and potential competitors have the ability to dedicate substantially greater resources to enforce their intellectual property rights than we do. Accordingly, despite our efforts, we may not be able to prevent third parties from infringing upon or misappropriating our intellectual property.

Our reliance on third party software and intellectual property licenses

Our solutions are designed to include software and other intellectual property licensed from third parties. While it may be necessary in the future to seek or renew licenses relating to various aspects of our solutions, we have the expectation, based on experience and standard industry practice, that such licenses generally can be obtained on commercially reasonable terms. However, there can be no assurance that the necessary licenses would be available on commercially reasonable terms, if at all. Our inability to obtain certain licenses or other rights or to obtain such licenses or rights on favorable terms could have a material adverse effect on our business, operating results, and financial conditions. Moreover, inclusion in our products or software or other intellectual property licenses from third parties on a nonexclusive basis could limit our ability to protect our proprietary rights in our products.

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

Our solutions contain software modules licensed for use from third-party authors under open source licenses, including the GNU Public License, the GNU Lesser Public License, the Apache License and others. Use and distribution of open source software may entail greater risks than use of third-party commercial software, as open source licensors generally do not provide warranties or other contractual protections regarding infringement claims or the quality of the code. Some open source licenses contain requirements that we make available source code for modifications or derivative works we create based upon the type of open source software we use. If we combine our proprietary solutions with open source software in a certain manner, we could, under certain of the open source licenses, be required to release the source code of our proprietary solutions to the public or offer our solutions to users at no cost. This could allow our

competitors to create similar solutions with lower development effort and time and ultimately could result in a loss of sales for us.

The terms of many open source licenses have not been interpreted by U.S. courts, and there is a risk that such licenses could be construed in a manner that could impose unanticipated conditions or restrictions on our ability to commercialize our solutions. In such event, we could be required to seek licenses from third parties in order to continue offering our solutions, to re-engineer our solutions or to discontinue the sale of our solutions in the event re-engineering cannot be accomplished on a timely basis, any of which could materially and adversely affect our business and operating results.

Risks Related to Our International Operations

Our international operations expose us to additional business risks, and failure to manage these risks may adversely affect our international revenue.

We derive a significant portion of our revenues from customers outside the United States. In 2018, 2017 and 2016, 58%, 53%, and 54% of our revenue, respectively, was attributable to our international customers, primarily those located in Europe. As of December 31, 2018, approximately 45% of our employees were located abroad.

We expect that our international activities will be dynamic over the foreseeable future as we continue to pursue opportunities in international markets, which will require significant management attention and financial resources. Therefore, we are subject to risks associated with having worldwide operations.

We have a limited history of marketing, selling and supporting our solutions internationally. As a result, we must hire and train experienced personnel to staff and manage our foreign operations. To the extent that we experience difficulties in recruiting, training, managing and retaining an international staff, and specifically staff related to sales and engineering, we may experience difficulties in foreign markets. In addition, business practices in the international markets that we serve may differ from those in the United States and may require us to include non-standard terms in customer contracts, such as extended warranty terms. To the extent that we may enter into customer contracts in the future that include non-standard terms related to payment, warranties or performance obligations, our operating results may be adversely affected. International operations are subject to other inherent risks, and our future results could be adversely affected by a number of factors, including:

- difficulties in executing an international channel partners strategy;
- burdens of complying with a wide variety of foreign laws, including heightened concerns and legal requirements relating to data security and privacy;
- economic or political instability and security concerns in countries outside the United States in which we operate or have customers ;
- unfavorable contractual terms or difficulties in negotiating contracts with foreign customers or channel partners as a result of varying and complex laws and contractual norms;
- difficulties in providing support and training to channel partners and customers in foreign countries and languages;
- heightened risks of unfair or corrupt business practices in certain geographies and of improper or fraudulent sales arrangements that may impact financial results or result in fines and penalties;
- difficulties and costs of attracting and retaining employees and managing foreign operations

- import restrictions and the need to comply with export laws;
- difficulties in protecting intellectual property;
- difficulties in enforcing contracts and longer accounts receivable payment cycles;
- the effect of foreign exchange fluctuations on the competitiveness of our prices;
- potentially adverse tax consequences;
- the increased cost of terminating employees in some countries; and
- variability of foreign economic, political and labor conditions.

As we continue to expand our business globally, our success will depend, in large part, on our ability to anticipate and manage effectively these and other risks associated with our international operations. Our failure to manage any of these risks successfully could harm our international operations and reduce our international sales, adversely affecting our business, operating results and financial condition.

We rely on channel partners to sell our solutions in international markets, the loss of which could materially reduce our revenue.

We sell our solutions in international markets almost entirely through channel partners. We believe that establishing and maintaining successful relationships with these channel partners is, and will continue to be, critical to our financial success. Recruiting and retaining qualified channel partners and training them to be knowledgeable about our solutions requires significant time and resources. In some countries, we rely on a sole or very few channel partners and thus the loss of the channel partner could have a significant impact on our sales and support in those countries. To develop and expand our distribution channel, we must continue to scale and improve our processes and procedures that support our channel, including investment in systems and training. In particular, foreign-based service provider partners are large and complex businesses, and we may have difficulty negotiating and building successful business relationships with them.

In addition, existing and future channel partners will only partner with us if we are able to provide them with competitive offerings on terms that are commercially reasonable to them. If we fail to maintain the quality of our solutions or to update and enhance them or to offer them at competitive discounts, existing and future channel partners may elect to partner with one or more of our competitors. In addition, the terms of our arrangements with our channel partners must be commercially reasonable for both parties. If we are unable to reach agreements that are beneficial to both parties, then our channel partner relationships will not succeed. In addition, international channel partners often rely on business models that favor our on premises product over our cloud product because in the former, the channel partner may host and manage the software for, and provide additional administrative, support, training and other services to, the mutual customer for additional fees. This situation could impede sales of our cloud product in certain international markets.

If we fail to maintain relationships with our channel partners, fail to develop new relationships with other channel partners in new markets, fail to manage, train or incentivize existing channel partners effectively, or fail to provide channel partners with competitive solutions on terms acceptable to them, or if these partners are not successful in their sales efforts, our revenue may decrease and our operating results could suffer.

We have no long-term contracts or minimum purchase commitments with any of our channel partners, and our contracts with channel partners do not prohibit them from offering solutions that compete with ours, including solutions they currently offer or may develop in the future and incorporate into their own systems. Some of our competitors may have stronger relationships with our channel partners than we do, and we have limited control, if any, as to whether those

partners sell our solutions, rather than our competitors' solutions, or whether they devote resources to market and support our competitors' solutions, rather than our solutions. Our failure to establish and maintain successful relationships with channel partners could materially adversely affect our business, operating results and financial condition.

Failure to comply with the U.S. Foreign Corrupt Practices Act and similar laws associated with our activities outside the United States could subject us to penalties and other adverse consequences.

A significant portion of our revenues is and will continue to be from jurisdictions outside of the United States. As a result, we are subject to the U.S. Foreign Corrupt Practices Act, or FCPA, which generally prohibits U.S. companies and their intermediaries from making payments to foreign officials for the purpose of obtaining or keeping business or otherwise obtaining favorable treatment, and requires companies to maintain adequate record-keeping and internal accounting practices to accurately reflect the transactions of the company. The FCPA applies to companies, individual directors, officers, employees and agents. Under the FCPA, we may be held liable for actions taken by strategic or local partners or representatives. In addition, the government may seek to hold us liable for successor liability FCPA violations committed by companies that we acquire.

In many foreign countries, particularly in countries with developing economies, including many countries in which we operate, it may be a local custom that businesses operating in such countries engage in business practices that are prohibited by the FCPA or other similar laws and regulations. Although we have contractual provisions in our agreements with channel partners that require them to comply with the FCPA and similar laws, we have not engaged in formal FCPA training of our channel partners. Our channel partners could take actions in violation of our policies, for which we may be ultimately held responsible. Our development of infrastructure designed to identify FCPA matters and monitor compliance is at an early stage. If we or our intermediaries fail to comply with the requirements of the FCPA or other anti-corruption laws, governmental authorities in the U.S. or elsewhere could seek to impose civil and/or criminal penalties, which could have a material adverse effect on our business, results of operations, financial conditions and cash flows.

We are subject to export controls, and our customers and channel partners are subject to import controls.

Certain of our solutions are subject to U.S. export controls and may be exported to certain countries outside the U.S. only by first obtaining an export license from the U.S. government, or by utilizing an existing export license exception, or after clearing U.S. government agency review. Obtaining the necessary export license or accomplishing a U.S. government review for a particular export may be time-consuming and may result in the delay or loss of sales opportunities. Furthermore, U.S. export control laws and economic sanctions prohibit the shipment of certain solutions to U.S. embargoed or sanctioned countries, governments and persons. If we were to fail to comply with U.S. export law requirements, U.S. customs regulations, U.S. economic sanctions or other applicable U.S. laws, we could be subject to substantial civil and criminal penalties, including fines, incarceration for responsible employees and managers and the possible loss of export or import privileges. U.S. export controls, sanctions and regulations apply to our channel partners as well as to us. Any failure by our channel partners to comply with such laws, regulations or sanctions could have negative consequences, including reputational harm, government investigations and penalties.

In addition, various countries regulate the import of certain encryption and other technology by requiring an import permit, authorization, pre-classification, import certification and/or an import license. Some countries have enacted laws that could limit our customers' ability to implement our solutions in those countries.

Changes in our solutions or changes in export and import regulations may create delays in the introduction of our solutions into international markets, prevent our customers with international operations from deploying our solutions globally or, in some cases, prevent the export or import of our solutions to certain countries, governments or persons altogether. In addition, any change in export or import regulations, economic sanctions or related legislation, shift in the enforcement or scope of existing regulations, or change in the countries, governments, persons or technologies targeted by such regulations, could result in decreased use of our solutions by, or in our decreased ability to export or sell our solutions to, existing or potential customers with international operations. Any decreased use of our solutions or limitation on our ability to export or sell our solutions would likely adversely affect our business, financial condition and operating results.

Risks Related to Ownership of Our Common Stock

Our ability to use our net operating losses to offset future taxable income may be subject to certain limitations.

In general, under Section 382 of the Internal Revenue Code of 1986, as amended, or the Code, a corporation that undergoes an “ownership change” is subject to limitations on its ability to utilize its pre-change net operating losses, or NOLs, to offset future taxable income. Our existing NOLs may be subject to limitations arising from previous ownership changes. Future changes in our stock ownership, some of which are outside of our control, could result in an ownership change. Furthermore, our ability to utilize NOLs of companies that we may acquire in the future may be subject to limitations. There is also a risk that due to regulatory changes, such as suspensions on the use of NOLs, or other unforeseen reasons, our existing NOLs could expire or otherwise be unavailable to offset future income tax liabilities. For these reasons, we may not be able to utilize a material portion of the NOLs reflected on our balance sheet, even if we attain profitability.

The price of our common stock has been and may continue to be weak, and you could lose all or part of your investment.

The trading price of our common stock has declined since our Initial Public Offering, and the shares are thinly traded. The trading price of our common stock depends on a number of factors, including those described in this “Risk Factors” section, many of which are beyond our control and may not be related to our operating performance.

Since shares of our common stock were sold at our initial public offering, our stock price has ranged from as low as \$2.56 to as high as \$12.96 through December 31, 2018. These fluctuations could cause you to lose all or part of your investment in our common stock, because you might be unable to sell your shares at or above the price you paid. Factors that could cause fluctuations in the trading price of our common stock include the following:

- failure to meet quarterly guidance with regard to revenue, billings, cash flow breakeven or other key metrics;
- price and volume fluctuations in the overall stock market from time to time;
- volatility in the market prices and trading volumes of high technology stocks;
- changes in operating performance and stock market valuations of other technology companies generally, or those in our industry in particular;
- sales of shares of our common stock by us or our stockholders;
- failure of financial analysts to maintain coverage of us, changes in financial estimates by any analysts who follow our company, or our failure to meet these estimates or the expectations of investors;
- announcements by us or our competitors of new products or new or terminated significant contracts, commercial relationships or capital commitments;
- the public’s reaction to our press releases, other public announcements and filings with the SEC;
- rumors and market speculation involving us or other companies in our industry;
- actual or anticipated changes in our results of operations or fluctuations in our operating results;
- actual or anticipated developments in our business or our competitors’ businesses or the competitive landscape generally;

- litigation involving us, our industry or both, or investigations by regulators into our operations or those of our competitors;
- developments or disputes concerning our intellectual property or other proprietary rights;
- announced or completed acquisitions of businesses or technologies by us or our competitors;
- new laws or regulations or new interpretations of existing laws or regulations applicable to our business;
- changes in accounting standards, policies, guidelines, interpretations or principles;
- any major change in our management;
- general economic conditions and slow or negative growth of our markets; and
- other events or factors, including those resulting from war, incidents of terrorism or responses to these events.

In addition, broad market and industry factors may seriously affect the market price of our common stock, regardless of our actual operating performance. In addition, in the past, following periods of volatility in the overall market and the market prices of particular companies' securities, securities class action litigation has often been instituted against these companies. Litigation of this type has been instituted against us, and could result in substantial costs and a diversion of our management's attention and resources.

If financial or industry analysts do not publish research or reports about our business, or if they issue an adverse or misleading opinion regarding our stock, our stock price and trading volume could decline.

The trading market for our common stock will be influenced by the research and reports that industry or financial analysts publish about us or our business. We do not control these analysts or the content and opinions included in their reports. If any of the analysts who cover us issue an adverse or misleading opinion regarding our stock price, our stock price would likely decline. Financial analysts have in the past ceased coverage of our stock or published adverse reports, and this may recur in the future. Any cessation of coverage or adverse reports would likely cause our stock price or trading volume to decline.

Insiders continue to have substantial control over our company, which could limit your ability to influence the outcome of key transactions, including a change of control.

Our directors, executive officers and each of our stockholders who own greater than 5% of our outstanding common stock and their affiliates, in the aggregate, own approximately 40% of the outstanding shares of our common stock as of December 31, 2018. As a result, these stockholders, if acting together, will be able to influence or control matters requiring approval by our stockholders, including the election of directors and the approval of mergers, acquisitions or other extraordinary transactions. They may also have interests that differ from yours and may vote in a way with which you disagree and which may be adverse to your interests. This concentration of ownership may have the effect of delaying, preventing or deterring a change of control of our company, could deter certain public investors from purchasing our common stock and might ultimately affect the market price of our common stock.

We have in the past failed, and may in the future fail, to meet our publicly announced guidance or other expectations about our business and future operating results, which has in the past caused, and would in the future cause, our stock price to decline.

We have provided and may continue to provide guidance about our business and future operating results as part of our press releases, conference calls or otherwise. In developing this guidance, our management must make certain assumptions and judgments about our future performance. Our business results may vary significantly from such guidance due to a number of factors, many of which are outside of our control, and which could adversely affect our operations and operating results. Furthermore, if our publicly announced guidance of future operating results fails to meet expectations of securities analysts, investors or other interested parties, the price of our common stock would decline.

We have been an “Emerging Growth Company,” and any decision on our part to comply only with certain reduced disclosure requirements applicable to Emerging Growth Companies could make our common stock less attractive to investors.

We are an “emerging growth company,” as defined in the JOBS Act enacted in April 2012, and, for as long as we continue to be an “emerging growth company,” we may choose to take advantage of exemptions from various reporting requirements applicable to other public companies, but not to “emerging growth companies,” including, but not limited to, not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act, reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and stockholder approval of any golden parachute payments not previously approved. We cannot predict if investors will find our common stock less attractive if we choose to rely on these exemptions. If some investors find our common stock less attractive as a result of any choices to reduce future disclosure, there may be a less active trading market for our common stock and our stock price may be more volatile. For the year ended December 31, 2018, we continued to qualify as an “emerging growth company” as defined in the JOBS Act. However, we will no longer qualify as an “emerging growth company” for the year ending December 31, 2019 as we will have passed the fifth anniversary of the completion of our initial public offering.

Our future capital needs are uncertain, and we may need to raise additional funds in the future. If we require additional funds in the future, those funds may not be available on acceptable terms, or at all.

We may need to raise substantial additional capital in the future to:

- fund our operations;
- continue our research and development;
- develop and commercialize new solutions; or
- acquire companies, in-licensed solutions or intellectual property.

Our future funding requirements will depend on many factors, including:

- market acceptance of our solutions;
- the cost of our research and development activities;
- the cost of defending and resolving litigation or other legal disputes;
- the cost and timing of establishing additional sales, marketing and distribution capabilities;

- the cost and timing of establishing additional technical support capabilities;
- the effect of competing technological and market developments; and
- the market for different types of funding and overall economic conditions.

We may require additional funds in the future, and we may not be able to obtain those funds on acceptable terms, or at all. If we raise additional funds by issuing equity securities, our stockholders may experience dilution. Debt financing, if available, may involve covenants restricting our operations or our ability to incur additional debt. Any debt or additional equity financing that we raise may contain terms that are not favorable to us or our stockholders.

If we do not have, or are not able to obtain, sufficient funds, we may have to delay development or commercialization of our solutions. If we are unable to raise adequate funds, we may have to liquidate some or all of our assets, or delay, reduce the scope of or eliminate some or all of our development programs. We also may have to reduce marketing, customer support or other resources devoted to our solutions or cease operations. Any of these actions could harm our operating results.

Sales of substantial amounts of our common stock in the public markets, or the perception that these sales might occur, could reduce the price that our common stock might otherwise attain and may dilute your voting power and your ownership interest in us.

Sales of a substantial number of shares of our common stock in the public market, or the perception that these sales could occur, could adversely affect the market price of our common stock and may make it more difficult for you to sell your common stock at a time and price that you deem appropriate. At December 31, 2018, we have 106,206,545 shares of common stock outstanding, excluding any potential exercises of our outstanding stock options and vesting of restricted stock units (“RSUs”).

In the future, we may issue additional shares of common stock, or securities with convertible features into our common stock, from time to time in connection with our employee equity plans, financings, acquisitions and investments or otherwise.

In February 2016, our Compensation Committee approved the issuance of 1,653,371 shares of common stock under our 2015 Non-Executive Bonus Plan. No shares were issued under our 2015 Executive Bonus Plan. For 2016, we implemented two stock-settled bonus plans, one for executives and one for non-executives, which resulted in the issuance of 1,010,550 shares of common stock in the first quarter of 2017. On June 14, 2017, our shareholders approved in a proxy vote the amendment of our 2014 Employee Stock Purchase Plan, or ESPP, to provide for a one-time increase of 1,200,000 shares of common stock available for issuance under the ESPP. In February of 2018, we issued 1,220,822 shares of common stock under our 2017 Executive and Non-Executive Stock-Settled Bonus Plans. In March and April 2018, we approved 2018 Non-Executive and Executive Stock-Settled Bonus Plans. The issuance of shares of common stock under RSUs, future bonus programs, or our ESPP could result in substantial dilution to our existing stockholders and cause the trading price of our common stock to decline.

Certain provisions in our charter documents and Delaware law could limit attempts by our stockholders to replace or remove our board of directors or current management and limit the market price of our common stock.

Provisions in our certificate of incorporation and bylaws may have the effect of delaying or preventing a change of control or changes in our management. These provisions include the following:

- our board of directors has the right to elect directors to fill a vacancy created by the expansion of the board of directors or the resignation, death or removal of a director, which prevents stockholders from being able to fill vacancies on our board of directors;

- our stockholders may not act by written consent or call special stockholders’ meetings; as a result, a holder, or holders, controlling a majority of our capital stock would not be able to take certain actions other than at annual stockholders’ meetings or special stockholders’ meetings called by the board of directors, the chairman of the board, the chief executive officer or the president;
- our certificate of incorporation prohibits cumulative voting in the election of directors, which limits the ability of minority stockholders to elect director candidates;
- stockholders must provide advance notice and additional disclosures in order to nominate individuals for election to the board of directors or to propose matters that can be acted upon at a stockholders’ meeting, which may discourage or deter a potential acquirer from conducting a solicitation of proxies to elect the acquirer’s own slate of directors or otherwise attempting to obtain control of our company; and
- our board of directors may issue, without stockholder approval, shares of undesignated preferred stock; the ability to issue undesignated preferred stock makes it possible for our board of directors to issue preferred stock with voting or other rights or preferences that could impede the success of any attempt to acquire us.

As a Delaware corporation, we are also subject to certain Delaware anti-takeover provisions. Under Delaware law, a corporation may not engage in a business combination with any holder of 15% or more of its capital stock unless the holder has held the stock for three years or, among other things, the board of directors has approved the transaction. Our board of directors could rely on Delaware law to prevent or delay an acquisition of our company.

Our executive officers are entitled to accelerated vesting of their stock options pursuant to the terms of their employment arrangements under certain conditions following a change of control of the Company. In addition to the arrangements currently in place with some of our executive officers, we may enter into similar arrangements in the future with other officers. Such arrangements could delay or discourage a potential acquisition of the Company.

Our financial results may be adversely affected by changes in accounting principles applicable to us.

U.S. GAAP are subject to interpretation by the Financial Accounting Standards Board (“FASB”), the SEC, and other various bodies formed to promulgate and interpret appropriate accounting principles. For example, in May 2014, the FASB issued accounting standards update No. 2014-09 (Topic 606), Revenue from Contracts with Customers, which superseded nearly all existing revenue recognition guidance under U.S. GAAP. We implemented this guidance in the first quarter of our fiscal year 2018. The most significant impact related to our accounting for subscriptions to our on-premise licenses, specifically, as under the new standard we recognize revenue from those subscriptions predominantly at the time of billing rather than ratably over the license term, potentially making revenue more volatile and difficult to predict. In addition, accounting for commissions was impacted significantly as we capitalize and amortize most commissions under the new standard instead of expensing commissions as incurred. Due to the complexity of certain of our contracts, the revenue recognition treatment required under the new standard is dependent on contract-specific terms. Any difficulties in adequately accounting under the new standard could cause us to fail to meet our financial reporting obligations, which could result in regulatory discipline and harm investors’ confidence in us.

Item 1 B. Unresolved Staff Comments

None.

Item 2. Properties

Our principal executive offices are located in Mountain View, California and include two buildings totaling approximately 78,000 square feet under leases expiring from June 2020 to May 2023. We have additional office

locations in the United States and in various international locations, including offices in the United Kingdom, Germany, Netherlands, Japan, Singapore and India.

We may add new facilities or expand existing facilities as we add employees, and we believe that suitable additional or substitute space will be available on commercially reasonable terms to meet our future needs.

Item 3. Legal Proceedings

We continually evaluate uncertainties associated with litigation and record an accrual equal to at least the minimum estimated liability for a loss contingency when both of the following conditions are met: (i) information available prior to issuance of the financial statements indicates that it is probable that a liability has been incurred at the date of the financial statements and (ii) the loss or range of loss can be reasonably estimated. If we determine that a loss is possible and a range of the loss can be reasonably estimated, we disclose the range of the possible loss in the Notes to the Consolidated Financial Statements. We evaluate, on a quarterly basis, developments in our legal matters that could affect the amount of liability that has been previously accrued, if any, and the matters and related ranges of possible losses disclosed, and make adjustments and changes to our disclosures as appropriate. Significant judgment is required to determine both likelihood of there being and the estimated amount of a loss related to such matters. Until the final resolution of such matters, there may be an exposure to loss, and such amounts could be material. We record litigation accruals for legal matters which are both probable and estimable. For legal proceedings for which there is a reasonable possibility of loss (meaning those losses for which the likelihood is more than remote but less than probable), we have determined we do not have material exposure on an aggregate basis.

Indemnification

Under the indemnification provisions of our standard sales related contracts, we agree to defend and/or settle claims brought by third parties against our customers and channel partners alleging that our software or the customer's use thereof infringes the third party's intellectual property right, such as a patent right. These indemnification obligations are typically not subject to limitation; however if we believe such a claim is reasonably likely to occur and if it is commercially impractical for us to either procure the right for the customer to continue to use our software or modify our software so that it's not infringing, we can terminate the customer agreement and refund the customer a portion of the license fees paid (prorated over the three year period from initial delivery for software licensed on a perpetual basis). We also on occasion indemnify our customers for other types of third party claims. In addition, we indemnify our officers, directors, and certain key employees while they are serving in such capacities in good faith. Through December 31, 2018, we have not received any material written claim for indemnification.

In addition, the information set forth under "Litigation" in Note 12 contained in the "Notes to Consolidated Financial Statements" in Item 8, "Financial Statements and Supplementary Data," of Part II of this Annual Report on Form 10-K is incorporated herein by reference.

Item 4. Mine Safety Disclosures

Not applicable.

Part I I

Item 5. Market for Registrant’s Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities

Issuance of Common Stock and Use of Proceeds

In June 2014, we closed our initial public offering, or IPO, in which we sold 12,777,777 shares of common stock at a price to the public of \$9.00 per share. We raised approximately \$102.9 million in net proceeds from the offering after deducting underwriting discounts and commissions of approximately \$8.0 million and other offering expenses of approximately \$4.1 million.

