UNITED STATES SECURITIES AND EXCHANGE COMMISSION

WASHINGTON, DC 20549

FORM 10-Q

(Mark One)	M	ark	On	e)
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X	QUARTERLY REPORT PURSUANT T OF 1934	ГО SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE AC	Т
	For the o	quarterly period ended September 30, 2018 OR	
	TRANSITION REPORT PURSUANT OF 1934	TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE AC	Т
		the transition period from to ommission File Number: 001-38098	
	APPI	AN CORPORATION	
	(Exact Na	me of Registrant as Specified in its Charter)	
	Delaware (State or other jurisdiction of incorporation or organization)	54-1956084 (I.R.S. Employer Identification No.)	
	11955 Democracy Drive, Suite 1700 Reston, VA	20190	
	(Address of principal executive offices)	(Zip Code)	
	Registrant's tele	phone number, including area code: (703) 442-8844	
1934 du requirer	uring the preceding 12 months (or for such shorter per ments for the past 90 days. Yes x No \square Indicate by check mark whether the registrant has sub	filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Action that the registrant was required to file such reports), and (2) has been subject to such smitted electronically every Interactive Data File required to be submitted pursuant to Ruleding 12 months (or for such shorter period that the registrant was required to submit such	filing ile 405
files). Y an emer	Tes x No \Box Indicate by check mark whether the registrant is a large	ge accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting compaccelerated filer," "accelerated filer," "smaller reporting company" and "emerging growth	any or
Large a	ccelerated filer \Box	Accelerated filer	
	celerated filer x	Small reporting company	
Emergi	ng growth company x		
new or i	revised financial accounting standards provided pursu Indicate by check mark whether the registrant is a she	ell company (as defined in Rule 12b-2 of the Exchange Act). Yes \Box No x s of the registrant's Class A common stock and 35,547,717 shares of the registrant's Class	

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PART I—FINANCIAL INFORMATION

Item 1. FINANCIAL STATEMENTS

APPIAN CORPORATION AND SUBSIDIARIES CONDENSED CONSOLIDATED BALANCE SHEETS

(in thousands, except share and per share data)

	Sep	As of otember 30, 2018	As of December 31, 2017
	(u	naudited)	
Assets			
Current assets			
Cash and cash equivalents	\$	- ,	\$ 73,758
Accounts receivable, net of allowance of \$400		62,464	55,315
Deferred commissions, current		12,366	9,117
Prepaid expenses and other current assets		6,004	7,032
Total current assets		188,100	145,222
Property and equipment, net		3,291	2,663
Deferred commissions, net of current portion		14,658	12,376
Deferred tax assets		246	281
Other assets		569	510
Total assets	\$	206,864	\$ 161,052
Liabilities and Stockholders' Equity			
Current liabilities			
Accounts payable	\$	6,616	\$ 5,226
Accrued expenses		6,598	6,467
Accrued compensation and related benefits		13,528	12,075
Deferred revenue, current		83,049	70,165
Other current liabilities		902	1,182
Total current liabilities		110,693	95,115
Deferred tax liabilities		5	87
Deferred revenue, net of current portion		13,758	18,922
Other long-term liabilities		592	1,404
Total liabilities		125,048	115,528
Stockholders' equity			
Class A common stock—par value \$0.0001; 500,000,000 shares authorized and 28,036,799 shares issued and outstanding as of September 30, 2018; 500,000,000 shares authorized and 13,030,081 shares issued and outstanding as of December 31, 2017	g	3	1
Class B common stock—par value \$0.0001; 100,000,000 shares authorized and 35,551,517 shares issued and outstanding as of September 30, 2018; 100,000,000 shares authorized, 47,569,796 shares issued and outstanding as			
of December 31, 2017		3	5
Additional paid-in capital		212,971	141,268
Accumulated other comprehensive income		576	439
Accumulated deficit		(131,737)	(96,189)
Total stockholders' equity		81,816	45,524
Total liabilities and stockholders' equity	\$	206,864	\$ 161,052

APPIAN CORPORATION AND SUBSIDIARIES CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS

(in thousands, except share and per share data) (unaudited)

	Т	Three Months Ended September 30,			Nine Months Ended September 30,			
		2018 2017		2018		2017		
Revenue:								
Subscriptions, software and support	\$	30,905	\$	22,660	\$ 90,904	\$	66,116	
Professional services		24,043		21,988	75,623		60,059	
Total revenue		54,948		44,648	166,527		126,175	
Cost of revenue:								
Subscriptions, software and support		3,261		2,341	8,713		6,891	
Professional services		16,831		14,272	54,002		39,049	
Total cost of revenue		20,092		16,613	62,715		45,940	
Gross profit		34,856		28,035	103,812		80,235	
Operating expenses:								
Sales and marketing		25,467		19,725	75,815		59,503	
Research and development		11,737		8,596	32,392		25,867	
General and administrative		12,537		6,237	29,022		19,721	
Total operating expenses		49,741		34,558	137,229		105,091	
Operating loss		(14,885)		(6,523)	(33,417)		(24,856)	
Other expense (income):								
Other expense (income), net		110		(425)	1,785		(1,658)	
Interest expense (income)		67		(2)	134		451	
Total other expense (income)		177		(427)	1,919		(1,207)	
Net loss before income taxes		(15,062)		(6,096)	(35,336)		(23,649)	
Income tax (benefit) expense		(34)		188	212		489	
Net loss		(15,028)		(6,284)	(35,548)		(24,138)	
Accretion of dividends on convertible preferred stock		_		_	_		357	
Net loss attributable to common stockholders	\$	(15,028)	\$	(6,284)	\$ (35,548)	\$	(24,495)	
Net loss per share attributable to common stockholders:								
Basic and diluted	\$	(0.24)	\$	(0.10)	\$ (0.58)	\$	(0.53)	
Weighted average common shares outstanding:								
Basic and diluted		62,480,927		60,204,596	61,583,610		45,855,044	

APPIAN CORPORATION AND SUBSIDIARIES CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS

(in thousands) (unaudited)