There has been no material change in the planned use of proceeds from our IPO as described in our final prospectus filed with the SEC on June 12, 2014 pursuant to Rule 424(b). We invested a portion of the funds received in registered money market funds and fixed income investments.

Market Information

Our common stock, \$0.0001 par value per share, is listed on the Nasdaq Global Select Market under the symbol “MOBL” and began public trading on June 12, 2014.

Holders of Record and Dividends

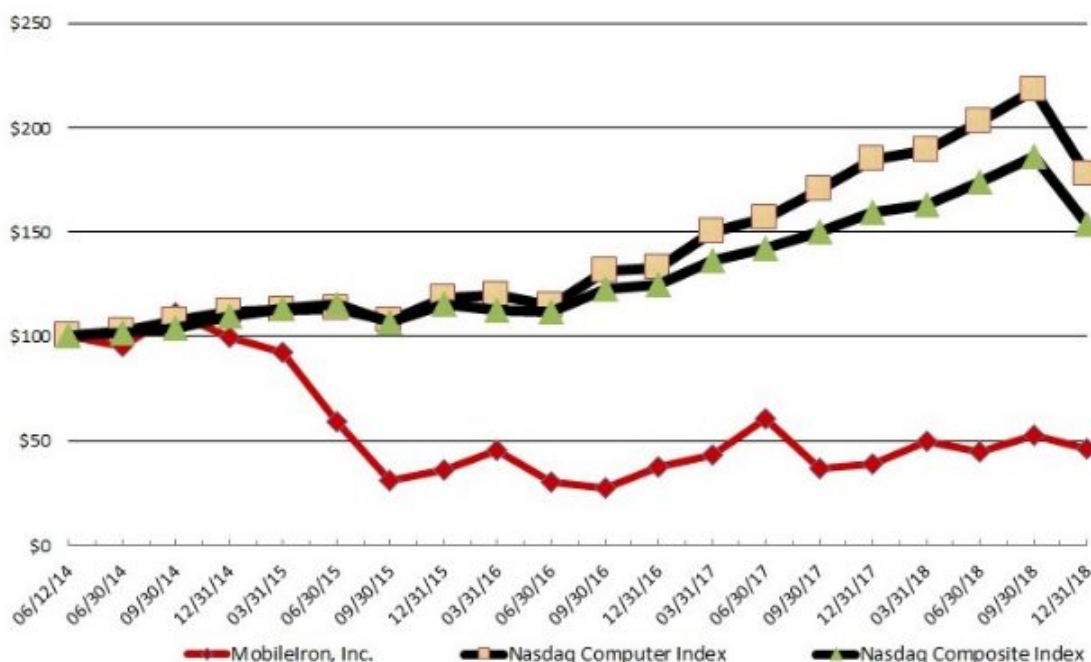
As of February 15, 2019, there were 28 holders of record of our common stock. Because many of our shares are held by brokers and other institutions on behalf of stockholders, we are unable to estimate the total number of stockholders represented by these record holders. We have never declared or paid, and do not anticipate declaring or paying in the foreseeable future, any cash dividends on our capital stock. Any future determination as to the declaration and payment of dividends, if any, will be at the discretion of our board of directors, subject to applicable laws, and will depend on then existing conditions, including our financial condition, operating results, contractual restrictions, capital requirements, business prospects, and other factors our board of directors may deem relevant .

Stock Performance Graph and Cumulative Total Return

The following graph compares the cumulative total return attained by stockholders on our common stock relative to the cumulative total returns of the Nasdaq Composite Index (^IXIC) and Nasdaq Computer Index (^IXCO). The graph tracks the performance of a \$100 investment in our common stock and in each of the indices (with the reinvestment of

all dividends) from June 12, 2014 to December 31, 2018. The stock price performance on the following graph is not necessarily indicative of future stock price performance.

MobileIron, Inc. Comparison of Total Return Performance



Company/Index	Base Period					
	6/12/14	12/31/14	12/31/15	12/31/16	12/31/17	12/31/18
MobileIron, Inc.	\$ 100.00	\$ 99.60	\$ 36.10	\$ 37.50	\$ 39.00	\$ 45.90
Nasdaq Computer Index	100.00	111.55	118.49	133.03	184.60	177.80
Nasdaq Composite Index	100.00	109.55	115.83	124.52	159.69	153.49

Repurchases of Common Stock during the Three Months Ended December 31, 2018

Repurchase Program

In October 2018, the Company’s Board of Directors approved a common stock repurchase program (“Repurchase Program”) whereby the Company is authorized to purchase up to a maximum of \$25 million of its common stock, subject to compliance with applicable law and the limitations in the Company’s credit facilities on stock repurchases.

The authorization allows repurchases from time to time in the open market or in privately negotiated transactions. The amount and timing of repurchases made under the Repurchase Program will depend on a variety of factors, including available liquidity, cash flow and market conditions. Shares can be purchased through the Repurchase Program through October 2020, unless extended or shortened by the Company’s Board of Directors. The Repurchase Program does not obligate the Company to acquire any particular amount of common stock and the program may be modified or

suspended at any time at the Company’s discretion. The repurchases would be funded from available working capital and are subject to compliance with the terms and limitations of the Company’s credit facilities.

All shares repurchased in the current period under the Repurchase Program were made in the open market.

Net Settlement of Equity Awards

Typically, when an optionholder exercises a stock option, the exercise price of the stock option is remitted to the company and the optionholder’s tax withholding is paid directly out of the proceeds from the gain on the exercised stock option. Under our equity incentive plans, if approved by the company, an optionholder may elect to net settle an exercised stock option. In a net settlement, in order to cover the exercise price and tax withholding, the optionholder receives the net of the shares exercised after trading a portion of the shares back to the Company valued at the current market price on the date of exercise.

The majority of restricted stock units are subject to vesting. The underlying shares of common stock are issued when the restricted stock units vest. The majority of participants choose to participate in a broker-assisted automatic sales program to satisfy their applicable tax withholding requirements. We do not treat the shares sold pursuant to this automatic sales program as common stock repurchases. However, in our fourth quarter of 2018, for some of our restricted stock units that vested, we withheld shares through net settlements (where the award holder receives the net of the shares vested, after surrendering a portion of the shares back to the company for tax withholding).

The following table provides a summary of the Company’s repurchase activity under the Repurchase Program and upon the net settlement of exercised stock options and restricted stock units for the three months ended December 31, 2018:

Period	Total Number of Shares Repurchased	Average Price Paid per Share	Total Number of Shares Purchased As Part of a Publicly Announced Program	Maximum Dollar Value of Shares that May Yet Be Purchased Under the Repurchase Program
October 1, 2018 through October 31, 2018	—	\$ —	—	\$ 25,000,000
November 1, 2018 through November 30, 2018	601,609	\$ 4.86	380,168	\$ 23,160,561
December 1, 2018 through December 31, 2018	441,720	\$ 4.51	441,720	\$ 21,169,192
Total shares repurchased	1,043,329	\$ 4.71	821,888	\$ 21,169,192

Securities Authorized for Issuance under Equity Compensation Plans

See Item 12 of Part III of this Annual Report on Form 10-K regarding information about securities authorized for issuance under our equity compensation plan.

Item 6. Selected Financial Data

The following selected historical financial data should be read in conjunction with Item 7, “Management’s Discussion and Analysis of Financial Condition and Results of Operations,” our financial statements, and the related notes appearing in Item 8, “Financial Statements and Supplementary Data,” of this Annual Report on Form 10-K to fully understand factors that may affect the comparability of the information presented below.

The statement of operations data for 2018, 2017 and 2016 and the balance sheet data as of December 31, 2018 and 2017 are derived from our audited financial statements appearing in Item 8, “Financial Statements and Supplementary Data,” of this Annual Report on Form 10-K and reflect the adoption of new accounting standards in fiscal year 2018 related to revenue recognition. See Note 1 – Description of Business and Significant Accounting Policies of the Notes to Financial Statements (Part II, Item 8 of this Form 10-K) for further discussion. The statement of operations data for 2015 and 2014 and the balance sheet data as of December 31, 2016, 2015 and 2014 is derived from audited financial

[Table of Contents](#)

statements not included in this Annual Report on Form 10-K. Our historical results are not necessarily indicative of the results to be expected in the future.

	Year ended December 31,				
	2018	2017	2016	2015	2014
<i>(in thousands, except per share data)</i>					
Consolidated Statement of Operations Data:					
Revenue					
License	\$ 59,338	\$ 64,035	\$ 66,347	\$ 53,512	\$ 66,816
Cloud services	50,714	38,728	31,093	48,080	30,227
Software support and services	83,140	76,995	68,742	47,706	35,252
Total revenue	<u>193,192</u>	<u>179,758</u>	<u>166,182</u>	<u>149,298</u>	<u>132,295</u>
Cost of revenue					
License	3,270	2,203	2,896	2,881	4,448
Cloud services	12,719	8,847	8,374	7,181	5,719
Software support and services	18,933	19,176	19,097	18,115	13,868
Restructuring charge ⁽²⁾	—	311	181	—	—
Total cost of revenue ⁽¹⁾	<u>34,922</u>	<u>30,537</u>	<u>30,548</u>	<u>28,177</u>	<u>24,035</u>
Gross profit	<u>158,270</u>	<u>149,221</u>	<u>135,634</u>	<u>121,121</u>	<u>108,260</u>
Operating expenses					
Research and development ⁽¹⁾	78,047	75,350	67,398	61,871	46,278
Sales and marketing ⁽¹⁾	94,204	96,807	102,327	105,520	99,870
General and administrative ⁽¹⁾	28,880	28,091	29,695	36,037	22,400
Litigation settlement charge	—	1,143	—	—	—
Restructuring charge ⁽²⁾	—	1,038	871	1,049	—
Amortization of intangible assets	—	—	—	—	782
Total operating expenses	<u>201,131</u>	<u>202,429</u>	<u>200,291</u>	<u>204,477</u>	<u>169,330</u>
Operating loss	<u>(42,861)</u>	<u>(53,208)</u>	<u>(64,657)</u>	<u>(83,356)</u>	<u>(61,070)</u>
Other income (expense) - net	1,124	988	145	(274)	(302)
Loss before income taxes	<u>(41,737)</u>	<u>(52,220)</u>	<u>(64,512)</u>	<u>(83,630)</u>	<u>(61,372)</u>
Income tax expense	1,347	1,142	982	852	517
Net loss	<u>\$ (43,084)</u>	<u>\$ (53,362)</u>	<u>\$ (65,494)</u>	<u>\$ (84,482)</u>	<u>\$ (61,889)</u>
Net loss per share, basic and diluted	<u>\$ (0.42)</u>	<u>\$ (0.57)</u>	<u>\$ (0.76)</u>	<u>\$ (1.07)</u>	<u>\$ (1.30)</u>
Weighted-average shares used to compute net loss per share, basic and diluted	<u>102,527</u>	<u>93,770</u>	<u>85,845</u>	<u>78,755</u>	<u>47,517</u>

(1) Amounts include stock-based compensation expense as follows:

	Year ended December 31,				
	2018	2017	2016	2015	2014
<i>(in thousands)</i>					
Stock-Based Compensation Expense:					
Cost of revenue	\$ 5,006	\$ 3,772	\$ 3,043	\$ 2,774	\$ 1,353
Research and development	15,981	14,520	11,728	10,607	5,980
Sales and marketing	9,464	8,659	10,474	9,508	5,930
General and administrative	7,985	6,780	9,144	5,902	3,363
Total stock-based compensation expense	<u>\$ 38,436</u>	<u>\$ 33,731</u>	<u>\$ 34,389</u>	<u>\$ 28,791</u>	<u>\$ 16,626</u>

(2) Restructuring charges included in cost of sales are related to actions taken in our Customer Success and data center operations organizations and charges included in operating expenses are related to actions taken in research and development, sales and marketing, and general and administrative functions.

<i>(in thousands)</i>	As of December 31,				
	2018	2017	2016	2015	2014
Consolidated Balance Sheet Data:					
Cash and cash equivalents	\$ 104,613	\$ 85,833	\$ 54,043	\$ 47,234	104,287
Short-term and long-term investments	\$ 1,000	\$ 6,797	\$ 36,184	\$ 51,670	36,089
Working capital	\$ 60,194	\$ 56,964	\$ 68,222	\$ 66,568	90,448
Total assets	\$ 210,387	\$ 184,440	\$ 174,655	\$ 161,114	191,842
Unearned revenue	\$ 105,837	\$ 77,022	\$ 60,588	\$ 69,875	54,174
Customer arrangements with termination rights	\$ 19,367	\$ 19,546	\$ 14,198	—	—
Accumulated deficit	\$ (404,067)	\$ (360,983)	\$ (307,621)	\$ (275,205)	(190,723)
Total stockholders' equity	\$ 54,117	\$ 59,552	\$ 75,581	\$ 68,139	115,094

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 in conjunction with our financial statements and related notes appearing elsewhere in this Annual Report on Form 10-K. In addition to historical financial information, the following discussion contains forward-looking statements that reflect our plans, estimates and beliefs. Our actual results could differ materially from those contained in or implied by any forward-looking statements. Factors that could cause or contribute to these differences include those under "Risk Factors" included in Part I, Item 1A or in other parts of this report.

Mobile and cloud computing are the catalysts for modern work. Mobile lets employees make better decisions and take faster actions because the information and tools they need to do their jobs are always available. Cloud lets developers build innovative services quickly and lets employees start using them easily.

However, this comes with new risks. The traditional, locked-down, perimeter-based approach to security no longer applies to mobile endpoints and cloud services that operate outside the network. Data no longer resides behind the firewall on locked-down PCs and servers, and so it cannot be secured by firewall-based solutions. Instead, data is spread across an information fabric that spans a wide variety of modern endpoints including Android, iOS, macOS, and Windows 10, as well as cloud services such as Box, Concur, Microsoft Office 365, Netsuite, Salesforce, Workday and custom cloud applications.

This shift to mobile and cloud technologies introduces three main challenges that CIOs and CISOs need to address:

1. Drive business innovation by allowing employees to securely use mobile, cloud, and other endpoints for work.
2. Enforce corporate security without impacting the user experience.
3. Redefine enterprise security strategies to address a perimeter-less environment.

To solve these challenges, many organizations are in the early stages of investigating a zero trust enterprise security framework. Zero trust assumes that bad actors are already in the network and secure access is determined by an "always verify, never trust" approach.

We are a leader in defining a zero trust, mobile-centric framework, one that goes beyond traditional approaches to security by utilizing a more comprehensive set of attributes to grant secure access. At MobileIron, we validate the device, establish user context, check app authorization, verify the network, and detect and mitigate threats before granting secure access to a device or user. We believe traditional identity-based and gateway approaches to zero trust fall short because they provide only limited visibility into devices, apps, and threats.

We are redefining how customers build a secure foundation in a perimeter-less world. Our security platform is built on the foundation of unified endpoint management (UEM) with additional zero trust capabilities including single sign-on (SSO), multifactor authentication (MFA), and mobile threat defense (MTD). Together they create a more seamless mobile experience by automating access control decisions across users, endpoints, operating systems, clouds, networks, threats, and vulnerabilities so that only trusted resources can access corporate data.

Our customers can deploy MobileIron as either a cloud service or on-premises software. They can choose subscription-based or perpetual licensing. We primarily target midsize and large enterprises around the world across a broad range of industries including financial services, government, healthcare, legal, manufacturing, professional services, retail, technology, and telecommunications.

Our total revenue in 2018, 2017 and 2016 was \$193.2 million, \$179.8 million and \$166.2 million, respectively, representing an increase of 7% from 2017 to 2018 and 8% from 2016 to 2017.

Revenue from licenses, cloud services and software support and services represented 31%, 26% and 43% of total revenue, respectively, in 2018, 35%, 22% and 43% of total revenue, respectively, in 2017, and 40%, 19% and 41% of total revenue, respectively, in 2016. This represents a continuing mix shift in our business. Revenue from recurring

sources, which includes revenue from the license component of on-premise term subscriptions, cloud services, and software support on perpetual and on-premise term licenses, was 78% of total revenue in 2018 compared to 72% of total revenue in 2017 and 68% of total revenue in 2016.

Our license revenue in 2018, 2017 and 2016 was \$59.3 million, \$64.0 million and \$66.3 million, respectively, representing a decrease of 7% from 2017 to 2018 and 3% from 2016 to 2017. The decline in license revenue was primarily due to a decrease in revenue from perpetual licenses, partially offset by an increase in license fees recognized from on-premises subscriptions. We have seen a decrease in demand for our perpetual licenses and a mix shift in favor of subscriptions rather than perpetual licenses.

Our cloud services revenue in 2018, 2017 and 2016 was \$50.7 million, \$38.7 million and \$31.1 million, respectively, representing an increase of 31% from 2017 to 2018 and 25% from 2016 to 2017. This growth reflects our customers' preference to purchase cloud services. When we sell our cloud solutions on a subscription basis, we typically offer 12 months or longer terms and bill in advance.

Our software support and services revenue in 2018, 2017 and 2016 was \$83.1 million, \$77.0 million and \$68.7 million, respectively, representing an increase of 8% from 2017 to 2018 and 12% from 2016 to 2017. Software support and services revenue includes support of perpetual license customers, the support component of on-premise subscriptions, and professional services. The growth rate of software support and services revenue is primarily dependent on growth in our installed base of customers that purchase perpetual licenses or on-premises subscriptions, renewals of on-premises subscriptions and software support on perpetual licenses, and purchases of professional services as part of our solutions.

Our billings were \$223.3 million, \$200.9 million, and \$182.1 million in 2018, 2017 and 2016, respectively, representing growth rates of 11% from 2017 to 2018 and 10% 2016 to 2017. See "Key Metrics and Non-GAAP Financial Information" and "Recent Accounting Pronouncements" for more information and a reconciliation of billings to total revenue.

We sell a significant portion of our products through our channel partners, including resellers, service providers and system integrators. Our sales force develops sales opportunities and works closely with our channel partners to sell our solutions. We have a high touch sales force focused on large organizations, inside sales teams focused on mid-sized enterprises and sales teams that work with service providers that focus on smaller businesses. We prioritize our internal sales and marketing efforts on large organizations because we believe that they represent the largest potential opportunity.

We believe that our market opportunity is large, and sales to customers outside of the United States will remain a significant opportunity for future growth. In 2018, 2017 and 2016, 58%, 53% and 54%, respectively, of our total revenue was generated from customers located outside of the United States, primarily those located in Europe. International market trends that may affect sales of our products and services include heightened concerns and legal requirements relating to data security and privacy, the importance of execution on our international channel partner strategy, the importance of recruiting and retaining sufficient international personnel, the effect of exchange rates, and political and financial market instability.

Since 2016, we have focused on driving more efficiency in our business. However, we have continued to incur net losses. We incurred net losses of \$43.1 million, \$53.4 million and \$65.5 million in 2018, 2017 and 2016, respectively. As a result of this, we do not expect to be profitable for the foreseeable future under our current operating plan. Future profitability is primarily dependent on revenue growth, which may be challenging for a number of reasons including possible continued mix shift towards cloud subscription licensing, increasing and entrenched competition, product features, changes in our pricing model, the amount of revenue we generate from sales of partner solutions that bear royalties, our ability to continue to develop and evolve our products, any failure to capitalize on market opportunities, and the ability of our sales organization to retain its key employees and leadership team. Future profitability is also dependent on our ability to manage our expenses, which continue to be impacted by stock-based compensation charges from RSU grants and stock-settled bonuses. We will also need to increase operating efficiency, which may be challenging given our operational complexity. Further, the new revenue accounting standard may make our financial results more difficult to predict.

Key Metrics and Non-GAAP Financial Information

To supplement our financial results presented on a GAAP basis, we provide investors with certain non-GAAP financial measures, including billings, non-GAAP gross profit, non-GAAP gross margin, non-GAAP operating loss, non-GAAP operating margin, non-GAAP net loss, non-GAAP net loss per share, and free cash flow. Non-GAAP financial measures exclude stock-based compensation, the amortization of intangible assets, a litigation settlement charge, and restructuring charges.

Stock-based compensation expenses

In our non-GAAP financial measures, we have excluded the effect of stock-based compensation expenses. Stock-based compensation expenses will recur in future periods.

Amortization of intangible assets

In our non-GAAP financial measures, we have excluded the effect of the amortization of intangible assets. Amortization of intangible assets can be significantly affected by the timing and size of acquisitions of companies or technology. Beginning with the second quarter of 2018, we no longer had amortizing intangible assets.

Litigation settlement charge

In our non-GAAP financial measures, we have excluded a charge for the cost of the settlement of certain shareholder litigation. While it is possible that we will have material litigation-related charges in the future, we do not expect it to be a consistently recurring expense.

Restructuring charges

In our non-GAAP financial measures, we have excluded the effect of the severance and other expenses related to reductions in our workforce and facilities. Restructuring charges may recur in the future; however, the timing and amounts are difficult to predict.

Non-GAAP gross profit, non-GAAP gross margin, non-GAAP operating loss, non-GAAP operating margin, non-GAAP net loss, and non-GAAP net loss per share

We believe that the exclusion of stock-based compensation expense, the amortization of intangible assets, the litigation settlement charge, and restructuring charges from gross profit, gross margin, operating loss, operating margin, net loss, and net loss per share provides useful measures for management and investors because stock-based compensation, the amortization of intangible assets and restructuring charges have been and can continue to be inconsistent in amount from period to period. Other than in 2017, we have not historically had a material litigation-related settlement charge. While it is possible that we will have material litigation settlement charges in the future, we do not expect such charges to be a consistently recurring expense. We believe the inclusion of these items makes it difficult to compare periods and understand the growth and performance of our business. In addition, we evaluate our business performance and compensate management based in part on these non-GAAP measures. There are limitations in using non-GAAP financial measures because the non-GAAP financial measures are not prepared in accordance with GAAP, may be different from non-GAAP financial measures used by our competitors and exclude expenses that may have a material impact on our reported financial results. Further, stock-based compensation expense has been and will continue to be for the foreseeable future a significant recurring expense in our business and an important part of the compensation provided to our employees.

Billings and free cash flow

Our non-GAAP financial measures also include: billings, which we define as total revenue plus the change in unearned revenue plus the change in customer arrangements with termination rights minus the change in unbilled accounts receivable in a period; and free cash flow, which we define as cash provided by (used in) operating activities less the amount of property and equipment purchased. We consider billings to be a useful metric for management and investors because subscription billings and software support and services billings drive unearned revenue and customer arrangements with termination rights, which are important indicators of future revenue. There are limitations related to the use of billings. First, billings include amounts that have not yet been recognized as revenue. Changes in contract duration and the timing of large transactions, for example, may significantly impact quarterly billings, but have little impact on revenue. Second, our calculation of billings may be different from other companies that report similar financial measures. We compensate for these limitations by evaluating billings together with revenue calculated in accordance with GAAP, including recurring revenue. Management believes that information regarding free cash flow provides investors with an important perspective on the cash available to invest in our business and fund ongoing operations. However, our calculation of free cash flow may not be comparable to similar measures used by other companies.

We believe these non-GAAP financial measures are helpful in understanding our past financial performance and our future results. Our non-GAAP financial measures are not meant to be considered in isolation or as a substitute for comparable GAAP measures and should be read only in conjunction with our consolidated financial statements prepared in accordance with GAAP. Our management regularly uses our supplemental non-GAAP financial measures internally to understand, manage and evaluate our business, and make operating decisions. These non-GAAP measures are among the primary factors management uses in planning for and forecasting future periods. Compensation of our executives is based in part on the performance of our business based on certain of these non-GAAP measures.

[Table of Contents](#)

We monitor the following non-GAAP financial measures:

<i>(in thousands, except percentages and per share data)</i>	For the year ended December 31,		
	2018	2017	2016
Billings	\$ 223,289	\$ 200,916	\$ 182,127
Year-over-year percentage increase	11 %	10 %	—
Non-GAAP gross profit	\$ 163,376	\$ 153,849	\$ 139,474
Non-GAAP gross margin	84.6 %	85.6 %	83.9 %
Non-GAAP operating loss	\$ (4,325)	\$ (16,440)	\$ (28,600)
Non-GAAP operating margin	(2.2)%	(9.1)%	(17.2)%
Non-GAAP net loss	\$ (4,548)	\$ (16,594)	\$ (29,437)
Non-GAAP net loss per share	\$ (0.04)	\$ (0.18)	\$ (0.34)
Free cash flow	\$ 12,201	\$ (3,418)	\$ (14,659)

Reconciliation of Non-GAAP Financial Measures

The following tables reconcile the most directly comparable GAAP financial measure to each of the non-GAAP financial measures discussed above.