	T	Three Months Ended September 30,				Nine Months End	ded September 30,		
	2018		2017		2018			2017	
Net loss	\$	(15,028)	\$	(6,284)	\$	(35,548)	\$	(24,138)	
Comprehensive loss, net of income taxes:									
Foreign currency translation adjustment		(400)		517		137		(879)	
Total other comprehensive loss, net of income taxes	\$	(15,428)	\$	(5,767)	\$	(35,411)	\$	(25,017)	

APPIAN CORPORATION AND SUBSIDIARIES CONDENSED CONSOLIDATED STATEMENT OF CHANGES IN STOCKHOLDERS' EQUITY

(in thousands, except share data) (unaudited)

	Common Stock		Additional Paid-		Accumulated Other			Tot	tal Stockholders'	
	Shares		Amount		In Capital	Comprehensive Income		Accumulated Deficit		Equity
Balance, January 1, 2018	60,599,877	\$	6	\$	141,268	\$ 439	\$	(96,189)	\$	45,524
Net loss	_		_		_	_		(35,548)		(35,548)
Issuance of common stock from public offering, net of issuance costs	1,675,000		_		57,829	_		_		57,829
Issuance of common stock to directors	9,160		_		_	_		_		_
Vesting of restricted stock units	6,300		_		_	_		_		_
Exercise of stock options	1,297,979		_		2,627	_		_		2,627
Stock-based compensation expense	_		_		11,247	_		_		11,247
Other comprehensive income	_		_		_	137		_		137
Balance, September 30, 2018	63,588,316	\$	6	\$	212,971	\$ 576	\$	(131,737)	\$	81,816

APPIAN CORPORATION AND SUBSIDIARIES CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS

(in thousands) (unaudited)

Nine Months Ender 2018 Cash flows from operating activities: Net loss \$ (35,548) Adjustments to reconcile net loss to net cash used in operating activities:	20	017 (24,138)
Net loss \$ (35,548)	\$	· ,
	\$	· ,
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation and amortization 1,452		673
Gain on disposal of equipment (4)		_
Bad debt expense 2		_
Deferred income taxes 69		(91)
Stock-based compensation 11,247		10,919
Fair value adjustment for warrant liability —		341
Loss on extinguishment of debt —		384
Changes in assets and liabilities:		
Accounts receivable (6,226)		4,329
Prepaid expenses and other assets 76		(3,184)
Deferred commissions (5,531)		(1,056)
Accounts payable and accrued expenses 1,255		1,202
Accrued compensation and related benefits 1,814		(339)
Other current liabilities 376		(75)
Deferred revenue 7,862		1,043
Other long-term liabilities (797)		(143)
Net cash used in operating activities (23,953)		(10,135)
Cash flows from investing activities:		
Purchases of property and equipment (2,187)		(295)
Proceeds from sale of equipment 4		_
Net cash used in investing activities (2,183)		(295)
Cash flows from financing activities:		
Proceeds from initial public offering, net of underwriting discounts —		80,213
Proceeds from public offering, net of underwriting discounts 58,258		_
Payment of costs related to public offerings (353)		(2,424)
Payment of dividend to Series A preferred stockholders —		(7,565)
Proceeds from exercise of common stock options 2,627		664
Proceeds from issuance of long-term debt, net of debt issuance costs —		19,616
Repayment of long-term debt —		(40,000)
Net cash provided by financing activities 60,532		50,504
Effect of foreign exchange rate changes on cash and cash equivalents (888)		1,072
Net increase in cash and cash equivalents 33,508		41,146
Cash and cash equivalents, beginning of period 73,758		31,143
Cash and cash equivalents, end of period \$ 107,266	\$	72,289
Supplemental disclosure of cash flow information:		,
	\$	_
•	\$	484
Supplemental disclosure of non-cash financing activities:	Ψ	704
Conversion of convertible preferred stock to common stock \$ —	\$	48,207
Conversion of convertible preferred stock to common stock warrant S —	\$	1,191
Accretion of dividends on convertible preferred stock \$ —	\$	357
	\$	

1. Organization and Description of Business

Appian Corporation (together with its subsidiaries, "Appian," the "Company," "we" or "our") provides a software development platform that combines intelligent automation and enterprise low-code development to rapidly deliver powerful business applications. The applications created on our platform help companies drive digital transformation and competitive differentiation. We were incorporated in the state of Delaware in August 1999. We are headquartered in Reston, Virginia and operate in Canada, Switzerland, the United Kingdom, France, Germany, the Netherlands, Italy, Australia, Spain, Singapore and Sweden.

2. Significant Accounting Policies

Basis of Presentation

The accompanying unaudited condensed consolidated financial statements and footnotes have been prepared in accordance with accounting principles generally accepted in the United States of America ("U.S. GAAP") as contained in the Financial Accounting Standards Board ("FASB") Accounting Standards Codification (the "Codification" or "ASC") for interim financial information. In the opinion of management, the interim financial information includes all adjustments of a normal recurring nature necessary for a fair presentation of the results of operations, financial position, changes in stockholders' equity and cash flows. The results of operations for the current period are not necessarily indicative of the results for the full year or the results for any future periods. These condensed consolidated financial statements should be read in conjunction with the consolidated financial statements and related footnotes included in our Annual Report on Form 10-K for the year ended December 31, 2017, filed with the Securities and Exchange Commission (the "SEC") on February 23, 2018.

Use of Estimates

The preparation of our condensed consolidated financial statements in conformity with U.S. GAAP requires us to make estimates and judgments that affect the amounts reported in these condensed consolidated financial statements and accompanying notes. Although we believe that the estimates we use are reasonable, due to the inherent uncertainty involved in making these estimates, actual results reported in future periods could differ from those estimates.

Significant estimates embedded in the condensed consolidated financial statements include revenue recognition, income taxes and the related valuation allowance, stock-based compensation and fair value measurements for our common stock and preferred stock warrant.

Principles of Consolidation

The accompanying condensed consolidated financial statements include the accounts of Appian and its wholly-owned subsidiaries. All intercompany accounts and transactions have been eliminated in consolidation.