	For the year ended December 31,		
	2018	2017	2016
<i>(in thousands, except percentages and per share data)</i>			
Billings reconciliation:			
Total revenue	\$ 193,192	\$ 179,758	\$ 166,182
Total unearned revenue, end of period	105,837	77,022	60,588
Less: Total unearned revenue, beginning of period	(77,022)	(60,588)	(50,014)
Total customer arrangements with termination rights, end of period	19,367	19,546	14,198
Less: Total customer arrangements with termination rights, beginning of period	(19,546)	(14,198)	(7,678)
Total unbilled accounts receivable, end of period	(1,974)	(3,435)	(2,811)
Less: Total unbilled accounts receivable, beginning of period	3,435	2,811	1,662
Total change	<u>30,097</u>	<u>21,158</u>	<u>15,945</u>
Billings	<u>\$ 223,289</u>	<u>\$ 200,916</u>	<u>\$ 182,127</u>
Non-GAAP gross profit reconciliation:			
Gross profit	\$ 158,270	\$ 149,221	\$ 135,634
Add: Stock-based compensation expense	5,006	3,772	3,043
Add: Amortization of intangible assets	100	545	616
Add: Restructuring charge	—	311	181
Non-GAAP gross profit	<u>\$ 163,376</u>	<u>\$ 153,849</u>	<u>\$ 139,474</u>
Non-GAAP gross margin reconciliation:			
GAAP gross margin: GAAP gross profit over GAAP total revenue	81.9 %	83.0 %	81.6 %
GAAP to non-GAAP gross margin adjustments	2.7 %	2.6 %	2.3 %
Non-GAAP gross margin	<u>84.6 %</u>	<u>85.6 %</u>	<u>83.9 %</u>
Non-GAAP operating loss reconciliation:			
GAAP operating loss	\$ (42,861)	\$ (53,208)	\$ (64,657)
Add: Stock-based compensation expense	38,436	33,731	34,389
Add: Amortization of intangible assets	100	545	616
Add: Litigation settlement charge	—	1,143	—
Add: Restructuring charge	—	1,349	1,052
Non-GAAP operating loss	<u>\$ (4,325)</u>	<u>\$ (16,440)</u>	<u>\$ (28,600)</u>
Non-GAAP operating margin reconciliation:			
GAAP operating margin: GAAP operating profit over GAAP total revenue	(22.2)%	(29.6)%	(38.9)%
GAAP to non-GAAP operating margin adjustments	20.0 %	20.5 %	21.7 %
Non-GAAP operating margin	<u>(2.2)%</u>	<u>(9.1)%</u>	<u>(17.2)%</u>
Non-GAAP net loss reconciliation:			
GAAP net loss	\$ (43,084)	\$ (53,362)	\$ (65,494)
Add: Stock-based compensation expense	38,436	33,731	34,389
Add: Amortization of intangible assets	100	545	616
Add: Litigation settlement charge	—	1,143	—
Add: Restructuring charge	—	1,349	1,052
Non-GAAP net loss	<u>\$ (4,548)</u>	<u>\$ (16,594)</u>	<u>\$ (29,437)</u>
Non-GAAP net loss per share reconciliation:			
GAAP net loss per share	\$ (0.42)	\$ (0.57)	\$ (0.76)
Add: Stock-based compensation expense per share	0.38	0.36	0.40
Add: Amortization of intangible assets per share	—	0.01	0.01
Add: Litigation settlement charge per share	—	0.01	—
Add: Restructuring charge per share	—	0.01	0.01
Non-GAAP net loss per share	<u>\$ (0.04)</u>	<u>\$ (0.18)</u>	<u>\$ (0.34)</u>
Free cash flow:			
Net cash provided by (used in) operating activities	\$ 14,157	\$ 3,036	\$ (11,729)
Purchase of property and equipment	(1,956)	(6,454)	(2,930)
Free cash flow	<u>\$ 12,201</u>	<u>\$ (3,418)</u>	<u>\$ (14,659)</u>

Beginning with the fourth quarter of 2018, we began monitoring a new operating metric, Annual Recurring Revenue (“ARR”) which is defined as the annualized value of all recurring revenue contracts active at the end of a reporting period. We are monitoring the metric because it aligns with how our customers are increasingly purchasing our solutions and how we are managing our business. We intend to measure performance against this metric going forward. ARR includes the annualized value of subscriptions and the annualized value of software support contracts related to perpetual licenses active at the end of a reporting period and does not include revenue reported as perpetual license or professional services in our consolidated statement of operations. ARR should be viewed independently of revenue, unearned revenue, and customer arrangements with termination rights as ARR is an operating metric and is not intended to be combined with or replace those items. ARR is not a forecast of future revenue and can be impacted by contract start and end dates and renewal rates. Our ARR was \$162.6 million and \$135.8 million, respectively, at December 31, 2018 and 2017.

Factors Affecting our Performance

Market Adoption of Enterprise Mobility

We are affected by the pace at which enterprises adopt mobility into their business processes and purchase and expand a mobile security platform. Because our prospective customers often do not have a separate budget for mobile security products, we invest in marketing efforts to increase market awareness, educate prospective customers and drive adoption of our platform. The degree to which prospective customers recognize the mission-critical need for mobile security solutions and deploy mobile apps to enhance employee productivity will determine the customer demand for our solutions. We believe our rate of growth will also be positively correlated to the importance prospective customers place on securing their mobile data.

Customer Preference for Best-of-Breed vs. Suite

We believe we are the best-of-breed platform in our industry. Many of our competitors sell enterprise mobility management or mobile security as a component of a broader suite. We believe the degree to which prospective customers view our value proposition as differentiated will determine the customer demand for our solutions. For example, the level of security desired, the preservation of the native experience on end user devices, and the ability of the solution to work with multiple cloud offerings are evaluated by our prospective customers as they make buying decisions.

Investment in our Ecosystem

We have invested, and intend to continue to invest, in expanding the breadth and depth of our ecosystem. We expect to invest in research and development to enhance the application and technology integration capabilities of our platform. We are also enhancing our solution to allow native apps written to operating systems specifications to be seamlessly integrated. The degree to which we expand our base of ecosystem partners will increase the value of our platform for our customers, which could lead to an increased number of new customers as well as renewals and follow-on sales opportunities.

Ability to Improve and Grow Our Worldwide Sales Channels

We have invested, and intend to continue to invest, in improving our sales operations to drive additional revenue and support the growth of our customer base. We work with our channel partners to identify and acquire new customers as well as pursue follow-on sales opportunities. We need to further leverage our channel by training existing and new partners to independently sell and support our products. Newly-hired sales personnel typically require several months to become productive and turnover of productive sales personnel can inhibit our billings and revenue growth. All of these factors will influence timing and overall levels of sales productivity, impacting the rate at which we will be able to acquire customers to drive revenue growth.

Expansion and Upsell within Existing Customer Base

After the initial sale to a new customer, we focus on providing increased value expanding our relationship with such customer to sell additional licenses and subscriptions. To increase our revenue, in addition to customers' renewing their subscriptions or support contracts with us, it is important that our customers expand device license count and purchase additional products, including products such as MobileIron Threat Defense and Access. Additional sales lead to increased revenue over the lifecycle of a customer relationship and can significantly increase the return on our sales and marketing investments. Accordingly, our revenue growth will depend in part on customers' renewing their existing agreements with us and the degree to which and our expansion and upsell sales strategy is successful.

Mix of Cloud Subscription, On-premise Subscription and Perpetual License Revenue

We offer our solutions on both subscription and perpetual license pricing models. We are seeing broader market acceptance of our subscription licensing model from new customers. We expect the proportion of subscription revenue to our total revenue to continue to increase over time and there may be significant increases or decreases on a quarterly basis. We have also seen our cloud subscriptions increase as a proportion of our total revenue and expect this trend to continue. Under the current revenue accounting standard, revenue associated with the license portion of on-premise term subscriptions is recognized up-front with the remainder being recognized over the subscription term whereas all cloud subscription revenue is recognized ratably over the subscription term. Such differences in accounting treatment for on-premise and cloud subscriptions may cause revenue to fluctuate and to be less predictable on a quarterly basis.

Ability to Scale Operations

We plan to continue to invest for future growth, in part by making selective investments in research and development, and, to a lesser degree, in sales and marketing. We will continue to incur significant accounting, legal and other expenses in order to comply with rules and regulations associated with being a public company, which will include, starting in 2019, our independent registered public accounting firm attesting to the effectiveness of our internal controls over financial reporting and enhanced disclosure obligations regarding executive compensation in our periodic reports and proxy statements and exemptions. At the same time, we will need to increase our operating efficiency, which may be challenging given our rate of technology change, operational complexity, and expenses associated with being a public company. In addition, sales of our MobileIron Threat Defense bear a royalty, which has begun to put pressure on our gross margin and will continue to do so as sales of MobileIron Threat Defense increase.

Components of Operating Results

Revenue

License

License revenue consists primarily of revenue from on-premises perpetual licenses and the license portion of on-premises subscriptions. From time to time, we enter into multiple element arrangements with customers in which a customer purchases our software with an appliance. Appliance revenues are also included in license revenue and constituted less than 5% of total revenue in each of 2018, 2017 and 2016.

Cloud Services

Cloud services include sales of cloud-based solutions that allow customers to use hosted software over a contract period without taking possession of our software and are typically provided on a subscription or usage basis. We recognize revenue from cloud-based subscriptions ratably over the term of the subscriptions or, if usage based, as the usage is billed.

Software support and services

Software support and services revenue consists of revenue from agreements to provide software upgrades and updates, as well as technical support, to customers with perpetual software licenses, on-premises subscriptions, and

professional services. Revenue from software support for both perpetual and on-premises subscriptions is recognized ratably over the support or subscription term. Revenue from professional services is recognized as work is performed.

Cost of Revenue

License

Our cost of license revenue consists of the cost of third-party software royalties, appliances and, until March 31, 2018, amortization of intangible assets.

Cloud Services

Our cloud services cost of revenue consists of cloud service data center operations expense, the portion of our global Customer Success organization (See *Software support and services* below) associated with our cloud services business, and third-party royalties. Cloud service data center operations expenses primarily consist of personnel costs, third-party hosting facilities, and telecommunication and information technology costs. We expect cloud services expenses to increase if we continue to increase sales of MobileIron Threat Defense and as we scale our data center operations team and infrastructure to support our growing cloud business.

Software support and services

Our software support and services cost of revenue consists of the portion of our global Customer Success organization expenses associated with our software support business and third-party royalties. Costs associated with our global Customer Success organization include our customer support, professional services, customer advocacy and training teams. These costs consist of personnel costs, stock-based compensation, depreciation, facilities and information technology costs.

Gross Margin

Gross margin, or gross profit as a percentage of total revenue, has been and will continue to be affected by various factors, including mix between large and small customers, mix of products sold, including our MobileIron Threat Defense which bears a royalty, mix between perpetual, on-premises and cloud subscription licenses, timing of revenue recognition and the extent to which we expand our global Customer Success organization and data center operations, including costs associated with third-party hosting facilities and stock-based compensation expense associated with grants of equity awards. We expect our gross margins to decline somewhat over the short term based on the factors described above.

Operating Expenses

Personnel costs are the most significant component of operating expenses and consist of salaries, benefits, bonuses, stock-based compensation and, in sales and marketing expense, sales commissions. While operating expenses, exclusive of stock-based compensation expense, may fluctuate as a percentage of total revenue from period to period, we expect them to decrease over the long term as a percentage of total revenue. Stock-based compensation expense may fluctuate depending on the size and timing of RSU grants and stock-settled bonus plans.

Research and Development Expenses

Research and development costs are expensed as incurred. Research and development expense consists primarily of personnel costs. Research and development expense also includes costs associated with contractors and consultants, equipment and software to support our development and quality assurance teams, facilities and information technology. While our research and development expense, exclusive of stock-based compensation expense, may fluctuate as a percentage of total revenue from period to period, we expect it to decrease as a percentage of total revenue over the long term.

Sales and Marketing Expenses

Sales and marketing expense consists primarily of personnel costs, including sales commissions. Sales and marketing expense also includes costs associated with third-party events, lead generation campaigns, promotional and other marketing activities, as well as travel, equipment and software depreciation, consulting, information technology and facilities. While our sales and marketing expense, exclusive of stock-based compensation expense, may fluctuate as a percentage of total revenue from period to period, we expect it to decrease as a percentage of total revenue over the long term.

General and Administrative Expenses

General and administrative expense consists of personnel costs, travel, information technology, facilities and professional services fees. General and administrative personnel include our executive, finance, human resources and legal organizations. Professional services fees consist primarily of litigation, other legal, accounting and consulting costs. While our general and administrative expense, exclusive of stock-based compensation expense, may fluctuate as a percentage of total revenue from period to period, we expect it to decrease as a percentage of total revenue over the long term.

Litigation Settlement Charge

The 2017 litigation settlement charge is expense associated with the settlement of shareholder litigation.

Restructuring Charges

Restructuring charges consist of severance and severance-related costs and, in 2017, the cost to exit a facility. These restructuring actions were designed to align our cost structure with our expected growth rate. Restructuring charges may recur in the future; however, the timing and amounts are difficult to predict.

Other Income (Expense) — Net

Other income (expense), net consists primarily of the effect of exchange rates on our foreign currency-denominated asset and liability balances and interest income earned on our cash and cash equivalents and fixed income securities. All translation adjustments are recorded as foreign currency gains (losses) in the consolidated statements of operations.

Income Tax Expense

Income tax expense consists primarily of income taxes in foreign jurisdictions in which we conduct business. Due to our history of losses, we maintain a full valuation allowance for deferred tax assets including net operating loss carry-forwards, research and development tax credits, capitalized research and development and other book versus tax differences.

Consolidated of Results of Operations

The following tables summarize our results of operations for the periods presented and as a percentage of our total revenue for those periods. The period-to-period comparison of results is not necessarily indicative of results for future periods.

	Year ended December 31,		
	2018	2017	2016
Revenue			
License	\$ 59,338	\$ 64,035	\$ 66,347
Cloud services	50,714	38,728	31,093
Software support and services	83,140	76,995	68,742
Total revenue	<u>193,192</u>	<u>179,758</u>	<u>166,182</u>
Cost of revenue (1)			
License	3,270	2,203	2,896
Cloud services	12,719	8,847	8,374
Software support and services	18,933	19,176	19,097
Restructuring charge	—	311	181
Total cost of revenue	<u>34,922</u>	<u>30,537</u>	<u>30,548</u>
Gross profit	<u>158,270</u>	<u>149,221</u>	<u>135,634</u>
Operating expenses:			
Research and development (1)	78,047	75,350	67,398
Sales and marketing (1)	94,204	96,807	102,327
General and administrative (1)	28,880	28,091	29,695
Litigation settlement charge	—	1,143	—
Restructuring charge	—	1,038	871
Total operating expenses	<u>201,131</u>	<u>202,429</u>	<u>200,291</u>
Operating loss	<u>(42,861)</u>	<u>(53,208)</u>	<u>(64,657)</u>
Other income (expense) - net	1,124	988	145
Loss before income taxes	<u>(41,737)</u>	<u>(52,220)</u>	<u>(64,512)</u>
Income tax expense	1,347	1,142	982
Net loss	<u>\$ (43,084)</u>	<u>\$ (53,362)</u>	<u>\$ (65,494)</u>
Net loss per share, basic and diluted	<u>\$ (0.42)</u>	<u>\$ (0.57)</u>	<u>\$ (0.76)</u>
Weighted-average shares used to compute net loss per share, basic and diluted	<u>102,527</u>	<u>93,770</u>	<u>85,845</u>

(1) Amounts include stock-based compensation expense as follows:

	Year ended December 31,		
	2018	2017	2016
Cost of revenue	\$ 5,006	\$ 3,772	\$ 3,043
Research and development	15,981	14,520	11,728
Sales and marketing	9,464	8,659	10,474
General and administrative	7,985	6,780	9,144
Total	<u>\$ 38,436</u>	<u>\$ 33,731</u>	<u>\$ 34,389</u>

	Year ended December 31,		
	2018	2017	2016
Revenue			
License	31 %	35 %	40 %
Cloud services	26	22	19
Software support and services	43	43	41
Total revenue	<u>100</u>	<u>100</u>	<u>100</u>
Cost of revenue			
License	1	1	2
Cloud services	7	5	5
Software support and services	10	11	11
Restructuring charge	—	0	0
Total cost of revenue	<u>18</u>	<u>17</u>	<u>18</u>
Gross profit	<u>82</u>	<u>83</u>	<u>82</u>
Operating expenses:			
Research and development	40	42	40
Sales and marketing	49	54	62
General and administrative	15	16	18
Litigation settlement charge	—	1	—
Restructuring charge	—	0	1
Total operating expenses	<u>104</u>	<u>113</u>	<u>121</u>
Operating loss	<u>(22)</u>	<u>(30)</u>	<u>(39)</u>
Other income (expense) - net	1	1	—
Loss before income taxes	<u>(21)</u>	<u>(29)</u>	<u>(39)</u>
Income tax expense	1	1	1
Net loss	<u>(22) %</u>	<u>(30) %</u>	<u>(40) %</u>

Years ended December 31, 2018, 2017 and 2016

Revenue

<i>(in thousands, except percentages)</i>	For the year ended December 31,			Change			
	2018	2017	2016	2018 vs 2017		2017 vs 2016	
				Amount	%	Amount	%
License	\$ 59,338	\$ 64,035	\$ 66,347	\$ (4,697)	(7)%	\$ (2,312)	(3)%
Cloud services	50,714	38,728	31,093	11,986	31 %	7,635	25 %
Software support and services	83,140	76,995	68,742	6,145	8 %	8,253	12 %
Total revenue	<u>\$ 193,192</u>	<u>\$ 179,758</u>	<u>\$ 166,182</u>	<u>\$ 13,434</u>	<u>7 %</u>	<u>\$ 13,576</u>	<u>8 %</u>
Percentage of total revenue							
License	31 %	35 %	40 %				
Cloud services	26	22	19				
Software support and services	43	43	41				
	<u>100 %</u>	<u>100 %</u>	<u>100 %</u>				

	For the year ended December 31,						Change			
	2018		2017		2016		2018 vs 2017		2017 vs 2016	
	Amount	% of Total Revenue	Amount	% of Total Revenue	Amount	% of Total Revenue	Amount	%	Amount	%
<i>(in thousands, except percentages)</i>										
Revenue										
United States	\$ 82,033	42 %	\$ 83,625	47 %	\$ 76,217	46 %	\$ (1,592)	(2)%	\$ 7,408	10 %
International	111,159	58 %	96,133	53 %	89,965	54 %	15,026	16 %	6,168	7 %
Total revenue	\$ 193,192	100 %	\$ 179,758	100 %	\$ 166,182	100 %	\$ 13,434	7 %	\$ 13,576	8 %

Comparison of 2018 and 2017

License revenue decreased \$4.7 million, or 7%, from 2017 to 2018, primarily due to a shift in favor of cloud or on-premise subscription services and a slowdown in perpetual license orders. Revenue from perpetual licenses decreased \$9.7 million while revenue from the license component of on-premise subscriptions increased \$5.0 million in 2018 compared to 2017.

Cloud services revenue increased \$12.0 million, or 31%, from 2017 to 2018, primarily due to customer preference for solutions sold under a cloud-based delivery model, and included contributions from sales of Access and, to a lesser extent, MobileIron Threat Defense which we began selling in the fourth quarter of 2017.

Software support and services revenue increased \$6.1 million, or 8%, from 2017 to 2018, primarily as a result of growth in our installed base of customers that purchase perpetual licenses, new and renewed on-premise subscriptions and software support on perpetual licenses, and increased professional services purchased as part of our solutions. Professional services revenue was \$3.7 million in 2018 compared to \$3.1 million in 2017 as a result of completing more work on professional services engagements. Support for perpetual licenses increased \$4.1 million, or 7%, and support for on-premise subscriptions increased \$1.5 million, or 10%, from 2017 to 2018.

Revenue from U.S. sales decreased 2% while revenue from international sales increased 16% from 2017 to 2018. The decrease in U.S. sales was primarily due to new customer adoption slowing compared to the prior year. The increase in international sales was the result of the greater adoption of our products and an increased cumulative installed base of customers, partially offset by a mix shift from perpetual to subscription, and a slowdown in perpetual license orders.

Revenue from AT&T was 11% of total revenue in 2018 compared to 14% in 2017. No other customer accounted for 5% or more of total revenue in 2018 or 2017.

Comparison of 2017 and 2016

License revenue decreased \$2.3 million, or 3%, from 2016 to 2017, primarily due to a shift in favor of cloud or on-premise subscription services and a slowdown in perpetual license orders. Revenue from perpetual licenses decreased \$2.7 million while revenue from the license component of on-premise subscriptions increased \$380,000 in 2017 compared to 2016.

Cloud services revenue increased \$7.6 million, or 25%, from 2016 to 2017, primarily due to customer preference for solutions sold under a cloud-based delivery model.

Software support and services revenue increased \$8.3 million, or 12%, from 2016 to 2017, primarily as a result of growth in our installed base of customers that purchase perpetual licenses, new and renewed on-premise subscriptions and software support on perpetual licenses. Professional services revenue was roughly flat at \$3.1 million in 2017 and 2016. Support for perpetual licenses increased \$7.7 million, or 15%, and support for on-premise subscriptions increased \$479,000, or 3%, from 2016 to 2017.

Revenue from international and U.S. sales increased 10% and 7%, respectively, from 2016 to 2017. This was the result of the increased adoption of our products and an increased cumulative installed base of customers, partially offset by the mix shift from perpetual to subscription, and a slowdown in perpetual license orders.

Revenue from AT&T was 14% of total revenue in 2017 compared to 16% in 2016. No other customer accounted for 5% or more of total revenue in 2017 or 2016.

Cost of Revenue and Gross Margin

(in thousands, except percentages)	For the year ended December 31,						Change			
	2018		2017		2016		2018 vs 2017		2017 vs 2016	
	Amount	% of Total Revenue	Amount	% of Total Revenue	Amount	% of Total Revenue	Amount	%	Amount	%
Cost of revenue:										
License	\$ 3,270	1 %	\$ 2,203	1 %	\$ 2,896	2 %	\$ 1,067	48 %	\$ (693)	(24)%
Cloud services	12,719	7 %	8,847	5 %	8,374	5 %	3,872	44 %	473	6 %
Software support and services	18,933	10 %	19,176	11 %	19,097	11 %	(243)	(1)%	79	0 %
Restructuring charge	—	—%	311	0 %	181	0 %	(311)	(100)%	130	72 %
Total cost of revenue	\$ 34,922	18 %	\$ 30,537	17 %	\$ 30,548	18 %	\$ 4,385	14 %	\$ (11)	(0)%
Gross profit	\$ 158,270		\$ 149,221		\$ 135,634		\$ 9,049	6 %	\$ 13,587	10 %
Gross margin		82 %		83 %		82 %				

Comparison of 2018 and 2017

Total cost of revenue increased \$4.4 million from 2017 to 2018 due to increases in license and cloud services cost of revenue that were partially offset by reductions in software support and services cost of revenue and restructuring charges.

License cost of revenue increased \$1.1 million from 2017 to 2018 due to a \$1.3 million increase in third party royalty expense from sales of perpetual or on-premises subscriptions bearing a royalty. Partially offsetting the increase in royalty expense, intangible asset amortization decreased \$445,000 in 2018 compared to 2017.

Cloud services cost of revenue increased \$3.9 million from 2017 to 2018 due to a \$2.1 million increase in data center operations expense, a \$1.2 million increase in third party royalties, and a \$617,000 increase in global Customer Success expense. In data center operations, payroll-related expense increased \$1.3 million, inclusive of a \$432,000 increase in stock-based compensation expense, and facilities, telecommunications and other infrastructure expense increased \$764,000. We invested in our cloud operations in 2018 by hiring and building out infrastructure to host the growing number of customers who purchase our cloud solutions. The increase in royalty expense was primarily driven by sales of one of our partner solutions that bears a royalty, MobileIron Threat Defense. In our global Customer Success organization, the increased expense was primarily due to the rapid growth in our cloud solutions which has taken an increasing proportion of our support resources.

Software support and services cost of revenue decreased \$243,000 in from 2017 to 2018 as an increasing proportion of the global Customer Success team's resources were devoted to supporting our cloud solutions.

In 2017, we incurred a \$311,000 restructuring charge due to a reduction in our workforce.

Comparison of 2017 and 2016

Total cost of revenue was flat from 2016 to 2017 as a decrease in license cost of sales was offset by increases in cloud and software support and services cost of sales and restructuring expense.

License cost of revenue decreased \$693,000 from 2016 to 2017 due to lower appliance sales and, to a lesser extent, lower intangible asset amortization expense due to some intangible assets becoming fully amortized during 2017.

Cloud service cost of revenue increased \$473,000 from 2016 to 2017 due to increases in costs associated with our global Customer Success organization and data center operations.

Software support and services cost of revenue increased slightly from 2016 to 2017 due to increased expense associated with our global Customer Success organization.

In 2017, we incurred a \$311,000 restructuring charge compared to \$181,000 in 2016. Both were due to reductions in our workforce.

Operating Expenses

(in thousands, except percentages)	For the year ended December 31,						Change			
	2018		2017		2016		2018 vs 2017		2017 vs 2016	
	Amount	% of Total Revenue	Amount	% of Total Revenue	Amount	% of Total Revenue	Amount	%	Amount	%
Operating expenses:										
Research and development	\$ 78,047	40 %	\$ 75,350	42 %	\$ 67,398	40 %	\$ 2,697	4 %	\$ 7,952	12 %
Sales and marketing	94,204	49 %	96,807	54 %	102,327	62 %	(2,603)	(3)%	(5,520)	(5)%
General and administrative	28,880	15 %	28,091	16 %	29,695	18 %	789	3 %	(1,604)	(5)%
Litigation settlement charge	—	— %	1,143	1 %	—	— %	(1,143)	(100)%	1,143	NM %
Restructuring charge	—	— %	1,038	0 %	871	1 %	(1,038)	(100)%	167	19 %
Total operating expenses	\$ 201,131	104 %	\$ 202,429	113 %	\$ 200,291	121 %	\$ (1,298)	(1)%	\$ 2,138	1 %

Comparison of 2018 and 2017

Research and development expense increased \$2.7 million, or 4%, from 2017 to 2018 primarily due to an increase in personnel costs of \$1.4 million and facilities and infrastructure expense of \$1.1 million. Stock-based compensation expense, part of personnel costs, increased by \$1.5 million due to higher expense associated with RSU grants and our stock-settled bonus plans, partially offset by lower expense from stock options. While headcount decreased compared to the prior year, this was offset by severance payouts in the first half of the year and merit increases. Facilities and infrastructure expense increased due mainly to the cost of a new India facility and telecommunications costs largely associated with our cloud services.

Sales and marketing expense decreased \$2.6 million, or 3%, from 2017 to 2018. Personnel costs decreased by \$2.2 million compared to the prior year. Salaries, and salary-related and commission expense decreased \$3.0 million from the prior year due to lower headcount and changes to our commission plan structure. Partially offsetting that decrease, stock-based compensation expense, part of personnel costs, increased \$805,000 due to higher expense associated with RSU grants and the stock-settled bonus plans, partially offset by lower expense from stock options. Marketing program expense decreased by \$692,000 due to lower spending on events. Facilities and infrastructure expense decreased \$349,000 due primarily to lower facilities and IT costs. The sales and marketing decreases were partially offset by an \$816,000 increase in travel-related expense.

General and administrative expense increased \$789,000, or 3%, from 2017 to 2018 primarily due to a \$360,000 increase in personnel costs and a one-time contract termination charge of \$325,000. The increase in personnel costs was largely due to an increase in stock-based compensation expense of \$1.1 million, and was partially offset by a \$729,000 decrease in salaries and bonus expense, primarily associated with our former Chief Executive Officer's 2017 severance and bonus plan. Stock-based compensation expense increased due to higher expense from RSU grants and the stock-settled bonus plans, partially offset by lower expense from stock option grants.

We recorded a litigation settlement charge of \$1.1 million in 2017 for expense associated with the settlement of shareholder litigation.

We incurred a \$1.0 million restructuring charge in 2017 due to a reduction in our workforce and exit from an office facility. The restructuring activity was designed to align our spending with our expected revenue growth rate.

Comparison of 2017 and 2016

Research and development expense increased \$8.0 million, or 12%, in 2017 compared to 2016 primarily due to an increase in personnel costs of \$5.0 million, facilities and infrastructure expense of \$2.1 million, and professional services expense of \$650,000. Stock-based compensation expense, part of personnel costs, increased by \$2.8 million primarily because of higher expense associated with RSU grants and our stock-settled bonus plan, partially offset by lower stock option and ESPP expense. The remainder of the increase in personnel costs was due primarily to increased headcount. Facilities and infrastructure expense increased due to an investment in our IT infrastructure, office move costs including exit costs accrued for a Bangalore office, depreciation on equipment purchases, rent, and other infrastructure and costs to support higher headcount. We incurred additional professional services expense to supplement our development work and improve processes.

Sales and marketing expense decreased \$5.5 million, or 5%, in 2017 compared to 2016. Personnel costs decreased by \$3.7 million. Within personnel costs, stock-based compensation expense and other payroll-related expense decreased \$1.8 million and \$2.1 million, respectively, in 2017 compared to 2016. The stock-based compensation expense decrease was driven by lower expense associated with RSU grants, stock options, and ESPP. A more measured approach to hiring and replacing personnel, which accounted for a decrease in headcount, was the primary reason for the decrease in other payroll-related expenses. Outside professional services fees decreased \$1.4 million due to lower costs associated with contractors who supplemented our sales team, expense associated with security initiatives, and recruiting expense. Travel-related expense decreased \$952,000 due to lower sales headcount and continued cost control. Those expense decreases were partially offset by a \$542,000 increase in facilities and infrastructure expense due to an investment in our IT infrastructure, office move expenses, software subscription costs, and rent.

General and administrative expense decreased \$1.6 million, or 5%, in 2017 compared to 2016 primarily due to a \$2.7 million decrease in personnel costs but partially offset by an \$803,000 increase in facilities and infrastructure costs. The decrease in personnel costs includes a decrease in stock-based compensation expense of \$2.4 million, which was driven primarily by lower stock option grant expense due to terminations but partially offset by higher RSU expense due to new grants. Other personnel-related expense decreased \$284,000 due to a change in the mix of general and administrative personnel. Litigation legal fees decreased \$922,000 as the shareholder lawsuit was settled but this was offset by a \$1.1 million increase in accounting and consulting fees associated with implementation of the new revenue recognition accounting standard. Facilities and infrastructure expense increased \$803,000 due to an investment in our IT infrastructure, office move expense, software subscriptions and other support expenses.

We recorded a litigation settlement charge of \$1.1 million in 2017 for expense associated with the settlement of shareholder litigation .

We incurred a \$1.0 million restructuring charge in 2017 that was \$167,000 higher than our restructuring charge in 2016. The restructuring charges resulted from workforce reductions and, in 2017, our exit from an office facility, which were designed to align our spending with our revenue growth rate and company initiatives .

Other Income (Expense)—Net

<i>(in thousands, except percentages)</i>	For the year ended December 31,			Change			
	2018	2017	2016	2018 vs 2017		2017 vs 2016	
				Amount	%	Amount	%
Other income (expense)—net	\$ 1,124	\$ 988	\$ 145	\$ 136	14 %	\$ 843	581 %

Other income (expense)—net was primarily comprised of interest income and gains or losses from foreign currency transactions and the translation of foreign-denominated balances to the U.S. dollar. Interest income was \$1.5 million, \$716,000 and \$454,000 in 2018, 2017 and 2016, respectively. We recorded a foreign currency loss of \$471,000 in 2018, a gain of \$242,000 in 2017, and a loss of \$339,000 in 2016. Interest income has increased due to a general rise in interest rates. Our foreign exchange gains and losses follow the strength of the U.S. dollar relative to other currencies, particularly the Euro and Indian Rupee. The strengthening of the U.S. dollar relative to the Euro and Indian Rupee resulted in losses on cash and accounts receivable denominated in foreign currencies in 2018 and 2016. In 2017, the U.S. dollar generally weakened compared to the Euro and Indian Rupee, resulting in a gain for that year.

Income Tax Expense

<i>(in thousands, except percentages)</i>	For the year ended December 31,			Change			
	2018	2017	2016	2018 vs 2017		2017 vs 2016	
				Amount	%	Amount	%
Income tax expense	\$ 1,347	\$ 1,142	\$ 982	\$ 205	18 %	\$ 160	16 %

Income tax expense was \$1.3 million, \$1.1 million and \$982,000 in 2018, 2017 and 2016, respectively. The increase in income tax expense was due to an increase in foreign income taxes on profits realized by our foreign subsidiaries as we expanded internationally, most significantly in India. We have a full valuation allowance on our deferred tax assets.

Quarterly Results of Operations

The following table presents our operating results for each of the eight fiscal quarters in the period ended December 31, 2018. The information for each of these quarters is derived from our unaudited interim financial statements and reflect the adoption of new accounting standards in fiscal year 2018 related to revenue recognition and should be read in conjunction with our audited consolidated financial statements included in this Annual Report. In our opinion, all necessary adjustments, which consist only of normal and recurring accruals, have been included to fairly present our unaudited quarterly results. These quarterly operating results are not necessarily indicative of our operating results for any future period.

We do not believe that inflation had a material effect on our business, financial condition or results of operations in the last three fiscal years. If our costs were to become subject to significant inflationary pressures, we may not be able to fully offset such higher costs through price increases. Our inability or failure to do so could harm our business, financial condition and results of operations.

<i>(in thousands, except share and per share data)</i>	Three Months ended							
	December 31, 2018	September 30, 2018	June 30, 2018	March 31, 2018	December 31, 2017	September 30, 2017	June 30, 2017	March 31, 2017
Revenue								
License	\$ 18,011	\$ 15,006	\$ 13,880	\$ 12,441	\$ 18,306	\$ 16,531	\$ 14,778	\$ 14,420
Cloud services	14,533	13,199	11,832	11,150	10,617	9,539	9,549	9,023
Software support and services	21,579	21,046	20,417	20,098	20,140	19,437	18,752	18,666
Total revenue ⁽¹⁾	54,123	49,251	46,129	43,689	49,063	45,507	43,079	42,109
Cost of revenue								
License	1,795	529	515	431	514	708	534	447
Cloud services	4,095	3,331	2,722	2,571	2,335	2,318	2,248	1,946
Software support and services	4,673	4,613	4,672	4,975	4,369	4,681	5,249	4,877
Restructuring charges	—	—	—	—	—	311	—	—
Total cost of revenue ⁽¹⁾	10,563	8,473	7,909	7,977	7,218	8,018	8,031	7,270
Gross profit	43,560	40,778	38,220	35,712	41,845	37,489	35,048	34,839
Operating expenses								
Research and development ⁽¹⁾	19,975	18,465	18,272	21,335	18,910	19,581	19,666	17,193
Sales and marketing ⁽¹⁾	23,335	22,867	24,321	23,681	23,079	23,920	26,145	23,663
General and administrative ⁽¹⁾	7,800	6,806	7,052	7,222	6,853	7,210	7,840	6,188
Litigation settlement charge	—	—	—	—	—	—	—	1,143
Restructuring charges	—	—	—	—	549	489	—	—
Total operating expenses	51,110	48,138	49,645	52,238	49,391	51,200	53,651	48,187
Operating loss	(7,550)	(7,360)	(11,425)	(16,526)	(7,546)	(13,711)	(18,603)	(13,348)
Other income (expense) - net	645	181	(205)	503	287	188	339	174
Loss before income taxes	(6,905)	(7,179)	(11,630)	(16,023)	(7,259)	(13,523)	(18,264)	(13,174)
Income tax expense	304	319	377	347	261	358	324	199
Net loss	\$ (7,209)	\$ (7,498)	\$ (12,007)	\$ (16,370)	\$ (7,520)	\$ (13,881)	\$ (18,588)	\$ (13,373)
Net loss per share, basic and diluted	\$ (0.07)	\$ (0.07)	\$ (0.12)	\$ (0.17)	\$ (0.08)	\$ (0.15)	\$ (0.20)	\$ (0.15)
Weighted-average shares used to compute net loss per share, basic and diluted	105,967	104,032	101,313	98,645	96,574	95,024	92,963	90,439

(1) Amounts include stock-based compensation expense as follows:

	Three Months ended							
	December 31, 2018	September 30, 2018	June 30, 2018	March 31, 2018	December 31, 2017	September 30, 2017	June 30, 2017	March 31, 2017
<i>(in thousands)</i>								
Stock-Based Compensation Expense:								
Cost of revenue	\$ 1,334	\$ 1,223	\$ 1,067	\$ 1,382	\$ 913	\$ 932	\$ 1,226	\$ 701
Research and development	4,201	3,670	3,343	4,767	3,474	3,914	4,366	2,766
Sales and marketing	2,123	2,653	2,159	2,529	2,047	2,258	2,582	1,772
General and administrative	2,285	1,834	1,851	2,015	1,048	1,974	2,450	1,308
Total stock-based compensation expense	\$ 9,943	\$ 9,380	\$ 8,420	\$ 10,693	\$ 7,482	\$ 9,078	\$ 10,624	\$ 6,547

Seasonality

There are seasonal factors that may cause us to record higher revenue in some quarters compared to others. We believe this variability is largely due to our customers' budgetary and spending patterns, as many customers spend the unused portions of their discretionary budgets prior to the end of their fiscal years. For example, we have historically recorded our highest level of revenue in our fourth quarter, which we believe corresponds to the fourth quarter of a majority of our customers.

Liquidity and Capital Resources

<i>(in thousands)</i>	As of December 31,		
	2018	2017	2016
Cash and cash equivalents	\$ 104,613	\$ 85,833	\$ 54,043
Short term-investments	1,000	6,797	36,184
Total cash, cash equivalents and investments	\$ 105,613	\$ 92,630	\$ 90,227

<i>(in thousands, except percentages)</i>	Change							
	For the year ended December 31,			2018 vs 2017		2017 vs 2016		
	2018	2017	2016	Amount	%	Amount	%	
Net cash provided by (used in) operating activities	\$ 14,157	\$ 3,036	\$ (11,729)	\$ 11,121	366 %	\$ 14,765	(126)%	
Net cash provided by investing activities	3,891	22,991	12,567	(19,100)	(83)%	10,424	83 %	
Net cash provided by financing activities	\$ 732	\$ 5,763	\$ 5,971	\$ (5,031)	(87)%	\$ (208)	(3)%	

At December 31, 2018, we had cash and cash equivalents of \$104.6 million, the significant majority of which are held in the United States. At December 31, 2018, we had short-term investments of \$1.0 million. In 2018, we purchased \$10.1 million of investment securities and received \$15.9 million from maturities of investment securities.

In addition, we have a revolving line of credit with a financial institution with potential borrowing capacity of approximately \$15.5 million that expires in June 2019. We are required to maintain an adjusted quick ratio (defined as the ratio of current assets to current liabilities minus deferred revenue) of at least 1.25. As of December 31, 2018, we had no borrowings outstanding under this revolving loan facility and we were in compliance with our loan covenants.

In June 2014, we raised, net of offering costs, \$102.9 million in our initial public offering. We believe that our existing cash and cash equivalents will be sufficient to meet our anticipated cash needs for at least the next 12 months. Our future capital requirements will depend on many factors including our growth rate, the timing and extent of spending to support development efforts, the expansion of sales and marketing activities, the introduction of new and enhanced products and services offerings, the continuing market acceptance of our products, any future acquisition and similar transactions and the proportion of our perpetual versus subscription sales. In the event that additional financing is required from outside sources, we may not be able to raise it on terms acceptable to us or at all. If we are unable to raise additional capital when desired, our business, operating results and financial condition may be adversely affected.

Cash Provided by (Used in) Operating Activities

Our primary source of cash from operating activities has been from cash collections from our customers. We expect cash inflows from operating activities to be affected by increases in sales and the timing of collections. Our primary use of cash from operating activities has been for personnel costs. We expect future variability in cash from operating activities to be most impacted by the size and timing of billings, changes in personnel costs and, to lesser extent, consulting and subscription royalty expense.

In 2018, we generated \$14.2 million of cash from operating activities compared to \$3.0 million in 2017. We incurred a net loss of \$43.1 million in 2018 compared to a net loss of \$53.4 million in 2017 as we increased our revenue by 7% and increased our combined cost of revenue and operating expenses by \$3.1 million, or 1%. The net loss included non-cash charges of \$42.6 million, primarily due to stock-based compensation and depreciation expense, compared to \$37.7 million in 2017. Changes in operating assets and liabilities, as sources of cash, consisted of a \$28.8 million increase in unearned revenue and a \$1.1 million decrease in deferred commissions partially offset by a \$10.6 million increase in accounts receivable and a \$5.5 million increase in other current and noncurrent assets.

In 2017, we generated \$3.0 million of cash from operating activities compared to a use of \$11.7 million of cash from operating activities in 2016. We incurred a net loss of \$53.4 million in 2017 compared to a net loss of \$65.5 million in 2016 as we increased our revenue by 8% and increased our operating expenses by only \$2.1 million, or 1%. The net loss included non-cash charges of \$37.7 million, primarily due to stock-based compensation and depreciation expense, compared to \$38.5 million in 2016. Changes in operating assets and liabilities, as sources of cash, consisted of a \$16.4 million increase in unearned revenue, a \$5.3 million increase in customer arrangements with termination rights, and a \$2.0 million increase in accrued expenses and other long-term liabilities that were partially offset by an increase in accounts receivable of \$4.9 million.

In 2016, we used \$11.7 million of cash in operating activities primarily as a result of the net loss of \$65.5 million incurred in the year. The net loss included non-cash charges of \$38.5 million, primarily due to stock-based compensation and depreciation expense. Changes in operating assets and liabilities, as sources of cash, consisted of an \$10.6 million increase in unearned revenue and a \$6.5 million increase in customer arrangements with termination rights that were partially offset by an increase in accounts receivable and decrease in accounts payable.

Cash Provided by Investing Activities

Our investing activities have consisted of the purchase and maturities of investment securities and purchases of property and equipment. We expect to continue to make such purchases to support the growth of our business.

Cash provided by investing activities was \$3.9 million in 2018. We received \$15.9 million from maturities of investment securities and invested \$10.1 million in new investment securities. Cash paid for the purchase of property and equipment was \$2.0 million in 2018 as we equipped a new India office facility and upgraded our network.

Cash provided by investing activities was \$23.0 million in 2017. We received \$38.0 million from maturities of investment securities and invested \$8.6 million in new investment securities. Cash paid for the purchase of property and equipment was \$6.5 million in 2017 as we continued to upgrade our network and data centers, equipped new headquarters and India office facilities, and implemented or enhanced systems associated with our quote-to-cash process.

Cash provided by investing activities of \$12.6 million in 2016 consisted of \$94.6 million received from maturities of investment securities that was partially offset by our purchase of \$79.1 million of short-term investments. In addition, we purchased \$2.9 million of property and equipment. We purchased equipment to expand, refresh and improve our infrastructure, to support growth, and to outfit new office facilities.

Cash Provided by Financing Activities

Our financing activities have consisted of proceeds from the exercise of stock options and contributions to our ESPP. Beginning in 2017, our financing activities have included cash used to pay employee payroll taxes as part of the net settlement of our equity awards. Beginning in 2018, our financing activities also include cash outflows associated

with the repurchase of shares of our common stock under a repurchase program approved by our Board of Directors in October 2018.

In 2018, our financing activities provided \$732,000 of cash. We received \$6.5 million from the exercise of stock options and \$4.4 million from ESPP contributions. We used \$4.9 million to pay employee payroll taxes as part of the net settlement of our stock-settled bonuses, certain stock options and RSUs. In addition, we surrendered \$1.5 million of exercise proceeds for the net settlement of certain stock options. We used \$3.8 million for the repurchase of common stock.

In 2017, our financing activities provided \$5.8 million of cash. We received \$4.1 million from the exercise of stock options and \$4.8 million from ESPP contributions. We used \$3.1 million to pay employee payroll taxes as part of the net settlement of our stock-settled bonuses.

In 2016, our financing activities provided \$6.0 million of cash. We received \$4.3 million from employees who participated in our ESPP and \$1.6 million from the exercise of stock options.

Contractual Obligations and Commitments

The following table summarizes our contractual commitments and obligations as of December 31, 2018:

<i>(In thousands)</i>	Total	Less than 1	1-3 years	3-5 years	More than
		year			5 years
Operating lease obligations	\$ 21,017	\$ 7,144	\$ 9,636	\$ 4,237	\$ —
Purchase obligations	7,474	5,027	2,447	—	—
Total	\$ 28,491	\$ 12,171	\$ 12,083	\$ 4,237	\$ —

We lease our office facilities under noncancelable operating lease agreements expiring between 2019 and 2023.

As of December 31, 2018, our net unrecognized tax benefits including interest and penalties were \$8.3 million, \$8.1 million of which are netted against deferred tax assets. At this time, we are unable to make a reasonably reliable estimate of the timing of payments in individual years in connection with these tax liabilities; therefore, such amounts are not included in the above contractual obligation table.

Off-Balance-Sheet Arrangements

Through December 31, 2018, we have no off-balance sheet arrangements as defined in Item 303(a)(4) of Regulation S-K.

Segment and Geographic information

We conduct business globally. Our chief operating decision maker (Chief Executive Officer) reviews financial information presented on a consolidated basis accompanied by information about revenue by geographic region for purposes of allocating resources and evaluating financial performance. We have one business activity, and there are no segment managers who are held accountable for operations, operating results or plans for levels, components or types of products or services below the consolidated company level. Accordingly, we are considered to be a single reportable segment and operating unit structure.

We sell our products primarily through indirect sales channels. In 2018, 2017 and 2016, 58%, 53% and 54%, respectively, of our total revenue was generated from customers located outside of the United States, primarily those located in Europe.

We have employees and facilities globally. Outside of the United States, we primarily have sales, marketing and support functions except in India, where we have significant research and development operations. As of December 31, 2018 and 2017, \$2.5 million and \$2.7 million, or 35% and 30%, respectively, of our net Property and Equipment was attributable to our operations located in India. Substantially all other long-lived assets were attributable to operations in the United States.

Concentration

In 2018, 2017 and 2016, AT&T accounted for approximately 11%, 14% and 16% of our revenue (including 1% as an end customer for all periods), respectively. Our agreements with this reseller were made in the ordinary course of our business and may be terminated with or without cause by either party with advance notice. Although we believe we would experience some short term disruption in the distribution of our products, subscriptions and services if these agreements were terminated, we believe such termination would not have a material adverse effect on our financial results and alternative resellers and other channel partners exist to deliver our products to our end customers.

Critical Accounting Policies and Estimates

Our consolidated financial statements have been prepared in accordance with U.S. generally accepted accounting principles. The preparation of these consolidated financial statements requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue, expenses and related disclosures. We base our estimates on historical experience and on various other assumptions that we believe are reasonable under the circumstances. We evaluate our estimates and assumptions on an ongoing basis. Actual results may differ from these estimates. To the extent that there are material differences between these estimates and our actual results, our future financial statements will be affected.

The critical accounting policies requiring estimates, assumption and judgments that we believe have the most significant impact on our consolidated financial statements as described below. Our senior management has discussed the development, selection and disclosure of these estimates, assumptions and judgments with our audit committee. For further information on all of our significant accounting policies, see Note 1 entitled “Description of Business and Significant Accounting Policies” in Part II, Item 8 “Financial Statements and Supplementary Data” of this Annual Report on Form 10-K.

Revenue Recognition

We derive revenue from software-related arrangements consisting of perpetual software licenses, post-contract customer support for such licenses, or PCS or software support, including when and if available updates, and professional services such as consulting and training services. We also offer our software as term-based licenses and cloud-based arrangements.

Our contracts with customers often include promises to transfer multiple products and services to a customer. Determining whether products and services are considered distinct performance obligations that should be accounted for separately versus together may require significant judgment.

Judgment is also required to determine the stand-alone selling price (“SSP”) for each distinct performance obligation. We use a single amount to estimate SSP for items that are not sold separately, including on-premises licenses sold with software support. We use a range of amounts to estimate SSP when we sell our products and services separately and need to determine whether there is a discount that needs to be allocated based on the relative SSP of the various products and services.

We typically have more than one SSP for individual products and services due to the stratification of those products and services by customers and circumstances. In these instances, we may use information such as the size of the customer in determining the SSP.

Our products are sometimes sold with a right of refund which we have to consider when estimating the amount of revenue to recognize.

The new revenue recognition standard had a material impact in our consolidated financial statements. See Note 1 – Description of Business and Significant Accounting Policies in the Notes to Financial Statements (Part II, Item 8 of this Form 10-K) for further discussion.

Commissions

Current accounting principles require us to defer commission costs and amortize them in a manner consistent with how we recognize revenue. Key judgments that impact our commission expense include estimating our customer life and the determination of the impairment of commission assets we deem to be unrecoverable.

Goodwill

We record the excess of the acquisition purchase price over the fair value of the tangible and identifiable intangible assets acquired as goodwill. We perform an impairment test of our goodwill in the third quarter of our fiscal year, or more frequently if indicators of potential impairment arise. We have a single reporting unit and consequently evaluate goodwill for impairment based on an evaluation of the fair value of the Company as a whole. We evaluated our goodwill for impairment in 2018 and 2017 and observed no impairment indicators. As part of this, we observed that the fair value of the Company as a whole is substantially in excess of its carrying value, including goodwill.

Stock-Based Compensation

Stock-based compensation costs related to restricted stock and stock options granted to employees are measured at the date of grant based on the estimated fair value of the award, net of estimated forfeitures. We estimate the grant date fair value, and the resulting stock-based compensation expense, using the Black-Scholes option-pricing model. We recognize compensation costs for awards with service and performance vesting conditions on an accelerated method under the graded vesting method over the requisite service period of the award. For stock awards with no performance condition, we recognize compensation costs on a straight-line basis over the requisite service period of the award, which is generally the vesting term of four years.