Public Offering

In August 2018, we completed an underwritten public offering of 2,000,000 shares of our Class A common stock, of which 1,675,000 shares of Class A common stock were sold by us and 325,000 shares of Class A common stock were sold by existing stockholders, at an offering price to the public of \$35.15 per share. Our net proceeds from the offering was \$57.8 million, after deducting underwriting discounts and commissions and offering expenses. We did not receive any of the proceeds from the sale of shares by the selling stockholders.

Revenue Recognition

We generate revenue primarily through sales of subscriptions to our platform, as well as professional services. To a lesser extent, we also generate revenue from the sale of perpetual software license agreements and associated maintenance and support. We recognize revenue when all of the following conditions are met: (1) there is persuasive evidence of an arrangement; (2) the service or product has been provided to the customer; (3) the amount of fees to be paid by the customer is fixed or determinable; and (4) the collection of related fees is reasonably assured. If collection is not reasonably assured, we defer revenue recognition until collectability becomes reasonably assured. Our arrangements do not contain general rights of return. Revenue is recognized net of any taxes collected from customers and subsequently remitted to governmental authorities.

Subscriptions, Software and Support Revenue

Subscriptions, software and support revenue is primarily related to (1) software as a service ("SaaS") subscriptions bundled with maintenance and support and hosting services and (2) term license subscriptions bundled with maintenance and support. To a lesser extent, we also generate revenue from the sale of perpetual software licenses and associated maintenance and support.

Historically, we licensed our software primarily under perpetual licenses, but over time we transitioned from perpetual licenses to subscriptions. As a result, revenue from our perpetual software licenses during the three months ended September 30, 2018 was less than 1.0% of our total revenue. However, during the nine months ended September 30, 2018, we sold a \$4.4 million perpetual software license to the U.S. Air Force. Therefore, revenue from our perpetual software licenses was 2.7% of our total revenue for the nine months ended September 30, 2018. Revenue from our perpetual software licenses was less than 1.0% of our total revenue for the three and nine months ended September 30, 2017.

We generally charge subscription fees on a per-user basis and, to a lesser degree, non-user based single application licenses. We bill customers and collect payment for subscriptions to our platform in advance on a monthly, quarterly or annual basis. In certain instances, we have had customers pay their entire contract up front.

SaaS Subscriptions

Our SaaS subscription revenue is derived from customers accessing our cloud offering pursuant to contracts that are generally one to five years in length. We perform all required maintenance and support for our cloud offering and we do not separately charge customers for hosting costs. In these arrangements, our customers do not have the right to take the software on-premises and, as a result, such arrangements are not accounted for within the scope of the software revenue guidance. Revenue from SaaS subscriptions is recognized ratably over the term of the subscription, beginning with the date our service is made available to our customer.

Term License Subscriptions

Our term license subscription revenue is derived from customers with on-premises installations of our platform pursuant to contracts that are generally one to five years in length. Customers with term license subscriptions have the right to use our software and receive maintenance and support. Since we do not sell maintenance and support separately from the subscription, revenue for the term license subscription and maintenance and support is recognized ratably over the term of the subscription, upon delivery of the platform to the customer when sold on a standalone basis.

Perpetual Licenses

Our perpetual license revenue is derived from customers with perpetual licenses to our platform and associated maintenance and support contracts. We recognize revenue from perpetual licenses on the date of delivery to our customer. We sell maintenance and support to perpetual license customers separately from the perpetual licenses pursuant to agreements that generally renew annually. Maintenance and support revenue is deferred and recognized ratably over the term of the support period.

Professional Services

Our professional services revenue is comprised of fees for consulting services, including application development and deployment assistance and training related to our platform. Our professional services are not essential to the functionality of our platform because the platform is ready for the customer's use immediately upon delivery and is not modified or customized in any manner.

Consulting services are billed under both time-and-material and fixed-fee arrangements. For standalone time-and-material contracts, we recognize revenue at contractually agreed upon billing rates applied to hours performed. For standalone fixed-fee contracts, we also recognize revenue as the work is performed using the proportional performance method of accounting. Training revenue is recognized when the associated training services are delivered. Training is also sold in the form of a subscription arrangement where a customer agrees to pay an annual fixed fee for a fixed number of users to have access to all of our training offerings during the year. Revenue from training subscription agreements is recognized ratably over the subscription period.

We defer recognition of revenue from work performed on pending contract modifications until the period in which the modifications are accepted and funding is approved by the customer. Costs of work performed on pending contract modifications are expensed as incurred.

Multiple Element Arrangements

Our multiple element arrangements are from SaaS subscriptions, term license subscriptions and perpetual licenses that are generally sold in combination with maintenance and support service and frequently with professional services.

SaaS Subscriptions

For multiple element arrangements involving SaaS subscriptions that include professional services in addition to the subscription to our platform, we evaluate each element to determine whether it represents a separate unit of accounting. Because there are third-party vendors who routinely sell and provide the same professional services to our customers, our professional services are deemed to have standalone value apart from the SaaS subscription. Additionally, we offer both SaaS subscriptions and professional services on a standalone basis. Professional services revenue is therefore accounted for separately from subscription fees and recognized as the professional services are performed. We allocate revenue to the elements based on the selling price hierarchy using vendor-specific objective evidence ("VSOE") of selling price, third-party evidence ("TPE") of selling price, or if neither exists, best estimated selling price ("BESP"). In cases where we do not have VSOE or TPE of the elements of our arrangements, we use BESP to allocate revenue. We determine BESP for a service by considering multiple factors including, but not limited to, evaluating the weighted average of actual sales prices and other factors such as gross margin objectives, pricing practices and growth strategy. Pricing practices taken into consideration include historic contractually stated prices, volume discounts where applicable and our price lists. While we believe we can make reliable estimates regarding these matters, these estimates are inherently subjective. Once the revenue is allocated to these elements, revenue is recognized as such services are provided.