Key assumptions used in determining the fair value of our stock option grants are estimated as follows:

- **Risk-Free Interest Rate.** We base the risk-free interest rate used in the Black-Scholes valuation model on the implied yield available on U.S. Treasury zero-coupon issues with a term equivalent to the options for each option group.
- **Expected Term.** The expected term represents the period that our stock-based awards are expected to be outstanding. We have opted to use the simplified method for estimating the expected term, which calculates the expected term as the average time-to-vesting and the contractual life of the options.
- **Volatility.** When we did not have a sufficient trading history for our common stock, the expected stock price volatility assumption was determined by examining the historical volatilities of a group of industry peers. As more historical data for our common stock became available, we began to use our own historical stock price volatility to determine expected stock price volatility.
- **Dividend Yield.** The expected dividend assumption is based on our current expectations about our dividend policy. We currently do not expect to issue any dividends.
- **Forfeiture Rate.** The forfeiture rate is calculated based on expected employee turnover. We have applied the same forfeiture rate to our entire employee population.

The fair value of the employee stock options was estimated using the following assumptions for the periods presented:

	Year ended December 31,		
	2018	2017	2016
Expected dividend yield	—	—	—
Risk-free interest rate	2.7%	2.1%	1.4%
Expected volatility	51%	40%	42%
Expected life (in years)	6.1	6.1	6.1

The fair value of the rights to acquire stock under our ESPP was estimated using the following assumptions for the periods presented:

	Year ended December 31,		
	2018	2017	2016
Expected dividend yield	—	—	—
Risk-free interest rate	1.8% - 2.6%	0.9% - 1.3%	0.5% - 0.7%
Expected volatility	34% - 54%	34% - 54%	34% - 41%
Expected life (in years)	0.5 - 2.0	0.5 - 2.0	0.5 - 2.0

We estimate the fair value of the rights to acquire stock under our ESPP using the Black-Scholes option pricing formula. Our ESPP typically provides for consecutive 24 month offering periods, consisting of four tranches. We recognize compensation expense on an accelerated-graded basis over the employee's requisite service period. We account for the fair value of RSUs using the closing market price of our common stock on the date of grant. RSUs typically vest ratably on a quarterly basis over one to four years.

Stock-based compensation expense associated with our stock-settled bonus program is recognized on a straight-line basis over the required service period and the expense is evaluated each quarter based on our company's performance relative to the metrics that determine the bonus pool.

In 2018, 2017 and 2016, stock-based compensation expense was \$38.4 million, \$33.7 million and \$34.4 million, respectively. As of December 31, 2018, we had approximately \$44.5 million of total unrecognized stock-based compensation expense, net of related forfeiture estimates.

Income Taxes

We account for income taxes in accordance with ASC Topic 740, Income Taxes, under which deferred tax liabilities and assets are recognized for the expected future tax consequences of temporary differences between financial statement carrying amounts and the tax basis of assets and liabilities and net operating loss and tax credit carryforwards. Valuation allowances are established when necessary to reduce deferred tax assets to the amount expected to be realized.

We currently have a full valuation allowance against our U.S. net deferred tax assets of \$104.2 million as of December 31, 2018. We continue to monitor the relative weight of positive and negative evidence of future profitability in relevant jurisdictions. When evidence indicating that it becomes more likely than not that the tax asset may be utilized, the allowance will be released.

Because we have a full valuation allowance against our U.S. net deferred tax assets, the Tax Cuts and Jobs Act of 2017, or Tax Act, did not materially impact our balance sheet or statement of operations. See Note 16 – Income Taxes in the Notes to Financial Statements (Part II, Item 8 of this Form 10-K) for the Tax Act's impact to our net deferred tax assets.

Recent Accounting Pronouncements

For discussion on recent accounting pronouncements, see "Summary of Significant Accounting Policies" under Note 1 "Description of Business and Significant Accounting Policies" included in Item 8, "Financial Statements and Supplementary Data" of Part II of this Annual Report on Form 10-K.

Item 7 A. Quantitative and Qualitative Disclosures about Market Risk

Foreign Currency Exchange Risk

Our sales contracts are currently primarily denominated in U.S. dollars. A portion of our operating expenses are incurred outside the United States and are denominated in foreign currencies and are subject to fluctuations due to changes in foreign currency exchange rates, particularly changes in the British Pound, Indian Rupee and Euro. In 2017, our operating expenses were adversely impacted by the decrease in the value of the U.S. dollar versus the Euro and other

foreign currencies while in 2018 and 2016, our operating expenses decreased as a result of the depreciation of foreign currencies versus the U.S. dollar. Approximately 27% of our 2018 expenses were denominated in foreign currencies. If, in 2019 or future years, the U.S. dollar declines in value versus the Euro, British Pound, Indian Rupee or other currencies, our operating expenses will increase. The effect of a hypothetical 10% change in foreign currency exchange rates applicable to our business would have a material impact on our consolidated financial statements. To date, we have not engaged in any hedging strategies. As our international operations grow or if we more frequently enter into sales contracts denominated in foreign currencies, we will reassess our approach to managing our risk related to fluctuations in currency rates.

Additionally, fluctuations in foreign currency exchange rates may cause us to recognize transaction gains and losses in our statement of operations. To date, foreign currency transaction gains and losses have not been material to our financial statements.

Interest Rate Risk

We had cash, cash equivalents and fixed income investments of \$105.6 million and \$92.6 million as of December 31, 2018 and 2017, respectively, consisting of bank deposits, money market funds, corporate debt securities, and commercial paper.

We do not enter into investments for trading or speculative purposes and have not used any derivative financial instruments to manage our interest rate risk exposure. By policy, we limit the amount of credit exposure to any one issuer and our investments are held with capital preservation as the primary objective.

Our cash equivalents and investments are subject to market risk due to changes in interest rates.

Due to increases in interest rates, we may suffer losses in principal if we are forced to sell securities that decline in market value due to changes in interest rates. However, because we classify our investments as “held-to-maturity”, no gains or losses are recognized due to changes in interest rates unless such securities are sold prior to maturity or declines in value are determined to be other-than-temporary. We believe that we do not have any material exposure to changes in the fair value of our investment portfolio as a result of changes in interest rates. Declines in interest rates, however, will reduce future investment income, if any. For instance the effect of a hypothetical 50 basis point increase or decrease in interest rates would result in a change of approximately \$490,000 to our annual interest income.

Item 8. Financial Statements and Supplementary Data

The Selected Financial Data information contained in Item 6 of Part II hereof is hereby incorporated by reference into this Item 8 of Part II of this Form 10-K.

MobileIron, Inc.
Index to Consolidated Financial Statements

	<u>Page No.</u>
Report of Independent Registered Public Accounting Firm	68
Consolidated Balance Sheets	69
Consolidated Statements of Operations	70
Consolidated Statements of Stockholders' Equity	71
Consolidated Statements of Cash Flows	72
Notes to Consolidated Financial Statements	73

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

To the stockholders and the Board of Directors of MobileIron, Inc.

Opinion on the Financial Statements

We have audited the accompanying consolidated balance sheets of MobileIron, Inc. and subsidiaries (the "Company") as of December 31, 2018 and 2017, the related consolidated statements of operations, stockholders' equity, and cash flows for each of the three years in the period ended December 31, 2018, and the related notes (collectively referred to as the "financial statements"). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2018 and 2017, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2018, in conformity with accounting principles generally accepted in the United States of America.

Change in Accounting Principle

As discussed in Note 1 to the financial statements, the Company adopted Accounting Standards Codification (ASC) Topic 606, "Revenue from Contracts with Customers," using the full retrospective adoption method on January 1, 2018.

Basis for Opinion

These financial statements are the responsibility of the Company's management. Our responsibility is to express an opinion on the Company's financial statements based on our 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 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 financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the financial statements. We believe that our audits provide a reasonable basis for our opinion.

/s/ Deloitte & Touche LLP

San Jose, California

February 22, 2019

We have served as the Company's auditors since 2011

MOBILEIRON, INC.
CONSOLIDATED BALANCE SHEETS
(In thousands, except share and per share data)

	December 31,	
	2018	2017
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 104,613	\$ 85,833
Short-term investments	1,000	6,797
Accounts receivable, net of allowance for doubtful accounts of \$425 and \$475 at December 31, 2018 and December 31, 2017, respectively	60,994	50,629
Deferred commissions - current	8,265	9,285
Prepaid expenses and other current assets	8,367	5,510
TOTAL CURRENT ASSETS	183,239	158,054
Property and equipment—net	7,046	8,812
Deferred commissions - noncurrent	9,066	9,123
Goodwill	5,475	5,475
Other assets	5,561	2,976
TOTAL ASSETS	\$ 210,387	\$ 184,440
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	\$ 2,154	\$ 1,369
Accrued expenses	27,347	25,070
Unearned revenue - current	74,177	55,105
Customer arrangements with termination rights	19,367	19,546
TOTAL CURRENT LIABILITIES	123,045	101,090
Long-term liabilities:		
Unearned revenue - noncurrent	31,660	21,917
Other long-term liabilities	1,565	1,881
TOTAL LIABILITIES	156,270	124,888
Commitments and contingencies (Note 12)		
Stockholders' equity:		
Common stock, \$0.0001 par value, 300,000,000 shares authorized, 107,028,433 and 97,203,950 shares issued, and 106,206,545 and 97,203,950 shares outstanding at December 31, 2018 and 2017, respectively	11	10
Additional paid-in capital	462,004	420,525
Treasury stock	(3,831)	—
Accumulated deficit	(404,067)	(360,983)
TOTAL STOCKHOLDERS' EQUITY	54,117	59,552
TOTAL LIABILITIES AND STOCKHOLDERS' EQUITY	\$ 210,387	\$ 184,440

See accompanying notes to the consolidated financial statements

MOBILEIRON, INC.
CONSOLIDATED STATEMENTS OF OPERATIONS
(In thousands, except per share data)

	Year ended December 31,		
	2018	2017	2016
Revenue			
License	\$ 59,338	\$ 64,035	\$ 66,347
Cloud services	50,714	38,728	31,093
Software support and services	83,140	76,995	68,742
Total revenue	<u>193,192</u>	<u>179,758</u>	<u>166,182</u>
Cost of revenue			
License	3,270	2,203	2,896
Cloud services	12,719	8,847	8,374
Software support and services	18,933	19,176	19,097
Restructuring charge	—	311	181
Total cost of revenue	<u>34,922</u>	<u>30,537</u>	<u>30,548</u>
Gross profit	<u>158,270</u>	<u>149,221</u>	<u>135,634</u>
Operating expenses:			
Research and development	78,047	75,350	67,398
Sales and marketing	94,204	96,807	102,327
General and administrative	28,880	28,091	29,695
Litigation settlement charge	—	1,143	—
Restructuring charge	—	1,038	871
Total operating expenses	<u>201,131</u>	<u>202,429</u>	<u>200,291</u>
Operating loss	(42,861)	(53,208)	(64,657)
Other income (expense) - net	1,124	988	145
Loss before income taxes	(41,737)	(52,220)	(64,512)
Income tax expense	1,347	1,142	982
Net loss	<u>\$ (43,084)</u>	<u>\$ (53,362)</u>	<u>\$ (65,494)</u>
Net loss per share, basic and diluted	<u>\$ (0.42)</u>	<u>\$ (0.57)</u>	<u>\$ (0.76)</u>
Weighted-average shares used to compute net loss per share, basic and diluted	<u>102,527</u>	<u>93,770</u>	<u>85,845</u>

See accompanying notes to the consolidated financial statements

MOBILEIRON, INC.
CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(In thousands, except share and per share data)

	Common Stock		Additional	Treasury	Accumulated	Total
	Shares	Amount	Paid-in		Deficit	Stockholders'
			Capital	Stock		Equity
BALANCE—December 31, 2015	81,326,237	\$ 8	\$ 343,336	\$ —	\$ (242,127)	\$ 101,217
Issuance of common stock for stock option exercises, net of repurchases	1,040,902	—	2,468	—	—	2,468
Vesting of early exercised stock options and restricted stock	9,957	—	43	—	—	43
Issuance of common stock for pursuant to the Employee Stock Purchase Plan	1,799,341	—	4,851	—	—	4,851
Issuance of common stock pursuant to the Employee Stock-Settled Bonus Plan	1,653,371	1	5,638	—	—	5,639
Vesting of restricted stock units	3,236,223	—	—	—	—	—
Stock-based compensation	—	—	26,857	—	—	26,857
Net loss	—	—	—	—	(65,494)	(65,494)
BALANCE—December 31, 2016	89,066,031	\$ 9	\$ 383,193	\$ —	\$ (307,621)	\$ 75,581
Issuance of common stock for stock option exercises, net of repurchases	1,172,409	—	3,287	—	—	3,287
Vesting of early exercised stock options	2,477	—	—	—	—	—
Issuance of common stock pursuant to the Employee Stock Purchase Plan	1,676,158	—	4,562	—	—	4,562
Issuance of common stock pursuant to the Employee Stock-Settled Bonus Plans	1,688,097	—	8,272	—	—	8,272
Shares withheld for net settlement of Stock-Settled Bonus Plans	(677,547)	—	(3,149)	—	—	(3,149)
Vesting of restricted stock units	4,276,325	1	—	—	—	1
Stock-based compensation	—	—	24,360	—	—	24,360
Net loss	—	—	—	—	(53,362)	(53,362)
BALANCE—December 31, 2017	97,203,950	\$ 10	\$ 420,525	\$ —	\$ (360,983)	\$ 59,552
Issuance of common stock for stock option exercises, net of repurchases	2,488,544	—	6,520	—	—	6,520
Issuance of common stock pursuant to the Employee Stock Purchase Plan	1,597,778	—	4,548	—	—	4,548
Issuance of common stock pursuant to the Employee Stock-Settled Bonus Plans	1,973,386	1	9,621	—	—	9,622
Shares withheld for net settlement of equity awards	(1,294,360)	—	(6,376)	—	—	(6,376)
Repurchase of common stock	(821,888)	—	—	(3,831)	—	(3,831)
Vesting of restricted stock units	5,059,135	—	—	—	—	—
Stock-based compensation	—	—	27,166	—	—	27,166
Net loss	—	—	—	—	(43,084)	(43,084)
BALANCE—December 31, 2018	106,206,545	\$ 11	\$ 462,004	\$ (3,831)	\$ (404,067)	\$ 54,117

See accompanying notes to the consolidated financial statements

MOBILEIRON, INC.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(In thousands)

	Year ended December 31,		
	2018	2017	2016
CASH FLOWS FROM OPERATING ACTIVITIES:			
Net loss	\$ (43,084)	\$ (53,362)	\$ (65,494)
Adjustments to reconcile net loss to net cash used in operating activities:			
Stock-based compensation expense	38,436	33,731	34,389
Depreciation	3,846	3,389	3,348
Amortization of intangible assets	100	545	616
Amortization (accretion) of premium of investment securities	(50)	(57)	(14)
Provision for doubtful accounts	199	149	77
Loss (gain) on disposal of equipment	25	(16)	99
Changes in operating assets and liabilities:			
Accounts receivable	(10,564)	(4,916)	(1,947)
Deferred commissions	1,078	329	570
Other current and noncurrent assets	(5,535)	(1,006)	(807)
Accounts payable	715	439	(1,297)
Unearned revenue	28,815	16,434	10,574
Customer arrangements with termination rights	(179)	5,348	6,520
Accrued expenses and other long-term liabilities	355	2,029	1,637
Net cash provided by (used in) operating activities	<u>14,157</u>	<u>3,036</u>	<u>(11,729)</u>
CASH FLOWS FROM INVESTING ACTIVITIES:			
Purchase of property and equipment	(1,956)	(6,454)	(2,930)
Proceeds from maturities of investment securities	15,900	38,015	94,631
Purchase of investment securities	(10,053)	(8,570)	(79,134)
Net cash provided by investing activities	<u>3,891</u>	<u>22,991</u>	<u>12,567</u>
CASH FLOWS FROM FINANCING ACTIVITIES:			
Proceeds from Employee Stock Purchase Plan	4,424	4,798	4,332
Proceeds from exercise of stock options	6,514	4,114	1,639
Taxes paid for net settlement of equity awards	(4,862)	(3,149)	—
Amounts withheld for net settlement of equity awards	(1,513)	—	—
Repurchases of common stock	(3,831)	—	—
Net cash provided by financing activities	<u>732</u>	<u>5,763</u>	<u>5,971</u>
NET CHANGE IN CASH AND CASH EQUIVALENTS	<u>18,780</u>	<u>31,790</u>	<u>6,809</u>
CASH AND CASH EQUIVALENTS—Beginning of period	85,833	54,043	47,234
CASH AND CASH EQUIVALENTS—End of period	<u>\$ 104,613</u>	<u>\$ 85,833</u>	<u>\$ 54,043</u>
SUPPLEMENTAL DISCLOSURES OF CASH FLOW INFORMATION			
Cash paid for income taxes	\$ 1,419	\$ 1,189	\$ 1,021
SUPPLEMENTAL DISCLOSURES OF NONCASH FINANCING ACTIVITIES:			
Value of shares issued under Bonus Plans	\$ 5,898	\$ 5,123	\$ 5,639
Value of shares issued under the Employee Stock Purchase Plan	\$ 4,548	\$ 4,562	\$ 4,851
Unpaid property and equipment purchases	\$ 148	\$ 228	\$ —

See accompanying notes to the consolidated financial statements

1. Description of Business and Significant Accounting Policies

Description of Business

MobileIron, Inc. and its wholly owned subsidiaries, collectively, the “Company”, “we”, “us” or “our”, provides a purpose-built mobile IT platform that enables enterprises to manage and secure mobile applications, content and devices while providing their employees with device choice, privacy and a native user experience. We were incorporated in Delaware in July 2007 and are headquartered in Mountain View, California, with additional sales and support presence in North America, Europe, the Middle East, Asia and Australia and employees in India primarily focused on research and development.

Basis of Presentation and Consolidation

The accompanying audited consolidated financial statements have been prepared in accordance with U.S. generally accepted accounting principles, or GAAP, and include the accounts of our wholly owned subsidiaries. Intercompany accounts and transactions have been eliminated in consolidation.

Foreign Currency Translation

Our reporting currency is the U.S. dollar. The functional currency of all our international operations is the U.S. dollar. All monetary asset and liability accounts are translated into U.S. dollars at the period-end rate, nonmonetary assets and liabilities are translated at historical exchange rates, and revenue and expenses are translated at the weighted-average exchange rates in effect during the period. Translation adjustments arising are recorded as foreign currency gains (losses) in the consolidated statements of operations. We recognized a foreign currency loss of \$471,000 in 2018, a foreign currency gain of \$242,000 in 2017, and a foreign currency loss of \$339,000 in 2016, in other income (expense)—net in our consolidated statements of operations.

Use of Estimates

The preparation of consolidated financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenue and expenses during the reporting period. These estimates include, but are not limited to, revenue recognition, stock-based compensation, commissions, goodwill and accounting for income taxes. Actual results could differ from those estimates.

Concentrations of Credit Risk

Financial instruments that potentially subject us to a concentration of credit risk consist of cash, money market funds and fixed income investments. Although we deposit our cash with multiple financial institutions, our deposits, at times, exceed federally insured limits. We invest in fixed income securities that are of high-credit quality. Substantially all of our money market funds, or \$36.6 million, are held in five funds that are rated “AAA.”

We generally do not require collateral or other security in support of accounts receivable. Allowances are provided for individual accounts receivable when we become aware of a customer’s inability to meet its financial obligations, such as in the case of bankruptcy, deterioration in the customer’s operating results, or change in financial position. If circumstances related to customers change, estimates of the recoverability of receivables would be further adjusted. We also consider broader factors in evaluating the sufficiency of our allowances for doubtful accounts, including the length of time receivables are past due, significant one-time events and historical experience. Activity in our allowance for doubtful accounts was as follow (in thousands):

	Balance at Beginning of Period	Bad Debt Expense	Write-offs, Net of Recoveries	Balance at End of Period
Balance as of December 31, 2018	\$ 475	199	(249)	\$ 425
Balance as of December 31, 2017	\$ 433	149	(107)	\$ 475
Balance as of December 31, 2016	\$ 628	77	(272)	\$ 433

One reseller accounted for 11% (1% as an end customer), 14% (1% as an end customer) and 15% (1% as an end customer) of total revenue in 2018, 2017 and 2016, respectively. The same reseller accounted for 7% and 16% of net accounts receivable as of December 31, 2018 and 2017, respectively.

There were no other resellers or end-user customers that accounted for 10% or more as a percentage of our revenue or net accounts receivable for any period presented.

Segments

We have one reportable segment.

Summary of Significant Accounting Policies

Revenue Recognition

Revenue Presentation

License revenue includes sales of perpetual software licenses, software licenses sold as part of on-premises term subscriptions, and appliances.

Cloud services include sales of cloud-based solutions that allow customers to use hosted software over a contract period without taking possession of our software and are typically provided on a subscription or usage basis.

Software support and services revenue includes sales of software support sold as part of on-premises term subscriptions, software support for perpetual licenses, and professional services.

Revenue Recognition

Revenue is recognized upon transfer of control of promised products or services to customers in an amount that reflects the consideration we expect to receive in exchange for those products or services. We enter into contracts that can include various combinations of products and services, which are generally capable of being distinct and accounted for as separate performance obligations. Revenue is recognized net of allowances for returns and any taxes collected from customers, which are subsequently remitted to governmental authorities.

Nature of Products and Services

Licenses for on-premises software provide the customer with a right to use the software as it exists when made available to the customer. Customers may purchase on-premises software licenses as perpetual licenses or as part of subscriptions. On-premises licenses are considered distinct performance obligations and revenue from the licenses is recognized upfront when the software is made available to the customer.

Software support and services convey rights to the upgrades released over the contract period and provide support and tools to help customers deploy and use our products more efficiently. Revenue allocated to software support and services is generally recognized ratably over the contract period as customers simultaneously consume and receive benefits, given that the software support and services comprises a distinct performance obligation that is satisfied over time.

On-premises subscriptions and software support and services occasionally contain termination rights. We recognize revenue from those arrangements, including the distinct licenses contained therein, as the termination rights for the performance obligation expire. See also *Unearned Revenue and Customer Arrangements with Termination Rights* below.

Cloud services, which allow customers to use hosted software over a contract period without taking possession of our software, are provided on a subscription or usage basis. Revenue related to cloud services provided on a subscription basis is recognized ratably over the contract period and revenue related to cloud services based on usage is generally recognized as the usage occurs.

Professional services include consulting, deployment and training services. Our professional services represent distinct performance obligations as our customers benefit from the services separately or together with other readily available resources. Professional services revenue is recognized as services are delivered.

Appliance revenue was less than 5% of total revenue for all periods presented and is included as a component of license revenue within the consolidated statements of operations.

Refer to Note 14 – Segment and Disaggregated Revenue Information for further information.

Significant Judgments

Our contracts with customers often include promises to transfer multiple products and services to a customer. Determining whether products and services are considered distinct performance obligations that should be accounted for separately versus together may require significant judgment. Judgment is required to determine whether a software license is considered distinct and accounted for separately, or not distinct and accounted for together with the software support and services and recognized over time.

Judgment is required to determine the standalone selling price (“SSP”) for each distinct performance obligation. We use a range of amounts to estimate the SSP for items that are not sold separately, including on-premises licenses sold with software support and services. In instances where SSP is not directly observable, such as when we do not sell the product or service separately, we determine the SSP using information that may include other observable inputs. We typically have more than one SSP for individual products and services due to the stratification of those products and services by customer classes and circumstances. In these instances, we may use information such as the size and type of customer in determining the SSP.

Contract Balances

Timing of revenue recognition may differ from the timing of invoicing customers. We record a receivable when revenue is recognized prior to invoicing, or unearned revenue when revenue will be recognized after invoicing. For multi-year agreements, we either invoice our customer in full at the inception of the contract or annually at the beginning of each annual period. We record an unbilled receivable related to revenue recognized for multi-year on-premises licenses invoiced annually when we have an unconditional right to invoice and receive payment in the future for those licenses or when we have the right to invoice future monthly periods under committed monthly recurring charge (“MRC”) agreements. The majority of our MRC agreements are for a month to month term (“non-committed”) or usage-based.

Payment terms and conditions vary by contract type, although terms generally include a requirement to pay within 30 to 60 days. In instances where the timing of revenue recognition differs from the timing of invoicing, we have determined our contracts generally do not include a significant financing component. The primary purpose of our invoicing terms is to provide customers with simplified and predictable ways of purchasing our products and services, not to receive financing from our customers or to provide customers with financing. This includes invoicing at the beginning of a subscription term with revenue recognized ratably over the contract period or multi-year on-premises licenses that are invoiced annually with a portion of the revenue recognized upfront.

As of December 31, 2018 and 2017, the balance of accounts receivable, net of the allowance for doubtful accounts, included \$1.4 million and \$2.5 million, respectively, of unbilled receivables from upfront recognition of

revenue for certain multi-period on-premises software subscriptions that include both distinct software licenses and software support and services.