Term License Subscriptions

For multiple element arrangements involving term license subscriptions, maintenance and support and professional services, we do not have VSOE of fair value for the maintenance and support. Our term license subscriptions are generally not sold on a standalone basis, and therefore, we have not established VSOE of fair value for the subscriptions. Consequently, for our bundled arrangements that include certain professional services, there are two undelivered elements for which VSOE of fair value has not been established and, therefore, we utilize the combined services approach and defer all revenue until the software has been delivered and the provision of all services has commenced. We then recognize the entire fee from the arrangement ratably over the remaining period of the arrangement, assuming all other software revenue recognition criteria have been met.

Perpetual Licenses

For multiple element arrangements involving our perpetual software licenses, we allocate revenue to the software license arrangement by determining if VSOE of fair value exists for the undelivered elements, which are usually maintenance and support and professional services. In situations where VSOE of fair value exists for the undelivered elements, we apply the

residual method whereby the fees allocated to license revenue are recognized upon delivery, the fees allocated to maintenance and support revenue are recognized over the service period and the fees allocated to professional services and training are recognized as performed. In instances where we lack VSOE of fair value for the undelivered elements, revenue is either deferred until the final element is delivered or recognized ratably over the service period when the only undelivered elements are either professional services or maintenance and support. We have VSOE for maintenance and support elements and professional services elements performed on a time and materials basis. VSOE of fair value is based upon the price charged when the same element is sold separately. In determining VSOE of fair value, we require that a substantial majority of the selling prices fall within a reasonably narrow pricing range. We reassess VSOE annually or more frequently if required.

Deferred Revenue

Deferred revenue primarily consists of amounts billed or billable in advance of revenue recognition from our subscriptions, software, and support and professional services described above. Deferred revenue is recognized as the revenue recognition criteria are met.

Cost of Revenue

Cost of Subscriptions, Software and Support Revenue

Cost of subscriptions, software and support revenue consists primarily of fees paid to our third-party managed hosting providers and other third-party service providers, personnel costs, including payroll and benefits for our technology operations and customer support teams, and allocated facility costs and overhead.

Cost of Professional Services Revenue

Cost of professional services revenue includes all direct and indirect costs to deliver our professional services and training, including employee compensation for our global professional services and training personnel, travel costs, third-party contractor costs and allocated facility costs and overhead.

Concentration of Credit Risk

Our financial instruments that are exposed to concentration of credit risk consist primarily of cash and cash equivalents and trade accounts receivable. Cash deposits may be in excess of insured limits. We believe that the financial institutions that hold our cash deposits are financially sound and, accordingly, minimal credit risk exists with respect to these balances.

With regard to our customers, credit evaluation and account monitoring procedures are used to minimize the risk of loss. We believe that no additional credit risk beyond amounts provided for collection loss are inherent in accounts receivable. Revenue generated from government agencies represented 14.1% and 16.1% of our revenue for the three and nine months ended September 30, 2018, respectively, of which the top three federal government agencies generated 7.2% and 8.7% of our revenue for the three and nine months ended September 30, 2018, respectively. Additionally, 29.1% and 30.0% of our revenue during the three and nine months ended September 30, 2018, respectively, was generated from foreign customers. Revenue generated from government agencies represented 14.2% and 15.4% of our revenue for the three and nine months ended September 30, 2017, respectively, of which the top three federal government agencies generated 7.7% and 9.1% of our revenue for the three and nine months ended September 30, 2017, respectively. Additionally, 28.6% and 25.6% of our revenue during the three and nine months ended September 30, 2017, respectively, was generated from foreign customers.

One customer accounted for 3.7% of accounts receivable at September 30, 2018 and a different customer accounted for 7.0% of accounts receivable at December 31, 2017.

Accounts Receivable and Allowance for Doubtful Accounts

Accounts receivable are stated at realizable value, net of an allowance for doubtful accounts. The allowance for doubtful accounts is based on our assessment of the collectability of accounts. We regularly review the composition of the accounts receivable aging, historical bad debts, changes in payment patterns, customer creditworthiness and current economic trends. If the financial condition of our customers were to deteriorate, resulting in their inability to make required payments, additional provisions for doubtful accounts would be required and would increase bad debt expense. To date, our allowance and related bad debt write-offs have been nominal. There was no change in the allowance for doubtful accounts from December 31, 2017 to September 30, 2018.

Deferred Commissions

Deferred commissions are the incremental costs that are directly associated with subscription agreements with customers and consist of sales commissions paid to our direct sales force. Commissions are considered direct and incremental and as such are deferred and amortized over the terms of the related customer contracts consistent with the related revenue. Amortization of deferred commissions is included in sales and marketing expense in the accompanying condensed consolidated statements of operations. Commission expense was \$4.0 million and \$10.2 million for the three and nine months ended September 30, 2018, respectively. Commission expense was \$3.2 million and \$8.5 million for the three and nine months ended September 30, 2017, respectively.

Fair Value of Financial Instruments

The carrying amounts of our cash and cash equivalents, accounts receivable, accounts payable and accrued expenses approximate fair value as of September 30, 2018 and December 31, 2017 because of the relatively short duration of these instruments.

We use a three-tier fair value hierarchy to classify and disclose all assets and liabilities measured at fair value on a recurring basis, as well as assets and liabilities measured at fair value on a non-recurring basis, in periods subsequent to their initial measurement. The hierarchy requires us to use observable inputs when available, and to minimize the use of unobservable inputs when determining fair value. The three tiers are defined as follows:

- Level 1. Observable inputs based on unadjusted quoted prices in active markets for identical assets or liabilities;
- Level 2. Inputs, other than quoted prices in active markets, that are observable either directly or indirectly; and
- Level 3. Unobservable inputs for which there is little or no market data, which require us to develop our own assumptions.

Assets and Liabilities Measured at Fair Value on a Recurring Basis Using Significant Unobservable Inputs

There were no changes in our Level 3 instruments measured at fair value on a recurring basis during the three and nine months ended September 30, 2018 or the three months ended September 30, 2017.

The following table presents the changes in our Level 3 instruments measured at fair value on a recurring basis during the nine months ended September 30, 2017 (in thousands):

	Niı	ne Months Ended
	Se	eptember 30, 2017
Balance as of January 1	\$	850
Change in fair value of warrant liability		341
Reclassification of warrant liability to equity		(1,191)
Balance as of September 30	\$	_

Stock-Based Compensation

We account for stock-based compensation expense related to stock-based awards based on the estimated fair value of the award on the grant date. We calculate the fair value of stock options using the Black-Scholes Options Pricing Model. For service-based awards, stock-based compensation expense is recognized on a straight-line basis over the requisite service period. For performance-based awards, stock-based compensation expense is recognized using the accelerated attribution method, based on the probability of satisfying the performance condition. For awards that contain market conditions, compensation expense is measured using a Monte Carlo simulation model and recognized using the accelerated attribution method over the derived service period based on the expected market performance as of the grant date. For restricted stock units, stock-based compensation expense is recognized on a straight-line basis over the requisite service period. We account for forfeitures as they occur, rather than estimating expected forfeitures.

Emerging Growth Company Status

We are an "emerging growth company" as defined in the Jumpstart Our Business Startups Act ("JOBS Act"). The JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with new or revised accounting standards. Thus, an emerging growth company can delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have elected to avail ourselves of this extended transition period and, as a result, we will not adopt new or revised accounting standards on the relevant dates on which adoption of such standards is required for other public companies.

Recent Accounting Pronouncements

Adopted

On December 22, 2017, the *Tax Cuts and Jobs Act* (the "TCJA") was enacted, substantially changing the U.S. Federal tax system. Notable provisions of the TCJA include the reduction of the corporate tax rate from 35% to 21% beginning in 2018, the imposition of a one-time transition tax on unremitted cumulative non-U.S. earnings of foreign subsidiaries, and the implementation of a territorial tax system. While the changes from the TCJA are generally effective beginning in 2018, U.S. GAAP accounting for income taxes requires the effect of a change in tax laws or rates to be recognized in income from continuing operations for the period that includes the enactment date. Due to the complexities involved in accounting for the enactment of the TCJA, the SEC Staff Accounting Bulletin No. 118 ("SAB 118") allowed us to record provisional amounts in earnings for the year ended December 31, 2017. Where reasonable estimates can be made, the provisional accounting should be based on such estimates. When no reasonable estimate can be made, the provisional accounting may be based on the tax law in effect before the TCJA. We are required to complete our tax accounting for the TCJA in the period when we have obtained, prepared, and analyzed the information to complete the income tax accounting. We have not completed our accounting for the tax effects of enactment of the TCJA; however, we have made reasonable estimates of the effects of the TCJA on our consolidated financial statements which are included as a component of income tax expense.

In March 2018, the FASB issued Accounting Standards Update No. 2018-05, *Income Taxes (Topic 740): Amendments to SEC Paragraphs Pursuant to SEC Staff Accounting Bulletin No. 118* ("ASU 2018-05"), which allowed SEC registrants to record provisional amounts in earnings for the year ended December 31, 2017 due to the complexities involved in accounting for the enactment of the TCJA. In accordance with SAB No. 118, we recognized the estimated income tax effects of the TCJA in the consolidated financial statements included in our Annual Report on Form 10-K for the year ended December 31, 2017, filed with the SEC on February 23, 2018. See Note 5 for further information regarding the provisional amounts recorded as of December 31, 2017.

In May 2017, the FASB issued ASU No. 2017-09, *Compensation-Stock Compensation (Topic 718): Scope of Modification Accounting* ("ASU 2017-09"), which clarifies when a change to the terms or conditions of a share-based payment award must be accounted for as a modification. ASU 2017-09 requires modification accounting if the fair value, vesting condition or the classification of the award is not the same immediately before and after a change to the terms and conditions of the award. ASU 2017-09 became effective on a prospective basis beginning on January 1, 2018. The adoption of ASU 2017-09 did not have an impact on our consolidated financial statements for the three and nine months ended September 30, 2018.

Not Yet Adopted

In May 2014, the FASB issued ASU No. 2014-09, *Revenue from Contracts with Customers (Topic 606)* ("ASU 2014-09"), which provides new guidance for revenue recognition. ASU 2014-09 provides that an entity should recognize revenue to depict the transfer of 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. ASU 2014-09 also requires improved disclosures to help users of financial statements better understand the nature, amount, timing, and uncertainty of revenue that is recognized. Entities have the option of using either a full retrospective or modified retrospective approach for the adoption of the standard. In March 2016, the FASB issued ASU No. 2016-08, *Principal Versus Agent Considerations (Reporting Revenue Gross Versus Net)* ("ASU 2016-08"), which clarifies implementation guidance on principal versus agent considerations in ASU 2014-09. In April 2016, the FASB issued ASU No. 2016-10, *Identifying Performance Obligations and Licensing* ("ASU 2016-10"), which clarifies the identification of performance obligations and the licensing implementation guidance in ASU 2014-09. In addition, in May 2016, the FASB issued ASU No. 2016-12, *Narrow-Scope Improvements and Practical Expedients* ("ASU 2016-12"), which clarifies the guidance on assessing collectibility, presentation of sales taxes, noncash consideration and completed contracts and contract modifications at transition. For public entities, the new standard is effective for annual periods and interim periods within those annual periods, beginning after December 15, 2017. For all other entities, the new standard is effective for annual periods beginning after December 15, 2019. We intend to avail ourselves of the JOBS Act extended transition period that permits us to defer adoption until January 1, 2019.

The Topic 606 guidance allows two methods of adoption: retrospectively to each prior reporting period (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 currently plan to adopt the new standard using the modified retrospective method.

We do not expect the new standard to have a material impact on the timing of revenue recognition related to our cloud-based subscriptions and standalone professional services. However, we expect the new standard to have a significant impact on the timing of revenue recognition related to our on-premise term license contracts. Under current industry-specific software revenue recognition guidance, we have historically concluded that we did not have VSOE of fair value of the undelivered services related to on-premise term license contracts, and accordingly, have recognized on-premise term license contracts and related services ratably over the contract term. Under this new standard, the requirement to have VSOE for undelivered services is eliminated. Therefore, we may be required to recognize a portion of revenue from the on-premise term license contracts upon delivery of the software.