As of December 31, 2018 and 2017, unbilled receivables included in other long-term assets on our consolidated balance sheets were \$592,000 and \$977,000, respectively.

Unearned Revenue and Customer Arrangements with Termination Rights

We generally invoice our customers upfront for subscriptions and software support and services associated with perpetual licenses. Unearned revenue from those upfront billings is comprised of unearned revenue from cloud-based subscriptions, software support and services for on-premises subscriptions, software support and services associated with perpetual licenses, and professional services to be performed in the future.

Because some of our arrangements with customers contain termination rights, the arrangements do not meet the definition of a contract under Accounting Standard Codification, or ASC, Topic 606, Revenue Recognition from Contracts with Customers, or ASC 606, and are not recorded as unearned revenue and instead are recorded as “customer arrangements with termination rights” on our consolidated balance sheets.

Refer to Note 13 – Unearned Revenue for further information on unearned revenue, changes in unearned revenue during the period, and customer arrangements with termination rights.

Deferred Commissions

We recognize an asset for the incremental costs of obtaining a contract with a customer. We have determined that certain sales incentive programs meet the requirements to be capitalized and we include those costs in current and non-current deferred commissions on our consolidated balance sheets.

Deferred commissions are amortized over the period commensurate with revenue recognition.

Changes in deferred commissions were as follows (in thousands):

	Year ended December 31,	
	2018	2017
Balance, beginning of the period	\$ 18,408	\$ 18,738
Deferral of commissions earned	15,312	17,470
Recognition of commission expense	(16,240)	(17,621)
Impairment of deferred commissions	(149)	(179)
Balance, end of the period	\$ 17,331	\$ 18,408

Cash Equivalents

We consider all highly liquid investments with an original maturity of three months or less to be cash equivalents. As of December 31, 2018 and 2017, cash and cash equivalents consisted of cash deposited with banks, money market funds and investments that mature within three months of their purchase.

Held-To-Maturity Investments

We determine the appropriate classification of our fixed income investments at the time of purchase and reevaluate their classifications each reporting period. Investments are classified as held-to-maturity since the Company has positive intent and the ability to hold the securities to maturity. Held-to-maturity securities are stated at amortized cost.

Comprehensive Loss

Comprehensive loss includes all changes in equity (net assets) during a period from non-owner sources. In 2018, 2017 and 2016, there were no differences between net loss and comprehensive loss. Therefore, the consolidated statements of comprehensive loss have been omitted.

Net Loss per Share of Common Stock

Basic net loss per common share is calculated by dividing the net loss by the weighted-average number of common shares outstanding during the period, without consideration for potentially dilutive securities. Diluted net loss per share is computed by dividing the net loss by the weighted-average number of common shares and potentially dilutive securities outstanding for the period determined using the treasury-stock and if-converted methods. For purposes of the diluted net loss per share calculation, convertible preferred stock, unvested restricted stock, restricted stock units and stock options are considered to be potentially dilutive securities. Because we have reported a net loss for 2018, 2017 and 2016, the number of shares used to calculate diluted net loss per common share is the same as the number of shares used to calculate basic net loss per common share for those periods presented because the potentially dilutive shares would have been anti-dilutive if included in the calculation.

Software Development Costs Incurred in Connection with Software to be Sold or Marketed

The costs to develop new software products and enhancements to existing software products are expensed as incurred until technological feasibility has been established. We consider technological feasibility to have occurred when all planning, designing, coding and testing have been completed according to design specifications. Once technological feasibility is established, any additional costs would be capitalized. We believe our current process for developing software is essentially completed concurrent with the establishment of technological feasibility, and accordingly, no costs have been capitalized.

Internal Use Software

We capitalize costs incurred during the application development stage related to our internally used software. Such costs are primarily incurred by third-party vendors and consultants. Costs related to preliminary project activities and post-implementation activities are expensed as incurred. Amounts capitalized in all periods presented were not significant.

All software development costs incurred in connection with our cloud offering, or SaaS, are also sold or marketed to partners or end customers, therefore we start capitalizing costs when technological feasibility is achieved. No costs were capitalized in any periods presented as we believe that our current process for developing software is essentially completed concurrent with the establishment of technological feasibility.

Property and Equipment

Property and equipment are stated at cost. Depreciation is computed using the straight-line method over the estimated useful life of the property and equipment, determined to be three years for computers and equipment and software, five years for furniture and fixtures, and the lesser of the remaining lease term or estimated useful life for leasehold improvements. Expenditures for repairs and software support are charged to expense as incurred. Upon disposition, the cost and related accumulated depreciation are removed from the accounts and the resulting gain or loss is reflected as operating expenses in the consolidated statements of operations.

Goodwill and Intangible Assets

We record the excess of the acquisition purchase price over the fair value of the tangible and identifiable intangible assets acquired as goodwill. We perform an impairment test of our goodwill in the third quarter of our fiscal year, or more frequently if indicators of potential impairment arise. We have a single reporting unit and consequently evaluate goodwill for impairment based on an evaluation of the fair value of the Company as a whole. We record purchased intangible assets at their respective estimated fair values at the date of acquisition. Purchased intangible assets

were amortized using the straight-line method over their remaining estimated useful lives, which ranged from three to five years.

We have determined that our intangible assets were not impaired during the years ended December 31, 2018, 2017 and 2016.

Long-Lived Assets with Finite Lives

Long-lived assets are reviewed for possible impairment whenever events or circumstances indicate that the carrying amount of these assets may not be recoverable. We evaluate the recoverability of each of our long-lived assets, including property and equipment, by comparison of its carrying amount to the future discounted cash flows we expect the asset to generate. If we consider the asset to be impaired, we measure the amount of any impairment as the difference between the carrying amount and the fair value of the impaired asset.

Stock-Based Compensation

We use the estimated grant-date fair value method of accounting in accordance with ASC Topic 718 *Compensation—Stock Compensation*. Fair value is determined using the Black-Scholes Model using various inputs, including our estimates of expected volatility, term and future dividends. We estimated the forfeiture rate in 2018, 2017 and 2016 based on our historical experience for annual grant years where the majority of the vesting terms have been satisfied. We recognize compensation costs for awards with service and performance vesting conditions and for our Employee Stock Purchase Plan, or ESPP, on an accelerated method over the requisite service period of the award. For stock options or restricted stock grants with no performance condition, we recognize compensation costs on a straight-line basis over the requisite service period of the award, which is generally the vesting term of four years.

Research and Development

Research and development, or R&D, costs are charged to expense as incurred.

Advertising

Advertising costs are expensed and included in sales and marketing expense when incurred. Advertising expense in 2018, 2017 and 2016 was \$204,000, \$102,000 and \$305,000, respectively.

Income Taxes

We account for income taxes in accordance with ASC Topic 740, *Income Taxes*, under which deferred tax liabilities and assets are recognized for the expected future tax consequences of temporary differences between financial statement carrying amounts and the tax basis of assets and liabilities and net operating loss and tax credit carryforwards. Valuation allowances are established when necessary to reduce deferred tax assets to the amount expected to be realized.

We use a recognition threshold and measurement attribute for the financial statement recognition and measurement of a tax position taken or expected to be taken in a tax return. A tax position is recognized when it is more likely than not that the tax position will be sustained upon examination, including resolution of any related appeals or litigation processes. A tax position that meets the more-likely-than-not recognition threshold is measured at the largest amount of benefit that is greater than 50% likely of being realized upon ultimate settlement with a taxing authority. The standard also provides guidance on derecognition of tax benefits, classification on the balance sheet, interest and penalties, accounting in interim periods, disclosure and transition.

Recent Accounting Pronouncements

From time to time, new accounting pronouncements are issued by the Financial Accounting Standards Board, or FASB, or other standard setting bodies and adopted by us as of the specified effective date. Unless otherwise discussed, the impact of recently issued standards that are not yet effective will not have a material impact on our financial position or results of operations upon adoption.

Guidance Not Yet Adopted

Financial Instruments – Credit Losses

In June 2016, the FASB issued Accounting Standards Update (“ASU”) No. 2016-13, Financial Instruments – Credit Losses – Measurement of Credit Losses on Financial Instruments, which introduces a model based on expected losses to estimate credit losses for most financial assets and certain other instruments. In addition, for available-for-sale debt securities with unrealized losses, the losses will be recognized as allowances rather than reductions in the amortized cost of the securities. The standard is effective for annual reporting periods beginning after December 15, 2019, with early adoption permitted for annual reporting periods beginning after December 15, 2018. Entities will apply the standard’s provisions by recording a cumulative-effect adjustment to retained earnings. We are evaluating the impact of the adoption on our consolidated balance sheet, results of operations, cash flows and disclosures. We intend to adopt ASU No. 2016-13 effective January 1, 2020.

Leases

In February 2016, the FASB finalized ASU 2016-02, Leases. ASU 2016-02 requires lessees to recognize the assets and liabilities on the balance sheet for the rights and obligations created by most leases and continue to recognize expenses on the income statements over the lease term. It will also require disclosure designed to give financial statement users information on the amount, timing, and uncertainty of cash flows arising from leases. The guidance is effective for annual reporting periods beginning after December 15, 2018 and interim periods within those fiscal years. We adopted ASU 2016-02 effective January 1, 2019 and, as permitted by ASU 2018-11, we do not plan to recast our prior periods. As a result of this new standard, we expect to record a lease commitment liability of approximately \$18.0 million and corresponding right-of-use asset of approximately \$16.5 million at March 31, 2019 for our leases designated as operating leases in Note 12, “Commitments and Contingencies,” upon adoption. We do not expect the new standard to materially impact our results of operations.

Recently Adopted Guidance

Revenue from Contracts with Customers

In May 2014, the FASB, jointly with the International Accounting Standards Board, issued a comprehensive new standard, ASC 606. The standard’s core principle is that a reporting entity will recognize revenue when it transfers promised goods or services to customers in an amount that reflects the consideration to which the entity expects to be entitled in exchange for those goods or services. In addition, the standard requires disclosure of the nature, amount, timing, and uncertainty of revenue and cash flows arising from contracts with customers.

The guidance permitted two methods of adoption: retrospectively to each prior reporting period presented (full retrospective method), or retrospectively with the cumulative effect of initially applying the guidance recognized at the date of initial application (modified retrospective method). We adopted the standard using the full retrospective method and restated each prior reporting period presented.

The standard was effective for us beginning January 1, 2018. In preparation for adoption of the standard, we implemented internal controls and key system functionality to enable the preparation of financial information and reached conclusions on key accounting assessments related to the standard, including our assessment of the impact of accounting for costs incurred to obtain a contract.

The most significant impact of the standard relates to the elimination of the requirement to have vendor specific objective evidence, or VSOE, of fair value to separate and recognize revenue for products and services in a contract. The elimination of the VSOE requirement causes a significant change to the timing of revenue recognition for on-premises software term license revenue and other multiple-element arrangements with products or services that lacked VSOE of fair value. Our on-premises term license agreements include distinct software licenses and software support and services. Under ASC 606, we recognize the software license revenue at the time of delivery and recognize the software support and services revenue ratably over the term of the subscription agreements. Under Accounting Standard Codification Topic 605, Revenue Recognition, or ASC 605, we recognized all revenue from those arrangements ratably over the term of the subscription agreements. Due to the complexity of certain of our revenue contracts, the actual revenue recognition

treatment required under the new standard depends on contract-specific terms and in some instances may vary from recognition at the time of delivery. The timing of revenue recognized from our cloud offerings, perpetual licenses, professional services and appliances remain substantially unchanged.

In addition, Accounting Standards Codification Subtopic 340-40, Other Assets and Deferred Costs - Contracts with Customers, or ASC 340, requires us to recognize an asset for the incremental costs of obtaining a contract with a customer if our sales incentive programs meet the requirements for capitalization. Previously we recorded these incremental costs of obtaining a contract as commission expense when we booked a sales transaction; whereas under ASC 340, we record an asset for the incremental cost to obtain a contract and recognize the cost over the period commensurate with revenue recognition.

In connection with our adoption of ASC 606 on January 1, 2018, there was a decrease to our deferred income tax liabilities and an offsetting increase in the valuation allowance recorded against deferred tax assets. No income tax impact was recorded to retained earnings upon adoption as a result of the full valuation allowance on United States deferred tax assets. In 2018, we recorded no income tax expense or benefit as a result of the adoption of the ASC 606.

Adoption of the standard resulted in the recognition of additional revenue of \$3.3 million and \$2.3 million in 2017 and 2016, respectively, primarily due to an increase in revenue recognized from on-premises software subscriptions delivered and recognized in 2017 and 2016 and earlier recognition from other arrangements that lacked VSOE of fair value under ASC 605, partially offset by lower on-premises software subscription revenue from amounts billed prior to 2016. The new standard for accounting for costs to obtain a contract resulted in an increase in sales and marketing expense of \$330,000 and \$570,000 in 2017 and 2016, respectively, primarily due to the net impact of the capitalization of commissions earned in 2017 and 2016 and the amortization expense from commissions capitalized prior to 2016.

The new standard did not have a material impact on net cash provided by (used in) operating, financing, or investing activities in our consolidated cash flow statements.

Adoption of the standard resulted in an increase in accounts receivable and other assets of \$3.4 million as of December 31, 2017, driven primarily by unbilled receivables from upfront recognition of revenue for certain multi-period on-premises software subscriptions that include both distinct software licenses and software update and support services.

Unearned revenue was reduced by \$35.5 million as of December 31, 2017 due to (a) cumulative changes to revenue and (b) a reclassification of approximately \$19.5 million as of December 31, 2017 for arrangements with customers which contain termination rights. Because of the termination rights, the arrangements did not meet the definition of a contract under ASC 606 and were not recorded as unearned revenue but they were instead recorded as “customer arrangements with termination rights” on our consolidated balance sheets.

Total capitalized costs to obtain a contract included in current and non-current prepaid and other current assets on our consolidated balance sheets were \$9.3 million and \$9.1 million, respectively, as of December 31, 2017.

[Table of Contents](#)

The following tables show the impact of adoption of the standards related to revenue recognition on our reported results (in thousands except per share information):

Statement of Operations:	Year ended December 31, 2017		
	As Reported	New Revenue Standard Adjustment	As Adjusted
	Revenue	\$ 176,491	\$ 3,267
Total operating expenses	202,099	330	202,429
Net loss	(56,299)	2,937	(53,362)
Net loss per share, basic and diluted	(0.60)	0.03	(0.57)

Statement of Operations:	Year ended December 31, 2016		
	As Reported	New Revenue Standard Adjustment	As Adjusted
	Revenue	\$ 163,926	\$ 2,256
Total operating expenses	199,721	570	200,291
Net loss	(67,180)	1,686	(65,494)
Net loss per share, basic and diluted	(0.78)	0.02	(0.76)

Balance Sheets:	December 31, 2017		
	As Reported	New Revenue Standard Adjustment	As Adjusted
	Assets		
Accounts receivable, net	\$ 48,171	\$ 2,458	\$ 50,629
Deferred commissions-current	—	9,285	9,285
Deferred commissions-noncurrent	—	9,123	9,123
Other assets	1,999	977	2,976
Liabilities and stockholders' equity			
Accrued expenses	24,995	75	25,070
Unearned revenue-current	84,467	(29,362)	55,105
Unearned revenue-noncurrent	28,034	(6,117)	21,917
Customer arrangements with termination rights	—	19,546	19,546
Total stockholders' equity	21,851	37,701	59,552

2. Significant Balance Sheet Components

Accounts Receivable, Net —Accounts receivable, net at December 31, 2018 and 2017 consisted of the following (in thousands):

	December 31, 2018		December 31, 2017	
Accounts receivable - billed	\$	60,037	\$	48,646
Accounts receivable - unbilled		1,382		2,458
Allowance for doubtful accounts		(425)		(475)
Accounts receivable, net	\$	60,994	\$	50,629

Property and Equipment—Property and equipment at December 31, 2018 and 2017 consisted of the following (in thousands):

	As of December 31,	
	2018	2017
Computers and appliances	\$ 13,517	\$ 13,178
Purchased software	4,711	4,063
Furniture and fixtures	1,695	1,734
Leasehold improvements	3,503	3,226
Total property and equipment	23,426	22,201
Accumulated depreciation and amortization	(16,380)	(13,389)
Total property and equipment—net	\$ 7,046	\$ 8,812

Accrued Expenses—Accrued expenses at December 31, 2018 and 2017 consisted of the following (in thousands):

	As of December 31,	
	2018	2017
Accrued commissions	\$ 4,398	\$ 3,989
Accrued stock-settled bonus	9,355	7,705
Employee Stock Purchase Plan liability	1,923	2,047
Other accrued payroll-related expenses	3,630	4,285
Accrued royalties	3,596	733
Other accrued liabilities	4,445	6,311
Total accrued expenses	\$ 27,347	\$ 25,070

3. Fair Value Measurement

With the exception of our held-to-maturity fixed income investments, we report financial assets and liabilities and nonfinancial assets and liabilities that are recognized or disclosed at fair value in the consolidated financial statements on a recurring basis in accordance with ASC 820 (formerly FASB Statement No. 157, *Fair Value Measurements*). ASC 820 defines fair value as the price that would be received from selling an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. When determining the fair value measurements for assets and liabilities, which are required to be recorded at fair value, we consider the principal or most advantageous market in which we would transact and the market-based risk measurements or assumptions that market participants would use in pricing the asset or liability, such as inherent risk, transfer restrictions and credit risk.

ASC 820 also establishes a fair value hierarchy, which prioritizes the inputs to valuation techniques used to measure fair value into three levels. A financial instrument's categorization within the fair value hierarchy is based upon the lowest level of input that is available and significant to the fair value measurement. ASC 820 establishes and prioritizes three levels of inputs that may be used to measure fair value:

- Level 1—Inputs are unadjusted quoted prices in active markets for identical assets or liabilities.
- Level 2—Inputs are quoted prices for similar assets and liabilities in active markets or inputs other than quoted prices that are observable for the assets or liabilities, either directly or indirectly through market corroboration, for substantially the full term of the financial instruments.
- Level 3—Inputs are unobservable inputs based on our own assumptions used to measure assets and liabilities at fair value. The inputs require significant management judgment or estimation.

Our financial assets that are carried at fair value include cash and money market funds. We had no financial liabilities, or nonfinancial assets and liabilities that were required to be measured at fair value on a recurring basis, or that were measured at fair value as of December 31, 2018 or 2017.

Our financial instruments measured at fair market value as of December 31, 2018 and 2017 were as follows:

<i>(in thousands)</i>	As of December 31, 2018			
	Level 1	Level 2	Level 3	Total
Money market funds	\$ 36,617	\$ —	\$ —	\$ 36,617
Corporate debt securities	—	6,555	—	6,555
Commercial paper	—	53,598	—	53,598
Total	\$ 36,617	\$ 60,153	\$ —	\$ 96,770

<i>(in thousands)</i>	As of December 31, 2017			
	Level 1	Level 2	Level 3	Total
Money market funds	\$ 10,583	\$ —	\$ —	\$ 10,583
Corporate debt securities	—	7,076	—	7,076
Commercial paper	—	51,796	—	51,796
Total	\$ 10,583	\$ 58,872	\$ —	\$ 69,455

4. Investments

Our portfolio of fixed income securities consists of commercial paper and corporate debt securities. All our investments in fixed income securities are classified as held-to-maturity. These investments are carried at amortized cost.

Our investments in fixed income securities as of December 31, 2018 and 2017 were as follows:

<i>(in thousands)</i>	As of December 31, 2018			
	Amortized cost	Gains	Losses	Fair Value
Corporate debt securities	\$ 6,556	\$ —	\$ (1)	\$ 6,555
Commercial paper	53,600	1	(3)	53,598
Total	\$ 60,156	\$ 1	\$ (4)	\$ 60,153

<i>(in thousands)</i>	As of December 31, 2017			
	Amortized cost	Gains	Losses	Fair Value
Corporate debt securities	\$ 7,078	\$ —	\$ (2)	\$ 7,076
Commercial paper	51,805	—	(9)	51,796
Total	\$ 58,883	\$ —	\$ (11)	\$ 58,872

The following table summarizes the balance sheet classification of our investments:

<i>(in thousands)</i>	As of December 31,	
	2018	2017
Cash equivalents	\$ 59,156	\$ 52,086
Short-term investments	1,000	6,797
Total investments	\$ 60,156	\$ 58,883

[Table of Contents](#)

The gross amortized cost and estimated fair value of our held-to-maturity investments at December 31, 2018 and 2017 by contractual maturity are shown below. Actual maturities may differ from contractual maturities because the issuers of the securities may have the right to prepay obligations without prepayment penalties.

	As of December 31,			
	2018		2017	
(in thousands)	Gross Amortized Cost	Fair Value	Gross Amortized Cost	Fair Value
Due in one year or less	\$ 60,156	60,153	\$ 58,883	\$ 58,872
Due after one year through five years	—	—	—	—
Total	\$ 60,156	\$ 60,153	\$ 58,883	\$ 58,872

We monitor our investment portfolio for impairment on a periodic basis. In order to determine whether a decline in fair value is other-than-temporary, we evaluate, among other factors: the duration and extent to which the fair value has been less than the carrying value; our financial condition and business outlook, including key operational and cash flow metrics, current market conditions and future trends in our industry; our relative competitive position within the industry; and our intent and ability to retain the investment for a period of time sufficient to allow for any anticipated recovery in fair value. A decline in the fair value of the security below amortized cost that is deemed other-than-temporary is charged to earnings, resulting in the establishment of a new cost basis for the affected securities. In 2018, we had an insignificant amount of unrealized gains or losses, and we did not recognize any other-than-temporary impairments.

5. Goodwill and Intangibles

The following table reflects intangible assets subject to amortization as of December 31, 2017 (in thousands):

	December 31, 2017			
	Gross Carrying Amount	Accumulated Amortization	Impairment	Net Book Value
Technology	\$ 3,080	\$ (2,980)	—	\$ 100
Total	\$ 3,080	\$ (2,980)	\$ —	\$ 100

The net book value of intangible assets subject to amortization was zero at December 31, 2018.

Amortization of the technology intangible assets of \$100,000, \$545,000 and \$616,000 in 2018, 2017 and 2016, respectively, was recorded in cost of revenue.

At December 31, 2018 and 2017, the carrying value of goodwill was \$5.5 million.

6. Restructuring Charges

We initiated business restructuring plans in 2016 and 2017 to reduce our cost structure through workforce reductions and, in 2017, to exit an office facility.

[Table of Contents](#)

The following table sets forth a summary of restructuring activities which took place during the years ended December 31, 2018, 2017 and 2016 (in thousands):

	Severance and Related Costs
Balance, December 31, 2015	\$ —
Provision for restructuring charges	1,052
Cash payments	(1,037)
Balance, December 31, 2016	\$ 15
Provision for restructuring charges	1,349
Cash payments	(867)
Balance, December 31, 2017	\$ 497
Provision for restructuring charges	—
Cash payments	(497)
Balance, December 31, 2018	\$ —

We have completed the restructuring activities undertaken in 2017 as of December 31, 2018.

7. Line of Credit

We have a \$20.0 million revolving line of credit with a financial institution that can be used to (a) borrow for working capital and general business requirements, (b) issue letters of credit, and (c) enter into foreign exchange contracts. Amounts borrowed accrue interest at a floating per annum rate equal to the prime rate. A default interest rate shall apply during an event of default at a rate per annum equal to 5% above the otherwise applicable interest rate. The line of credit is collateralized by substantially all of our assets, except intellectual property, and requires us to comply with working capital, net worth and other covenants, including limitations on indebtedness and restrictions on dividend distributions, among others, and the borrowing capacity is limited to eligible accounts receivable. We are required to maintain an adjusted quick ratio (defined as the ratio of current assets to current liabilities minus short-term unearned revenue and customer obligations with termination rights) of at least 1.25.

In May 2015, we issued a letter of credit for \$1.5 million as a security deposit for a new Mountain View facility lease and in November 2017 we issued a bank guarantee to a customer of approximately \$3.0 million that can be drawn if we become insolvent or bankrupt. The issuances of the letter of credit and bank guarantee reduced the borrowing capacity under our line of credit to approximately \$15.5 million.

In June 2018, we amended our revolving line of credit which currently matures in June 2019.

There were no outstanding amounts under the line of credit at December 31, 2018 and 2017 and we were in compliance with all financial covenants.

8. Preferred Stock

We were authorized to issue up to 10,000,000 shares of convertible preferred stock as of December 31, 2018 and 2017. No shares of convertible preferred stock were issued and outstanding as of December 31, 2018 and 2017.

9. Common Stock

We were authorized to issue 300,000,000 shares of common stock with a par value of \$0.0001 per share as of December 31, 2018 and 2017. Each share of common stock is entitled to one vote. The holders of common stock are also entitled to receive dividends from funds available, when and if declared by the board of directors, subject to the approval and priority rights of holders of all classes of preferred stock outstanding.