In addition, we expect the new standard to impact our accounting for contract acquisition costs, both with respect to the amounts that will be capitalized as well as the period of amortization. Currently, we defer the direct and incremental commission costs to obtain a contract with a customer and amortize those costs over the term of the related customer contract consistent with the related revenue. Under the new standard, we will defer the incremental costs to obtain a contract with a customer since having a direct relationship with a contract is no longer required. Therefore, the new standard will result in additional costs being capitalized, including fringe benefits. Under the new standard, initial incremental costs to obtain a contract will be amortized over the customer's estimated economic life of five years, which was calculated based on both qualitative and quantitative factors, such as product life cycles, contractual terms and customer attrition. Incremental contract costs paid relating to contract renewals will be deferred and amortized on a straight-line basis over the related renewal period. As a result, we expect the deferred commissions asset to increase and the related amortization expense in each reporting period to decrease under the new standard.

We are still in the process of quantifying the effects of the adoption of Topic 606 as well as continuing to evaluate the impact of the adoption of the standard on our consolidated financial statements, including our footnotes.

In February 2016, the FASB issued ASU No. 2016-02, *Leases (Topic 842)* ("ASU 2016-02"), which requires that lessees recognize assets and liabilities for leases with lease terms greater than 12 months in the statement of financial position. ASU 2016-2 also requires improved disclosures to help users of financial statements better understand the amount, timing and uncertainty of cash flows arising from leases. The update is effective for fiscal years beginning after December 15, 2019, and interim periods within fiscal years beginning after December 15, 2020. Early adoption is permitted. We are currently evaluating the impact the adoption of ASU 2016-02 will have on our consolidated financial statements.

In August 2016, the FASB issued ASU No. 2016-15, *Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments* ("ASU 2016-15"), which aims to reduce the existing diversity in practice in how certain cash receipts and cash payments are presented and classified in the statement of cash flows. ASU 2016-15 will require adoption on a retrospective basis unless it is impracticable to apply, in which case we would be required to apply the amendments prospectively as of the earliest date practicable. ASU 2016-15 is effective for fiscal years beginning after December 15, 2018, and interim periods within fiscal years beginning after December 15, 2019. Early adoption is permitted. We are currently in the process of evaluating the impact of adoption of this standard on our consolidated financial statements.

In February 2018, the FASB issued ASU No. 2018-02, *Income Statement-Reporting Comprehensive Income (Topic 220): Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income* ("ASU 2018-02"), which provides entities the option to reclassify to retained earnings tax effects related to items in accumulated other comprehensive income ("OCI") that the FASB refers to as having been stranded in accumulated OCI as a result of tax reform. ASU 2018-02 is effective for fiscal years beginning after December 15, 2018. Early adoption is permitted. We do not expect ASU 2018-02 to have a material impact on our consolidated financial statements.

3. Accrued Expenses

Accrued expenses consist of the following as of September 30, 2018 and December 31, 2017 (in thousands):

	September 30, 2018	December 31, 2017
Accrued contract labor costs	\$ 2,307	\$ 3,424
Accrued audit and tax professional fees	629	248
Accrued hosting costs	522	466
Accrued third party license fees	753	235
Accrued reimbursable employee expenses	405	286
Accrued marketing and tradeshow expenses	319	128
Other accrued expenses	1,663	1,680
Total	\$ 6,598	\$ 6,467

4. Debt

2017 Financing Facility

In April 2017, we entered into a new financing facility consisting of a \$5.0 million senior revolving credit facility, a \$20.0 million senior term loan, and a \$10.0 million subordinated term loan. In connection with the execution of this financing facility, the prior line of credit was terminated, and we borrowed the full \$20.0 million available under the senior term loan and repaid the outstanding balance under our prior term loan. Additionally, in connection with the execution of our new financing facility, the lender waived the prepayment fee associated with our prior line of credit. In June 2017, we used proceeds from our initial public offering ("IPO") to pay all remaining outstanding principal and interest under the senior term loan and subsequently terminated the senior term loan and subordinated term loan. In connection with the repayment of the senior term loan, we recognized a loss on extinguishment of debt of \$0.4 million related to unamortized debt issuance costs, which is included within other (income) expense, net in the accompanying condensed consolidated statements of operations. This financing facility was terminated in November 2017 in connection with our entry into a new \$20.0 million revolving line of credit.

2017 Line of Credit

In November 2017, we entered into a \$20.0 million revolving line of credit with a lender. The facility matures in November 2022. We may elect whether amounts drawn on the revolving line of credit bear interest at a floating rate per annum equal to either the LIBOR or the prime rate plus an additional interest rate margin that is determined by the availability of the borrowings under the revolving line of credit. The additional interest rate margin will range from 2.00% to 2.50% in the case of LIBOR advances and from 1.00% to 1.50% in the case of prime rate advances. The revolving line of credit contains an unused facility fee in an amount between 0.15% and 0.25% of the average unused portion of the revolving line of credit, which is payable quarterly. The agreement contains certain customary affirmative and negative covenants and requires us to maintain (1)

an adjusted quick ratio of at least 1.35 to 1.0 and (ii) minimum adjusted EBITDA, in the amounts and for the periods set forth in the agreement. Any amounts borrowed under the credit facility are collateralized by substantially all of our assets. We were in compliance with all covenants as of September 30, 2018. As of September 30, 2018, we had no outstanding borrowings under the revolving line of credit.

5. Income Taxes

The provision for income taxes is based upon the estimated annual effective tax rates for the year applied to the current period income before tax plus the tax effect of any significant unusual items, discrete events or changes in tax law. Our operating subsidiaries are exposed to statutory effective tax rates ranging from zero to approximately 33%. Fluctuations in the distribution of pre-tax income among our operating subsidiaries can lead to fluctuations of the effective tax rate in the condensed consolidated financial statements. For the three and nine months ended September 30, 2018, the actual effective tax rates were 0.2% and (0.6)%, respectively. For the three and nine months ended September 30, 2017, the actual effective tax rates were (3.1)% and (2.1)%, respectively.