As of December 31, 2018 and 2017, we reserved shares of common stock for issuance as follows:

	As of December 31,	
	2018	2017
Options outstanding	4,496,557	7,738,496
Unvested restricted stock units outstanding	12,303,913	12,906,030
Shares available for grant under the 2014 equity plan and 2015 inducement plan	2,337,545	1,859,997
Shares available for purchase under the Employee Stock Purchase Plan	364,762	990,501
Total	19,502,777	23,495,024

Repurchase Program

In October 2018, our Board of Directors approved a common stock repurchase program (“Repurchase Program”) whereby the Company is authorized to purchase up to a maximum of \$25 million of its common stock, subject to compliance with applicable law and the limitations in the Company’s credit facilities on stock repurchases.

The authorization allows repurchases from time to time in the open market or in privately negotiated transactions. The amount and timing of repurchases made under the Repurchase Program will depend on a variety of factors, including available liquidity, cash flow and market conditions. Shares can be purchased through the Repurchase Program through October 2020, unless extended or shortened by our Board of Directors. The Repurchase Program does not obligate us to acquire any particular amount of common stock and the program may be modified or suspended at any time at our discretion. The repurchases would be funded from available working capital and are subject to compliance with the terms and limitations of the Company’s credit facilities.

In 2018, we repurchased 821,888 shares of common stock at an average price of \$4.66 per share for a total cost of \$3.8 million under the Repurchase Program.

10. Share Based Awards

2008 Plan

The 2008 Stock Plan, or 2008 Plan, which expired on June 12, 2014, provided for the grant of incentive and nonstatutory stock options to employees, nonemployee directors and consultants of the Company. Options granted under the 2008 Plan generally become exercisable within three to four years following the date of grant and expire 10 years from the date of grant. When options are subject to our repurchase right, we may buy back any unvested shares at their original exercise price in the event of an employee’s termination prior to full vesting.

Our 2008 Plan was terminated following the date our 2014 Equity Incentive Plan, or the 2014 Plan, became effective. Any outstanding stock awards under our 2008 Plan will continue to be governed by the terms of our 2008 Plan and applicable award agreements.

2014 Equity Incentive Plan

Our board of directors adopted our 2014 Plan on April 17, 2014, and our stockholders subsequently approved the 2014 Plan on May 27, 2014. The 2014 Plan became effective on the date that our registration statement was declared effective by the SEC. The 2014 Plan is the successor to and continuation of our 2008 Plan. Upon the effective date of the 2014 Plan, no further grants can be made under our 2008 Plan.

Our 2014 Plan provides for the grant of incentive stock options, or ISOs, within the meaning of Section 422 of the Internal Revenue Code, or the Code, to our employees and our parent and subsidiary corporations’ employees, and for the grant of nonstatutory stock options, or NSOs, stock appreciation rights, restricted stock awards, restricted stock unit awards, performance-based stock awards, and other forms of equity compensation to our employees, directors and

consultants. Additionally, our 2014 Plan provides for the grant of performance cash awards to our employees, directors and consultants.

The initial number of shares of our common stock available to be issued under our 2014 Plan was 8,142,857, which number of shares will be increased by any shares subject to stock options or other stock awards granted under the 2008 Plan that would have otherwise returned to our 2008 Plan (such as upon the expiration or termination of a stock award prior to vesting), not to exceed 16,312,202.

The number of shares of our common stock reserved for issuance under our 2014 Plan automatically increase on January 1 of each year, beginning on January 1, 2015 and continuing through and including January 1, 2024, by 5% of the total number of shares of our capital stock outstanding on December 31 of the preceding calendar year, or a lesser number of shares determined by our board of directors. On January 1, 2019, we increased the number of shares of common stock reserved for issuance under our 2014 Plan by 5,310,327 shares, which was 5% of the total number of shares of capital stock outstanding at December 31, 2018.

2015 Inducement Plan

On December 20, 2015, our board of directors adopted our 2015 Inducement Plan, or the Inducement Plan, to reserve 1,600,000 shares of our common stock to be used exclusively for grants of awards to individuals that were not previously employees or directors of the Company. The terms and conditions of the Inducement Plan are substantially similar to our stockholder-approved 2014 Plan. On January 5, 2016 our board of directors approved the amendment and restatement of the Inducement Plan to increase the share reserve under the 2015 Inducement Plan to 1,970,000 shares of our common stock. As of December 31, 2018 there were 1,000,000 options and restricted stock units outstanding under the Amended and Restated 2015 Inducement Plan.

2014 Employee Stock Purchase Plan

Our board of directors adopted our 2014 Employee Stock Purchase Plan, or ESPP, on April 17, 2014, and our stockholders subsequently approved the ESPP on May 27, 2014. The ESPP became effective immediately upon the execution and delivery of the underwriting agreement related to our IPO. Subsequently, on June 14, 2017, our shareholders approved the amendment of the ESPP. The purpose of the ESPP is to secure the services of new employees, to retain the services of existing employees and to provide incentives for such individuals to exert maximum efforts toward our success and that of our affiliates. The ESPP is intended to qualify as an “employee stock purchase plan” within the meaning of Section 423 of the Code. The ESPP permits eligible employees to purchase our common stock through payroll deductions, which may not exceed 15% of the employee’s base compensation. Stock may be purchased under the plan at a price equal to 85% of the fair market value of our common stock on either the first day of the offering or the last day of the applicable purchase period, whichever is lower.

As of December 31, 2018 and 2017, 364,762 and 990,501 shares of common stock were available for future issuance under our ESPP, respectively. The number of shares of our common stock reserved for issuance under our ESPP increase automatically each year, beginning on January 1, 2015 and continuing through and including January 1, 2024, by the lesser of (i) 1% of the total number of shares of our common stock outstanding on December 31 of the preceding calendar year; (ii) 2,142,857 shares of common stock; or (iii) such lesser number as determined by our board of directors. Shares subject to purchase rights granted under our ESPP that terminate without having been exercised in full will not reduce the number of shares available for issuance under our ESPP. On January 1, 2019, we increased the number of shares available for issuance under the ESPP by 1,062,065 shares, which was 1% of the total number of shares of common stock outstanding at December 31, 2018.

Restricted Stock Units

In 2014 we began granting restricted stock units under our 2014 Plan. For stock-based compensation expense, we measure the value of the restricted stock units based on the fair value of our common stock on the date of grant. Our restricted stock unit grants are subject to service conditions and we expense the fair value of those shares on a straight-line basis over their vesting periods.

Our restricted stock unit activity for 2016, 2017 and 2018 was as follows:

	Restricted Stock Units	
	Number of Shares	Weighted-Average Grant Date Fair Value
Unvested, December 31, 2015	7,832,962	\$ 6.66
Granted	10,724,225	3.36
Vested	(4,889,594)	4.99
Cancelled/Forfeited	(3,192,618)	5.39
Unvested, December 31, 2016	10,474,975	\$ 4.45
Granted	11,017,278	5.04
Vested	(5,964,422)	4.70
Cancelled/Forfeitures	(2,621,801)	5.01
Unvested, December 31, 2017	12,906,030	\$ 4.72
Granted	10,224,832	4.63
Vested	(7,032,521)	4.88
Cancelled/Forfeitures	(3,794,428)	4.48
Unvested, December 31, 2018	12,303,913	\$ 4.63

Bonus Plans

In 2015, our board of directors approved the 2015 Executive Bonus Plan and 2015 Non-Executive Bonus Plan, or 2015 Bonus Plan, which provided for the issuance of shares of unrestricted common stock to employees based on meeting certain Company metrics. We issued 1,653,371 shares of unrestricted common stock in the first quarter of 2016 based on amounts earned under the 2015 Non-Executive Bonus Plan. No shares were issued under the 2015 Executive Bonus Plan.

In 2016, our compensation committee approved the 2016 Executive Bonus Plan and 2016 Non-Executive Bonus Plan, or collectively, the 2016 Bonus Plans, each effective as of January 1, 2016, which provided for the issuance of shares of unrestricted common stock to employees based on meeting certain Company metrics. We issued 1,010,550 shares of unrestricted common stock in the first quarter of 2017, after withholding 677,547 shares to cover employee payroll taxes which we paid in cash, for amounts earned under the 2016 Bonus Plans.

In 2017, the Compensation Committee of our board of directors approved the 2017 Executive Bonus Plan and 2017 Non-executive Bonus Plan, or collectively, the 2017 Bonus Plans, each effective as of January 1, 2017, which provided for the issuance of shares of unrestricted common stock to employees based on meeting certain Company metrics. We issued 1,220,822 shares of unrestricted common stock in the first quarter of 2018, after withholding 752,564 shares to cover employee payroll taxes which we paid in cash, for amounts earned under the 2017 Bonus Plans.

In March 2018, the Compensation Committee of our board of directors approved the 2018 Non-executive Bonus Plan and in April 2018, the Compensation Committee of our board of directors approved the 2018 Executive Bonus Plan, or collectively, the 2018 Bonus Plans. The 2018 Bonus Plans provide for the issuance of shares of unrestricted common stock to employees based on the achievement of certain 2018 Company metrics.

Shares issued under the aforementioned Bonus Plans are issued from our 2014 Plan and reduce the 2014 Plan shares available for issuance.

We record stock-based compensation expense related to the Bonus Plans over the service period of eligible employees based on forecasted performance relative to the Company metrics. To the extent that updated estimates of bonus expense differ from original estimates, the cumulative effect on current and prior periods of those changes is recorded in the period those estimates are revised.

In 2016 we recorded \$6.6 million of stock-based compensation expense under the 2016 Bonus Plans and \$923,000 under the 2015 Non-Executive Bonus Plan. In 2017, we recorded \$7.7 million of stock-based compensation expense under

the 2017 Bonus Plans and \$1.7 million under the 2016 Bonus Plans. In 2018, we recorded \$9.4 million of stock-based compensation expense under the 2018 Bonus Plans and \$1.9 million under the 2017 Bonus Plans.

Stock Options

Stock option activity under the 2008 Plan, 2014 Plan and the 2015 Inducement Plan in 2016, 2017 and 2018 was as follows:

	Number of Shares Available	Options Outstanding			
		Number of Shares	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term (Years)	Aggregate Intrinsic Value
	for Issuance	Shares			(In thousands)
Balance—December 31, 2015	<u>6,672,236</u>	<u>11,498,747</u>	\$ 4.51	6.86	\$ 6,256
Authorized	4,436,933	—			
Stock options granted	(1,316,200)	1,316,200	3.36		
Issuance of shares under 2015 Bonus Plans	(1,653,371)	—			
Restricted stock units granted	(9,070,854)	—			
Exercised	—	(1,040,902)	2.37		
Stock options canceled	1,938,053	(1,938,053)	5.46		
Restricted stock units canceled	3,192,618	—			
Balance—December 31, 2016	<u>4,199,415</u>	<u>9,835,992</u>	\$ 4.39	6.23	\$ 5,734
Authorized	4,453,425	—			
Stock options granted	(300,000)	300,000	4.20		
Issuance of shares under 2016 Bonus Plans	(1,688,097)	—			
Shares withheld from net settlement of restricted stock units	677,547	—			
Restricted stock units granted	(9,329,181)	—			
Exercised	—	(1,172,409)	2.80		
Stock options canceled	1,225,087	(1,225,087)	6.24		
Restricted stock units canceled	2,621,801	—			
Balance—December 31, 2017	<u>1,859,997</u>	<u>7,738,496</u>	\$ 4.34	3.96	\$ 4,897
Authorized	4,860,197	—			
Stock options granted	(400,000)	400,000	4.71		
Issuance of shares under 2017 Bonus Plans	(1,974,771)	—			
Shares withheld from net settlement of restricted stock units	1,294,360	—			
Restricted stock units granted	(8,250,061)	—			
Exercised	—	(2,488,544)	2.62		
Stock options canceled	1,153,395	(1,153,395)	5.49		
Restricted stock units canceled	3,794,428	—			
Balance—December 31, 2018	<u>2,337,545</u>	<u>4,496,557</u>	\$ 5.02	4.98	\$ 2,446
Vested and exercisable—December 31, 2018		3,869,458	\$ 5.12	4.33	\$ 2,257
Vested and expected to vest(1)—December 31, 2018		4,386,003	\$ 5.04	4.88	\$ 2,420

(1) Options expected to vest are net of an estimated forfeiture rate.

Additional information regarding options outstanding at December 31, 2018 is as follows :

	Options Outstanding			Options Exercisable		
	Number of Shares	Weighted-Average Remaining Contractual Term (Years)	Weighted-Average Exercise Price	Number of Shares	Weighted-Average Exercise Price	
Range of exercises						
\$0.04 — \$3.70	1,048,382	3.54	\$ 2.58	995,257	\$ 2.55	
\$3.76 — \$4.55	1,015,058	4.99	4.26	865,056	4.33	
\$4.66 — \$5.77	1,285,265	6.11	5.44	885,265	5.77	
\$6.20 — \$9.00	978,615	5.02	7.05	954,643	7.07	
\$9.18 — \$12.05	169,237	5.13	9.87	169,237	9.87	
Outstanding at December 31, 2018	4,496,557	4.98	\$ 5.02	3,869,458	\$ 5.12	

The aggregate pretax intrinsic value of vested options exercised in 2018, 2017 and 2016 was \$5.7 million, \$2.3 million and \$1.4 million, respectively. The intrinsic value is the difference between the estimated fair value of the Company's common stock at the date of exercise and the exercise price for in-the-money options. The weighted-average grant-date fair value of options granted in 2018, 2017 and 2016 was \$2.43, \$1.74 and \$1.42 per share, respectively.

Our stock-based compensation expense was recorded in the following cost and expense categories (in thousands):

	Year ended December 31,		
	2018	2017	2016
Cost of revenue	\$ 5,006	\$ 3,772	\$ 3,043
Research and development	15,981	14,520	11,728
Sales and marketing	9,464	8,659	10,474
General and administrative	7,985	6,780	9,144
Total	\$ 38,436	\$ 33,731	\$ 34,389

Determining Fair Value of Stock Options and ESPP

The fair value of each grant of stock options was determined by us using the methods and assumptions discussed below. Each of these inputs is subjective and generally requires significant judgment to determine.

Expected Term— The expected term of stock options represents the weighted-average period the stock options are expected to be outstanding. For option grants that are considered to be “plain vanilla”, we have opted to use the simplified method for estimating the expected term as provided by the Securities and Exchange Commission. The simplified method calculates the expected term as the average of time-to-vesting and the contractual life of the options. For ESPP, the expected term is based on the offering period and purchase periods within the offering period.

Expected Volatility— When we did not have a sufficient trading history for our common stock, the expected stock price volatility assumption was determined by examining the historical volatilities of a group of industry peers. As more historical data for our common stock became available, we began to use our own historical stock price volatility to determine expected stock price volatility.

Risk-Free Interest Rate— The risk free rate assumption was based on the U.S. Treasury instruments with terms that were consistent with the expected term of our stock options and ESPP.

Expected Dividend— The expected dividend assumption was based on our history and expectation of dividend payouts.

Forfeiture Rate— Forfeitures were estimated based on historical experience.

[Table of Contents](#)

Fair Value of Common Stock— Since our IPO, the fair value of our common stock has been determined based on the closing price of our common stock on the Nasdaq Global Select Market.

We used the Black-Scholes Model to estimate the fair value of our stock options granted to employees with the following weighted-average assumptions:

	Year ended December 31,		
	2018	2017	2016
Expected dividend yield	—	—	—
Risk-free interest rate	2.7%	2.1%	1.4%
Expected volatility	51%	40%	42%
Expected life (in years)	6.1	6.1	6.1

We used the Black-Scholes model to estimate the fair value of our Employee Stock Purchase Plan awards with the following assumptions:

	Year ended December 31,		
	2018	2017	2016
Expected dividend yield	—	—	—
Risk-free interest rate	1.8% - 2.6%	0.9% - 1.3%	0.5% - 0.7%
Expected volatility	34% - 54%	34% - 54%	34% - 41%
Expected life (in years)	0.5 - 2.0	0.5 - 2.0	0.5 - 2.0

As required by Topic 718 Compensation—Stock Compensation, we estimate expected forfeitures and recognize compensation costs only for those equity awards expected to vest. Our stock options granted are typically granted with vesting terms of 48 months.

The following table summarizes our unrecognized stock-based compensation expense as of December 31, 2018 net of estimated forfeitures:

	Unrecognized Stock-based Compensation Expense (in millions)	Remaining Weighted-Average Recognition Period (in years)
Stock options	\$ 1.0	3.0
Restricted stock units	41.9	2.8
ESPP	1.6	1.6
Total	\$ 44.5	

11. Employee Benefit Plan

We maintain a defined contribution 401(k) plan. The plan covers all full-time U.S. employees over the age of 21. Each employee can contribute up to \$18,500 annually (with a \$6,000 catch up contribution limit for employees aged 50 or older). We have the option to provide matching contributions, but have not done so to date.

12. Commitments and Contingencies

Operating Leases

We lease our office facilities under noncancelable agreements expiring between 2019 and 2023. Rent expense in 2018, 2017 and 2016 was \$6.8 million, \$7.2 million and \$6.7 million, respectively. The aggregate future minimum lease payments under the agreements as of December 31, 2018 are as follows (in thousands):

<u>Year</u>	
2019	\$ 7,144
2020	5,553
2021	4,083
2022	3,074
2023	1,163
Total	<u>\$ 21,017</u>

Litigation

We continually evaluate uncertainties associated with litigation and record a charge equal to at least the minimum estimated liability for a loss contingency when both of the following conditions are met: (i) information available prior to issuance of the financial statements indicates that it is probable that a liability has been incurred at the date of the financial statements and (ii) the loss or range of loss can be reasonably estimated. If we determine that a loss is possible and a range of the loss can be reasonably estimated, we disclose the range of the possible loss in the Notes to the Consolidated Financial Statements. We evaluate, on a quarterly basis, developments in our legal matters that could affect the amount of liability that has been previously accrued, if any, and the matters and related ranges of possible losses disclosed, and make adjustments and changes to our disclosures as appropriate. Significant judgment is required to determine both likelihood of there being and the estimated amount of a loss related to such matters. Until the final resolution of such matters, there may be an exposure to loss, and such amounts could be material. For legal proceedings for which there is a reasonable possibility of loss (meaning those losses for which the likelihood is more than remote but less than probable), we have determined we do not have material exposure on an aggregate basis.

Indemnification

Under the indemnification provisions of our standard sales related contracts, we agree to defend and/or settle claims brought by third parties against our customers and channel partners alleging that our software or the customer's use thereof infringes the third party's intellectual property right, such as a patent right. These indemnification obligations are typically not subject to limitation; however if we believe such a claim is reasonably likely to occur and if it is commercially impractical for us to either procure the right for the customer to continue to use our software or modify our software so that it's not infringing, we can terminate the customer agreement and refund the customer a portion of the license fees paid (prorated over the three year period from initial delivery for software licensed on a perpetual basis). We also on occasion indemnify our customers for other types of third party claims. In addition, we indemnify our officers, directors, and certain key employees while they are serving in such capacities in good faith. Through December 31, 2018, we have not received any material written claim for indemnification.

13. Unearned Revenue

Changes in unearned revenue were as follows for years ended December 31, 2018 and 2017 :

<i>(in thousands)</i>	<u>Year ended December 31,</u>	
	<u>2018</u>	<u>2017</u>
Balance, beginning of period	\$ 77,022	\$ 60,588
Billings, excluding billings for customer arrangements with termination rights	205,816	179,294
Additions to unearned revenue upon expiration of termination rights	17,651	16,273
Recognition of revenue, net of change in unbilled accounts receivable*	(194,652)	(179,133)
Balance, end of period	<u>\$ 105,837</u>	<u>\$ 77,022</u>

* Reconciliation to Revenue Reported per Condensed Consolidated Statement of Operations:

<i>(in thousands)</i>	<u>Year ended December 31,</u>	
	<u>2018</u>	<u>2017</u>
Revenue billed as of the end of period	\$ 194,652	\$ 179,133
Increase (decrease) in total unbilled accounts receivable	(1,460)	625
Revenue Reported in Condensed Consolidated Statement of Operations	<u>\$ 193,192</u>	<u>\$ 179,758</u>

Revenue allocated to remaining performance obligations includes unearned revenue plus contractually committed amounts that will be invoiced and recognized as revenue in future periods, but excludes amounts invoiced and not recognized as revenue under customer arrangements that contain termination rights. Remaining performance obligations were \$112.7 million as of December 31, 2018, of which we expect to recognize approximately 70% as revenue over the next 12 months and the remainder thereafter.

As of December 31, 2018 and 2017, the balance of customer arrangements that contain termination rights was \$19.4 million and \$19.5 million, respectively.

14. Segment and Disaggregated Revenue Information

We conduct business globally. Our chief operating decision maker (Chief Executive Officer) reviews financial information presented on a consolidated basis accompanied by information about revenue by geographic region for purposes of allocating resources and evaluating financial performance. We have one business activity, software and services to manage and secure mobile devices, applications and content, and there are no segment managers who are held accountable for operations, operating results and plans for levels, components or types of products or services below the consolidated unit level. Accordingly, we are considered to be in a single reportable segment and operating unit structure.

Revenue by geographic region based on the billing address was as follows:

<i>(in thousands)</i>	<u>Year ended December 31,</u>		
	<u>2018</u>	<u>2017</u>	<u>2016</u>
Revenue			
United States	\$ 82,033	\$ 83,625	\$ 76,217
International	111,159	96,133	89,965
Total	<u>\$ 193,192</u>	<u>\$ 179,758</u>	<u>\$ 166,182</u>

We recognized \$30.7 million, or 16% of total revenue, \$22.6 million, or 13% of total revenue, and \$22.0 million, or 13% of total revenue, from customers with a billing address in Germany in 2018, 2017 and 2016, respectively. No other country, outside of the United States, exceeded 10% of the total revenue in 2018, 2017 or 2016.

Revenue from recurring and nonrecurring contractual arrangements was as follows:

<i>(in thousands)</i>	Year ended December 31,		
	2018	2017	2016
Perpetual license - point-in-time	\$ 38,390	\$ 48,041	\$ 50,733
Professional services - point-in-time	3,654	3,140	3,069
Non-recurring revenue	42,044	51,181	53,802
On-premise subscriptions - point-in-time	20,948	15,994	15,614
On-premise subscriptions - ratable	16,275	14,779	14,300
Cloud subscriptions - ratable	50,714	38,728	31,093
Software support on perpetual licenses - ratable	63,211	59,076	51,373
Recurring revenue	151,148	128,577	112,380
Total revenue	\$ 193,192	\$ 179,758	\$ 166,182

As of December 31, 2018 and 2017, \$2.5 million and \$2.7 million, or 35% and 30%, respectively, of our net Property and Equipment was attributable to our operations located in India. Substantially all other long-lived assets were attributable to operations in the United States.

15. Net Loss per Share

The following table sets forth the computation of basic and diluted net loss per share for 2018, 2017 and 2016 (in thousands, except per share data):

	Year ended December 31,		
	2018	2017	2016
Numerator:			
Net loss	\$ (43,084)	\$ (53,362)	\$ (65,494)
Denominator:			
Weighted-average shares outstanding	102,527	93,771	85,853
Less: weighted average shares subject to repurchase	—	(1)	(8)
Weighted-average shares used to compute basic and diluted net loss per share	102,527	93,770	85,845
Basic and diluted net loss per share	\$ (0.42)	\$ (0.57)	\$ (0.76)

Basic net loss per share is computed by dividing the net loss by the weighted-average number of common shares outstanding for the period. Because we have reported a net loss for 2018, 2017 and 2016, the number of shares used to calculate diluted net loss per common share is the same as the number of shares used to calculate basic net loss per common share for those periods presented because the potentially dilutive shares would have been anti-dilutive if included in the calculation.

The following potentially dilutive securities outstanding have been excluded from the computation of diluted weighted-average shares outstanding because such securities have an antidilutive impact due to losses reported (in common stock equivalent shares):

	December 31,		
	2018	2017	2016
Stock options outstanding, net of unvested exercised stock options	4,496,557	7,738,496	9,838,463
Unvested restricted stock units	12,303,913	12,906,030	10,474,975
ESPP shares	478,026	726,643	676,196
Stock-settled bonus shares	1,234,474	1,185,373	1,057,093
Total potentially dilutive securities	18,512,970	22,556,542	22,046,727

For December 31, 2016, we have corrected the previously reported amount to include 1.7 million of additional shares related to our ESPP and stock-settled bonus plans that were excluded from the computation of the weighted-average diluted shares because such securities have an antidilutive impact due to losses reported. We do not consider this correction to be material, and there was no impact to our consolidated financial statements.

16. Income Taxes

Loss before income taxes consisted of the following (in thousands):

	Year ended December 31,		
	2018	2017	2016
United States	\$ (44,137)	\$ (56,852)	\$ (67,402)
International	2,400	1,695	1,204
Total	\$ (41,737)	\$ (55,157)	\$ (66,198)

A significant portion of our international income is earned by foreign branches of our United States parent corporation and thus is already subject to United States taxation. The income of our foreign branches has been included as part of the United States jurisdiction in the table above.