We assess uncertain tax positions in accordance with Accounting Standards Codification 740-10, *Accounting for Uncertainties in Income Taxes*. As of September 30, 2018, our net unrecognized tax benefits totaled \$0.7 million, of which the entire portion would favorably impact our effective tax rate in the period if recognized. We anticipate that the amount of reasonably possible unrecognized tax benefits that could decrease over the next 12 months due to the expiration of certain statutes of limitations and settlement of tax audits is not material to our consolidated financial statements.

We file income tax returns in the United States federal jurisdiction and in many states and foreign jurisdictions. The tax years 2014 through 2017 remain open to examination by the major taxing jurisdictions to which we are subject. We are not currently under examination by the Internal Revenue Service for any open tax years.

On December 22, 2017, U.S. federal tax reform was enacted with the signing of the TCJA. Notable provisions of the TCJA include the following:

- Establishment of a flat corporate income tax rate of 21% on U.S. earnings;
- Imposition of a one-time tax on unremitted cumulative non-U.S. earnings of foreign subsidiaries, or the Transition Tax;
- The imposition of a new minimum tax on certain non-U.S. earnings, irrespective of the territorial system of taxation, and generally allows for the repatriation of future earnings of foreign subsidiaries without incurring additional U.S. taxes by transitioning to a territorial system of taxation;
- Imposition of minimum taxes on certain payments made by a U.S. company to a related foreign company, or the Base Erosion Anti-Abuse Tax;
- Elimination of the alternative minimum tax and allowance of a refund for previous alternative minimum tax credits;
- Allowance for immediate expensing of the cost of investments in certain depreciable assets acquired and placed in service after September 27, 2017;
 and
- Reduction in tax deductions with respect to certain compensation paid to certain executive officers.

While the changes from the TCJA are generally effective beginning in 2018, U.S. GAAP accounting for income taxes requires the effect of a change in tax laws or rates to be recognized in income from continuing operations for the period that includes the enactment date. Due to the complexities involved in accounting for the enactment of the TCJA, SAB 118 allowed us to record provisional amounts in earnings for the year ended December 31, 2017. Where reasonable estimates can be made, the provisional accounting should be based on such estimates. When no reasonable estimate can be made, the provisional accounting may be based on the tax law in effect before the TCJA. We are required to complete our tax accounting for the TCJA in the period when we have obtained, prepared, and analyzed the information to complete the income tax accounting.

During the three and nine months ended September 30, 2018, there were no changes made to the provisional amounts recognized in 2017. We will continue to analyze the effects of the TCJA on our financial statements. Additional impacts from the enactment of the TCJA will be recorded as they are identified during the measurement period as provided for in SAB 118, which extends up to one year from the enactment date. The final impact of the TCJA may differ from the provisional amounts that have been recognized, possibly materially, due to, among other things, changes in our interpretation of the TCJA, legislative or administrative actions to clarify the intent of the statutory language provided that differ from our current interpretation, any changes in accounting standards for income taxes or related interpretations in response to the TCJA, or any

updates or changes to estimates utilized to calculate the impacts, including changes to current year earnings estimates and applicable foreign exchange rates.

6. Stock-Based Compensation

In May 2017, our board of directors adopted, and our stockholders approved, the 2017 Equity Incentive Plan (the "2017 Plan"), which became effective as of the date of the final prospectus for our IPO. The 2017 Plan provides for the grant of incentive stock options to employees, and for the grant of nonstatutory stock options, restricted stock awards, restricted stock unit awards, stock appreciation rights, performance-based stock awards and other forms of equity compensation to employees, including officers, and to non-employee directors and consultants. We initially reserved 6,421,442 shares of Class A common stock for issuance under the 2017 Plan, which included 421,442 shares that remained available for issuance under our 2007 Stock Option Plan (the "2007 Plan") at the time that the 2017 Plan became effective. The number of shares reserved under the 2017 Plan increases for any shares subject to outstanding awards originally granted under the 2007 Plan that expire or are forfeited prior to exercise. As a result of the adoption of the 2017 Plan, no further grants may be made under the 2007 Plan. As of September 30, 2018, there were 6,607,686 shares of Class A common stock reserved for issuance under the 2017 Plan, of which 5,540,439 were available to be issued.

The 2007 Plan provided for the grant of stock options to employees, directors, and officers. Stock options under the 2007 Plan are exercisable into shares of Class B common stock and generally expire ten years from the date of grant. Under the 2007 Plan, the exercise price of each award was established by the board of directors, but could not be less than the fair market value of a share of our common stock on the grant date. Stock options generally vest upon the satisfaction of both a service condition and a performance condition. The service condition is satisfied at various rates as determined by us, typically on an annual basis over 5 years. The performance condition required the occurrence of a qualifying event, defined as a change of control transaction or upon the completion of an IPO. The performance condition was satisfied upon the effectiveness of our IPO in May 2017, on which date we recognized \$6.2 million of cumulative stock-based compensation expense using the accelerated attribution method from the service start date.

We estimate the fair value of stock options using the Black-Scholes Options Pricing Model, which requires the use of subjective assumptions, including the expected term of the option, the current price of the underlying stock, the expected stock price volatility, expected dividend yield and the risk-free interest rate for the expected term of the option. The expected term represents the period of time the stock options are expected to be outstanding. Due to the lack of sufficient historical exercise data to provide a reasonable basis upon which to otherwise estimate the expected term of the stock options, we use the simplified method to estimate the expected term for our stock options. Under the simplified method, the expected term of an option is presumed to be the mid-point between the vesting date and the end of the contractual term. Expected volatility is based on historical volatilities for publicly traded stock of comparable companies over the estimated expected term of the stock options. We assume no dividend yield because dividends are not expected to be paid in the near future, which is consistent with our history of not paying dividends.

The following table summarizes the assumptions used to estimate the fair value of stock options granted during the three and nine months ended September 30, 2018 and 2017:

	Three Months E	Ended September 30,	Nine Months Ended September 30			
	2018	2017	2018	2017		
Risk-free interest rate	*	1.9% - 2.1%	*	1.9% - 2.2%		
Expected term (in years)	*	6.5	*	6.5		
Expected volatility	*	38.6%	*	38.6% - 40.6%		
Expected dividend yield	*	—%	*	—%		

^{*} Not applicable because no stock options were granted during the period.