Income tax expense for 2018, 2017 and 2016, was composed of the following (in thousands):

	Year ended December 31,		
	2018	2017	2016
Current:			
Federal	\$ —	\$ —	\$ —
State	26	36	22
Foreign	1,454	1,196	960
Total current income tax expense	1,480	1,232	982
Foreign	(133)	(90)	—
Total deferred income tax benefit	(133)	(90)	—
Total income tax expense	\$ 1,347	\$ 1,142	\$ 982

For 2018, 2017 and 2016, our effective tax rate differs from the amount computed by applying the statutory federal and state income tax rates to net loss before income tax, primarily as the result of changes in our valuation allowance.

	Year ended December 31,		
	2018	2017	2016
Federal tax benefit at statutory rate	21.0 %	34.0 %	34.0 %
State tax benefit net of federal effect	6.3	8.8	4.4
Foreign taxes	(1.7)	(0.7)	(0.4)
Change in valuation allowance	(29.8)	42.8	(33.0)
Change in federal tax rate	—	(86.1)	—
Credits	3.7	3.4	1.8
Stock-based compensation	(2.3)	(3.9)	(8.0)
Non-deductible expenses and other	(0.4)	(0.4)	(0.3)
Effective tax rate	(3.2)%	(2.1)%	(1.5) %

Income tax expense for 2018, 2017 and 2016 relates to state minimum income tax, income tax on our earnings in foreign jurisdictions and withholding taxes on sales to customers in certain jurisdictions. A significant portion of our international income is earned by foreign branches of our United States parent corporation and thus is already subject to United States taxation. The income of our foreign branches has been included as part of the United States jurisdiction in the table above.

The components of net deferred tax assets at December 31, 2018 and 2017 consisted of the following (in thousands):

	<u>As of December 31,</u>	
	<u>2018</u>	<u>2017</u>
Deferred tax assets:		
Accruals and allowances	\$ 6,037	\$ 7,440
Gains on foreign exchange	(72)	(18)
Net operating loss carryforwards	76,648	67,980
Depreciation and amortization	2,345	3,512
R&D tax credits	17,536	14,560
Stock-based compensation	5,755	6,333
Capitalized commissions	(3,915)	—
Valuation allowance	(104,201)	(99,716)
Net deferred tax assets	<u>\$ 133</u>	<u>\$ 91</u>

Our accounting for deferred taxes involves the evaluation of a number of factors concerning the realizability of our net deferred tax assets. We primarily considered such factors as our history of operating losses, the nature of our deferred tax assets and the timing, likelihood and amount, if any, of future taxable income during the periods in which those temporary differences and carryforwards become deductible. At present, we do not believe that it is more likely than not that the deferred tax assets will be realized; accordingly, a full valuation allowance has been established and no deferred tax asset is shown in the accompanying consolidated balance sheets.

On December 22, 2017, the Tax Cuts and Jobs Act of 2017 (the “Tax Act”) was signed into law making significant changes to the Internal Revenue Code. Changes include, but are not limited to, a corporate tax rate decrease from 35% to 21% effective for tax years beginning after December 31, 2017, the transition of U.S. international taxation from a worldwide tax system to a territorial system, and a one-time transition tax on the mandatory deemed repatriation of cumulative foreign earnings as of December 31, 2017.

We calculated our estimate of the impact of the Tax Act in our December 31, 2017 income tax provision in accordance with our understanding of the Tax Act and guidance available as of the date of that filing. The amount related to the remeasurement of certain deferred tax assets and liabilities based on the updated tax rate was approximately \$44.7 million with a corresponding and fully offsetting adjustment to our valuation allowance for the year ended December 31, 2017. During the fourth quarter of the year ending December 31, 2018 we finalized our accounting for the Tax Act and there was no material change from the estimate. There was not a material impact related to the one-time transition tax on the mandatory deemed repatriation of foreign earnings.

As of December 31, 2018, we had net operating loss carryforwards of approximately \$321.3 million and \$152.2 million available to reduce future taxable income, if any, for both federal and state income tax purposes, respectively. The federal and state net operating loss carryforwards will expire at various dates beginning 2027 and 2028, respectively.

As of December 31, 2018, we had federal and California R&D tax credit carryforwards of approximately \$13.3 million and \$14.6 million, respectively. If not utilized, the federal R&D tax credit carryforward will expire in various portions beginning 2027. The California R&D tax credit can be carried forward indefinitely.

A limitation may apply to the use of the net operating loss and credit carryforwards, under provisions of the Internal Revenue Code that are applicable if we experience an “ownership change”. That may occur, for example, as a result of trading in our stock by significant investors as well as issuance of new equity. Should these limitations apply, the carryforwards would be subject to an annual limitation, resulting in a substantial reduction in the gross deferred tax assets before considering the valuation allowance. Further, a portion of the carryforwards may expire before being applied to reduce future earnings.

We follow the provisions of ASC 740-10, Accounting for Uncertainty in Income Taxes. ASC 740-10 prescribes a comprehensive model for the recognition, measurement, presentation and disclosure in financial statements of uncertain tax positions that have been taken or expected to be taken on a tax return. No non-current liability related to

uncertain tax positions is recorded in the financial statements as the deferred tax assets have been presented net of these unrecognized tax benefits. At December 31, 2018 and 2017, our reserve for unrecognized tax benefits was approximately \$8.3 million and \$6.8 million, respectively. Due to the full valuation allowance at December 31, 2018, current adjustments to the unrecognized tax benefit will have no impact on our effective income tax rate; any adjustments made after the valuation allowance is released will have an impact on the tax rate. We do not anticipate any significant change in our uncertain tax positions within 12 months of this reporting date. We include penalties and interest expense related to income taxes as a component of other expense and interest expense, respectively, as necessary.

A reconciliation of the gross unrealized tax benefits is as follows (in thousands):

	Year ended December 31,		
	2018	2017	2016
Unrecognized tax benefits, beginning of year	\$ 6,839	\$ 5,306	\$ 4,052
Gross increases—tax positions from prior periods	(31)	34	43
Gross increases—tax positions from current period	1,532	1,499	1,211
Unrecognized tax benefits, end of year	<u>\$ 8,340</u>	<u>\$ 6,839</u>	<u>\$ 5,306</u>

We are subject to taxation in the United States and various states and foreign jurisdictions. As of December 31, 2018, the statute of limitations is open for all tax years from inception, that is, for the period from July 23, 2007 (date of inception) to December 31, 2018 and forward for federal and state purposes. The foreign statutes of limitation are generally two to four years.

Item 9 . Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

None.

Item 9 A. Controls and Procedures

Limitations on Effectiveness of Controls

In designing and evaluating the disclosure controls and procedures, management recognizes that any controls and procedures, no matter how well designed and operated, can provide only reasonable assurance of achieving the desired control objectives. In addition, the design of disclosure controls and procedures must reflect the fact that there are resource constraints and that management is required to apply its judgment in evaluating the benefits of possible controls and procedures relative to their costs.

Evaluation of Disclosure Controls and Procedures

Our management evaluated, with the participation of our Chief Executive Officer and Chief Financial Officer, the effectiveness of our disclosure controls and procedures as of December 31, 2018. The term “disclosure controls and procedures,” as defined in Rule 13a-15 under the Securities Exchange Act of 1934, as amended, or the Exchange Act, means controls and other procedures of a company that are designed to ensure that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is recorded, processed, summarized and reported, within the time periods specified in the SEC’s rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to provide a reasonable assurance that information required to be disclosed by a company in the reports that it files or submits under the Exchange Act is accumulated and communicated to the company’s management, including its principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosure.

Based on this evaluation, our Chief Executive Officer and Chief Financial Officer concluded that, as of December 31, 2018, our disclosure controls and procedures were effective to provide reasonable assurance that information we are required to disclose in reports that we file or submit under the Exchange Act were (i) recorded, processed, summarized, and reported within the time periods specified in Securities and Exchange Commission rules and

forms, and (ii) accumulated and reported to our management, including our Chief Executive Officer and Chief Financial Officer to allow timely decisions regarding required disclosure.

Management’s Report on Internal Controls

Our management is responsible for establishing and maintaining effective internal control over financial reporting as defined in Rule 13a-15(f) under the Exchange Act. Our internal controls over financial reporting are designed to provide reasonable assurance to the Company’s management and Board of Directors regarding the preparation and fair presentation of published financial statements in accordance with the GAAP, including those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and disposition 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 GAAP and that receipts and expenditures 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. Therefore, even those systems determined to be effective can provide only reasonable assurance with respect to financial statement preparation and presentation.

Our Chief Executive Officer and Chief Financial Officer, evaluated the effectiveness of our internal control over financial reporting as of December 31, 2018 based on the criteria established in Internal Control—Integrated Framework (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO framework).

Based on our assessment, we concluded that our internal control over financial reporting was effective as of December 31, 2018.

This Annual Report on Form 10-K does not include an audit or attestation report from our registered public accounting firm regarding our internal control over financial reporting. Our management’s report was not subject to audit or attestation by our registered public accounting firm pursuant to rules of the SEC that permits us to provide only management’s report in this annual report for so long as we remain an “emerging growth company” under the Jumpstart Our Business Startups Act.

Changes in Internal Control over Financial Reporting

There were no changes in our internal control over financial reporting identified in connection with the evaluation required by Rule 13a-15(d) and 15d-15(d) of the Exchange Act that occurred during the quarter ended December 31, 2018 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9 B. Other Information

None.

PART III

Certain information required by Part III is omitted from this Annual Report on Form 10-K since we intend to file our definitive proxy statement for our 2019 annual meeting of stockholders, or the Definitive Proxy Statement, pursuant to Regulation 14A of the Securities Exchange Act of 1934, as amended, not later than 120 days after December 31, 2018, and certain information to be included in the Definitive Proxy Statement is incorporated herein by reference

Item 10 . Directors, Executive Officers and Corporate Governance

Executive Officers and Directors

Information responsive to this Item with respect to executive officers and directors is incorporated herein by reference to the information from our 2019 Proxy Statement under the sections titled “Executive Officers,” “Election of Directors,” “Section 16(a) Beneficial Ownership Reporting Compliance” and “Information Regarding the Board of Directors and Corporate Governance.”

Code of Conduct

As part of our system of corporate governance, our board of directors has adopted a code of business conduct and ethics. The code applies to all of our employees, officers (including our principal executive officer, principal financial officer, principal accounting officer or controller, or persons performing similar functions), agents and representatives, including our independent directors and consultants, who are not employees of ours, with regard to their MobileIron-related activities. Our code of business conduct and ethics is available on our website at www.mobileiron.com. We will post on our website any amendment to our code of business conduct and ethics, as well as any waivers of our code of business conduct and ethics, that are required to be disclosed by the rules of the SEC or the Nasdaq Stock Market.

Item 11 . Executive Compensation

Information responsive to this Item with respect to executive compensation is incorporated herein by reference to the information from our 2019 Proxy Statement under the section titled “Executive Compensation,” “Director Compensation,” “Summary Compensation Table,” “Outstanding Equity Awards at Fiscal Year-End,” and “Compensation Committee.”

Item 12 . Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

Information responsive to this Item with respect to security ownership of certain beneficial owners and management is incorporated herein by reference to the information from our 2019 Proxy Statement under the section titled “Security Ownership of Certain Beneficial Owners and Management” and “Potential Payments and Acceleration of Equity upon Termination or Termination in Connection with a Change in Control.” Information regarding our stockholder approved and non-approved equity compensation plans are incorporated by reference to the section entitled “Equity Compensation Plan Information.”

Item 13 . Certain Relationships and Related Transactions, and Director Independence

Information responsive to this item with respect to certain relationships and related transactions, and director independence is incorporated herein by reference to the information from our 2019 Proxy Statement under the section titled “Transactions with Related Persons and Indemnification” and “Independence of the Board of Directors.”

Item 14. Principal Accountant Fees and Services

Information responsive to this item with respect to principal accountant fees and services is incorporated herein by reference to the information from our 2019 Proxy Statement under the section titled “Principal Accountant Fees and Services.”

PART IV

Item 15 . Exhibits and Financial Statement Schedules

Documents filed as part of this report are as follows:

1. Consolidated Financial Statements:

Our Consolidated Financial Statements are listed in the “Index to Consolidated Financial Statements” Under Part II, Item 8 of this report.

2. Financial Statement Schedules:

Financial statement schedules have been omitted because they are not applicable or the required information is shown in the Consolidated Financial Statements or Notes to Consolidated Financial Statements included in Part II, Item 8 “Financial Statements and Supplementary Data” of this report.

3. Exhibits:

EXHIBIT INDEX

Exhibit Number	Description	Incorporated by Reference Exhibit Number	Filing	Filing Date	File No.	Filed Herewith
3.1	Amended and Restated Certificate of Incorporation of MobileIron, Inc.	3.1	8-K	June 17, 2014	001-36471	
3.2	Amended and Restated Bylaws of MobileIron, Inc.	3.4	S-1/A	May 29, 2014	333-195089	
4.1	Reference is made to Exhibits 3.1 and 3.2 above					
4.2	Amended and Restated Investors' Rights Agreement, dated August 29, 2013	4.2	S-1	April 7, 2014	333-195089	
10.1 ⁽¹⁾	Amended and Restated MobileIron, Inc. 2014 Equity Incentive Plan	10.2	10-Q	July 29, 2016	001-36471	
10.2 ⁽¹⁾	Form of Option Agreement and Option Grant Notice for MobileIron, Inc. 2008 Stock Plan	10.4	S-1/A	May 29, 2014	333-195089	
10.3 ⁽¹⁾	Current Form of Option Agreement, Option Grant Notice, Notice of Option Exercise, Restricted Stock Unit Grant Notice and Restricted Stock Unit Award Agreement for MobileIron, Inc. 2014 Equity Incentive Plan	10.1	10-Q	October 31, 2014	001-36471	
10.4 ⁽¹⁾	MobileIron, Inc. 2014 Amended Employee Stock Purchase Plan	Appendix A	DEF 14A	April 28, 2017	001-34207	
10.5 ⁽¹⁾	Amended and Restated MobileIron, Inc. 2015 Inducement Plan	10.2	10-Q	July 29, 2016	001-36471	
10.6 ⁽¹⁾	Form of Stock Option Grant Notice and Option Agreement under the MobileIron, Inc. 2015 Inducement Plan	10.2	8-K	January 6, 2016	001-36471	

[Table of Contents](#)

10.7 ⁽¹⁾	Form of Restricted Stock Unit Grant Notice and Restricted Stock Unit Award Agreement under the MobileIron, Inc. 2015 Inducement Plan	10.3	8-K	January 6, 2016	001-36471	
10.8 †	Resale Agreement between MobileIron, Inc. and AT&T Services, Inc., dated April 22, 2010, as amended and supplemented	10.17	S-1/A	May 7, 2014	333-195089	
10.9	Amendment to Resale Agreement between MobileIron, Inc. and AT&T Services, Inc., dated April 4, 2016	10.6	10-Q	July 29, 2016	001-36471	
10.10	Lease Agreement, dated April 14, 2011 between MobileIron, Inc. and Renault & Handley Employees Investment Company	10.7	S-1	April 7, 2014	333-195089	
10.11	First Amendment to Lease Agreement, dated April 18, 2014 between the Registrant and Renault & Handley Middlefield Road Joint Venture, as successor to Renault & Handley Employees Investment Company	10.8	S-1/A	April 23, 2014	333-195089	
10.12	Lease Agreement, dated June 25, 2014, between MobileIron Inc. and Handley-Tittle Middlefield Joint Venture	10.8	10-Q	August 7, 2014	001-36471	
10.13	Lease between MobileIron, Inc., and WTA Middlefield LLC, dated May 14, 2015	10.1	8-K	May 20, 2015	001-36471	
10.14	Second Amendment to Lease, dated November 9, 2015, by and among the Company and Renault & Handley Middlefield Road Joint Venture	10.1	8-K	November 12, 2015	001-36471	

[Table of Contents](#)

10.15 ⁽¹⁾	Form of Indemnity Agreement entered into between MobileIron, Inc. and each of its directors and its executive officers	10.6	S-1	April 7, 2014	333-195089	
10.16 ⁽¹⁾	Amended and Restated Severance Benefit Plan Participation Notice between MobileIron, Inc. and Simon Biddiscombe, dated August 28, 2015	10.18	10-K	February 14, 2017	001-36471	
10.17 ⁽¹⁾	MobileIron, Inc. Severance Benefit Plan and Participation Notice	10.4	10-Q	May 4, 2015	001-36471	
10.18 ⁽¹⁾	MobileIron, Inc. Amended and Restated Non-Employee Director Compensation Policy	10.3	10-Q	July 29, 2016	001-36471	
10.19	Sublease, effective March 1, 2017, between MobileIron, Inc. and Vendavo, Inc.	10.1	8-K	March 3, 2017	001-36471	
10.20 ⁽¹⁾	MobileIron, Inc. 2018 Executive Bonus Plan	10.1	8-K	April 25, 2018	001-36471	
10.21	MobileIron, Inc. 2018 Non-Executive Bonus Plan	10.2	10-Q	May 4, 2018	001-36471	
10.22	Lease Deed between MobileIron, Inc. and RMZ Ecoworld Infrastructure Private Limited, dated July 27, 2017	10.1	10-Q	November 3, 2017	001-36471	
10.23 ⁽¹⁾	Offer Letter between the Company and Greg Randolph, dated October 29, 2017	10.2	10-Q	November 3, 2017	001-36471	

[Table of Contents](#)

10.24 ⁽¹⁾	Offer Letter between the Company and Simon Biddiscombe, dated November 2, 2017	10.3	10-Q	November 3, 2017	001-36471	
10.25	Attornment Agreement between Middlefield Realty Property Holdings LLC, Vendavo, Inc. and MobileIron, Inc., dated December 18, 2017	10.29	10-K	March 12, 2018	001-36471	
10.26 ^(u)	Offer Letter between the Company and Sohail Parekh, dated March 12, 2018	10.3	10-Q	May 4, 2018	001-36471	
10.27 ^(u)	Offer Letter between the Company and Scott Hill, dated June 12, 2018 /	10.1	8-K	July 10, 2018	001-36471	
21.1	Subsidiaries of Registrant					X
23.1	Consent of Deloitte & Touche LLP, Independent Registered Public Accounting Firm					X
24.1	Power of Attorney (contained in signature page hereto)					X
31.1	Certification of Principal Executive Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002					X
31.2	Certification of Principal Financial Officer pursuant to Section 302 of the Sarbanes-Oxley Act of 2002					X
32.1 ⁽²⁾	Certification of Principal Executive Officer and Principal Financial Officer Pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002					X

[Table of Contents](#)

99.1 †	Amendments to Resale Agreement between MobileIron, Inc. and AT&T Services, Inc., various dates	99.1	8-K	February 6, 2017		
99.2 *	Amendments to Resale Agreement between MobileIron, Inc. and AT&T Services, Inc., various dates	99.1	8-K	February 21, 2019		

EX—101.INS	XBRL Instance Document
EX—101.SCH	XBRL Taxonomy Extension Schema
EX—101.CAL	XBRL Taxonomy Extension Calculation Linkbase
EX—101.DEF	XBRL Taxonomy Extension Definition Linkbase
EX—101.LAB	XBRL Taxonomy Extension Label Linkbase
EX—101.PRE	XBRL Taxonomy Extension Presentation Linkbase

† Certain portions of this exhibit are subject to a confidential treatment order. Omitted portions have been filed separately with the Securities and Exchange Commission.

* Confidential treatment requested as to certain portions of this exhibit, which portions are omitted and filed separately with the Securities and Exchange Commission.

(1) Management contract or compensation plan or arrangement.

(2) The certifications attached as Exhibit 32.1 accompany this Annual Report on Form 10-K pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, and shall not be deemed “filed” by the Registrant for purposes of Section 18 of the Securities Exchange Act of 1934, as amended.

Item 16. Form 10-K Summary

The Company has elected not to include summary information.

SIGNATURE S

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

MOBILEIRON, INC.

By: /s/ Simon Biddiscombe
Simon Biddiscombe
President and Chief Executive Officer
(Principal Executive Officer)

By: /s/ Scott D. Hill
Scott D. Hill
Chief Financial Officer
(Principal Financial Officer and Accounting Officer)

Dated: February 22, 2019

The undersigned directors and officers of MobileIron, Inc. (the “Company”), a Delaware corporation, hereby constitute and appoint Simon Biddiscombe and Scott D. Hill, and each of them with full power to act without the other, the undersigned’s true and lawful attorney-in-fact, with full power of substitution and re-substitution, for the undersigned and in the undersigned’s name, place and stead in the undersigned’s capacity as an officer and/or director of the Company, to execute in the name and on behalf of the undersigned this Report and to file such Report, with exhibits thereto and other documents in connection therewith and any and all amendments thereto, with the Securities and Exchange Commission, granting unto said attorneys-in-fact, and each of them, full power and authority to do and perform each and every act and thing necessary or desirable to be done and to take any other action of any type whatsoever in connection with the foregoing which, in the opinion of such attorney-in-fact, may be of benefit to, in the best interest of, or legally required of, the undersigned, it being understood that the documents executed by such attorney-in-fact on behalf of the undersigned pursuant to this Power of Attorney shall be in such form and shall contain such terms and conditions as such attorney-in-fact may approve in such attorney-in-fact’s discretion.

[Table of Contents](#)

Pursuant to the requirements of the Securities Exchange Act of 1934, this Report has been signed below (and the above Powers of Attorney granted) by the following persons on behalf of the Registrant and in the capacities and on the dates indicated.

Signature	Title	Date
<u>/s/ Simon Biddiscombe</u> Simon Biddiscombe	President and Chief Executive Officer (Principal Executive Officer)	February 22, 2019
<u>/s/ Scott D. Hill</u> Scott D. Hill	Chief Financial Officer (Principal Financial Officer and Accounting Officer)	February 22, 2019
<u>/s/ Kenneth Klein</u> Kenneth Klein	Director	February 22, 2019
<u>/s/ Frank Marshall</u> Frank Marshall	Director	February 22, 2019
<u>/s/ Tae Hea Nahm</u> Tae Hea Nahm	Director	February 22, 2019
<u>/s/ James Tolonen</u> James Tolonen	Director	February 22, 2019
<u>/s/ Jessica Denecour</u> Jessica Denecour	Director	February 22, 2019

SUBSIDIARIES OF MOBILEIRON, INC.

The following is a list of MobileIron, Inc.'s subsidiaries including their jurisdiction of incorporation as of December 31, 2018:

Subsidiaries	Jurisdiction of Incorporation
MobileIron International, Inc.	Delaware, U.S.A.
MobileIron India Software Private Limited	India

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We consent to the incorporation by reference in Registration Statement Nos. 333-196762, 333-207742, 333-211057, 333-216057, 333-219616, 333-222727 and 333-229621 on Form S-8 of our report dated February 12, 2019, relating to the consolidated financial statements of MobileIron, Inc. and its subsidiaries appearing in this Annual Report on Form 10-K of MobileIron, Inc. for the year ended December 31, 2018.

/s/ DELOITTE & TOUCHE LLP

San Jose, California
February 22, 2019

I, Simon Biddiscombe, certify that:

1. I have reviewed this Annual Report on Form 10-K of MobileIron, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors:
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: February 22, 2019

/s/ Simon Biddiscombe
Simon Biddiscombe
President and Chief Executive Officer
(Principal Executive Officer)

I, Scott D. Hill, certify that:

1. I have reviewed this Annual Report on Form 10-K of MobileIron, Inc.;
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date February 22, 2019

/s/ Scott D. Hill

Scott D. Hill

Chief Financial Officer

(Principal Financial and Accounting Officer)

CERTIFICATION

Pursuant to the requirement set forth in Rule 13a-14(b) of the Securities Exchange Act of 1934, as amended (the “Exchange Act”) and Section 1350 of Chapter 63 of Title 18 of the United States Code (18 U.S.C. §1350), Simon Biddiscombe, President and Chief Executive Officer (Principal Executive Officer) of MobileIron, Inc. (the “Company”), and Scott D. Hill, Chief Financial Officer (Principal Financial and Accounting Officer) of the Company, each hereby certifies that, to the best of his or her knowledge:

1. The Company’s Annual Report on Form 10-K for the period ended December 31, 2018 (the “Annual Report”), to which this Certification is attached as Exhibit 32.1, fully complies with the requirements of Section 13(a) or Section 15(d) of the Exchange Act, and
2. The information contained in the Annual Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

I N W ITNESS W HEREOF , the undersigned have set their hands hereto as of the 22nd day of February, 2019.

/s/ Simon Biddiscombe
 Simon Biddiscombe
 President and Chief Executive
 (Principal Executive Officer)

/s/ Scott D. Hill
 Scott D. Hill
 Chief Financial Officer
 (Principal Financial and Accounting Officer)

“This certification accompanies the Form 10-K to which it relates, is not deemed filed with the Securities and Exchange Commission and is not to be incorporated by reference into any filing of MobileIron, Inc. under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended (whether made before or after the date of the Form 10-K), irrespective of any general incorporation language contained in such filing.”