Stock Options

The following table summarizes the stock option activity for the nine months ended September 30, 2018:

	Number of Shares	Weighted Average Exercise Price	Remaining Contractual Term (Years)	Aggregate Intrinsi Value (in thousands)	ic
January 1, 2018	7,010,887	\$ 6.36	6.6	\$ 176,12	.2
Granted	_	_			
Exercised	(1,297,979)	2.01		36,91	.1
Canceled	(70,424)	9.34			
Outstanding at September 30, 2018	5,642,484	7.32	6.6	145,45	6
Exercisable at September 30, 2018	3,905,924	6.37	6.1	104,39	15

The weighted average grant-date fair value of stock options granted during the nine months ended September 30, 2017 was \$5.04 per share. No stock options were granted during the nine months ended September 30, 2018. The total fair value of stock options that vested during the nine months ended September 30, 2018 and 2017 was \$10.2 million and \$5.3 million, respectively. As of September 30, 2018, the total compensation cost related to unvested stock options not yet recognized was \$3.2 million, which will be recognized over a weighted average period of 2.2 years.

On April 25, 2017, our board of directors modified certain outstanding stock options nearing their expiration date to remove the performance condition. Stock options to purchase an aggregate of 216,160 shares of common stock were modified, and we recognized stock-based compensation expense of \$2.4 million related to this modification.

In July 2016, our board of directors granted a stock option to purchase 1,828,080 shares of our Class A common stock to our Chief Executive Officer (the "2016 CEO Grant") under the 2007 Plan with an exercise price of \$9.46 per share. The 2016 CEO Grant was eligible to vest based on the achievement of a stock price appreciation target of our Class A common stock. The fair value of the 2016 CEO Grant was determined using a Monte Carlo simulation approach.

During the three months ended September 30, 2018, the market-based milestone of the 2016 CEO Grant was achieved, resulting in 1,828,080 shares vesting and becoming exercisable. Stock-based compensation expense recognized for the 2016 CEO Grant was the \$4.7 million and \$5.6 million for the three and nine months ended September 30, 2018, respectively. Stock-based compensation expense recognized for the 2016 CEO Grant was \$0.5 million and \$2.2 million for the three and nine months ended September 30, 2017, respectively.

Restricted Stock Units

The following table summarizes the restricted stock unit activity for the nine months ended September 30, 2018:

	Number of Shares	Weighted Average Grant Date Fair Value
Non-vested outstanding at January 1, 2018	731,975	\$ 22.16
Granted	307,896	30.33
Vested	(6,300)	20.38
Canceled	(11,601)	25.77
Non-vested outstanding at September 30, 2018	1,021,970	24.59

As of September 30, 2018, total unrecognized compensation cost related to unvested restricted stock units was approximately \$21.2 million, which will be recognized over a weighted average period of 2.5 years.

The following table summarizes the components of our stock-based compensation expense for the three and nine months ended September 30, 2018 and 2017 (in thousands):

	Three Months Ended September 30,				Nine Months Ended September 30,			
		2018		2017		2018		2017
Stock-based compensation expense related to stock options	\$	5,232	\$	1,440	\$	7,559	\$	8,261
Stock-based compensation expense related to restricted stock units		1,477		134		3,388		134
Stock-based compensation expense related to the issuance of common stock to								
directors		92		_		300		130
Stock-based compensation expense related to stock options modifications		_		_		_		2,394
Total stock-based compensation expense	\$	6,801	\$	1,574	\$	11,247	\$	10,919

Stock-based compensation expense for restricted stock units, stock options and issuances of common stock is included in the following line items in the accompanying condensed consolidated statements of operations for the three and nine months ended September 30, 2018 and 2017 (in thousands):

	Three Months Ended September 30,			Nine Months Ende			ed September 30,	
	2018			2017		2018		2017
Cost of revenue								
Subscriptions, software and support	\$	138	\$	80	\$	355	\$	484
Professional services		222		142		645		1,126
Operating expenses								
Sales and marketing		736		359		1,781		2,782
Research and development		373		256		1,106		2,458
General and administrative	5,	332		737		7,360		4,069
Total stock-based compensation expense	\$ 6,	801	\$	1,574	\$	11,247	\$	10,919

7. Stockholders' Equity

As of September 30, 2018, we had authorized 500,000,000 shares of Class A common stock and 100,000,000 shares of Class B common stock, each with a par value \$0.0001 per share, of which 28,036,799 shares of Class A common stock and 35,551,517 shares of Class B common stock were issued and outstanding. The rights of the holders of Class A common stock and Class B common stock are identical, except with respect to voting and conversion rights. The holders of Class A common stock are entitled to one vote per share, and the holders of Class B common stock are entitled to ten votes per share, on all matters that are subject to stockholder vote. The holders of Class B common stock also have approval rights for certain corporate actions. Each share of Class B common stock may be converted into one share of Class A common stock at the option of its holder and will be automatically converted into one share of Class A common stock upon transfer thereof, subject to certain exceptions. In addition, upon the date on which the outstanding shares of Class B common stock represent less than 10% of the aggregate voting power of our capital stock, all outstanding shares of Class B common stock shall convert automatically into Class A common stock.

8. Basic and Diluted Loss per Common Share

The following securities have been excluded from the calculation of weighted average common shares outstanding because the effect is anti-dilutive or performance or market conditions had not been met at the end of the period:

	Three Months Ended	l September 30,	Nine Months Ended September 30,			
	2018	2017	2018	2017		
Stock options	5,642,484	7,383,928	5,642,484	7,383,928		
Restricted stock units	1,021,970	42,925	1,021,970	42,925		

9. Commitments and Contingencies

Operating Leases

We lease office space and equipment in our headquarters location in Reston, Virginia, as well as in the United Kingdom, France, Germany, Canada, Italy, Australia and the Netherlands, under non-cancellable operating lease agreements which have various expiration dates through 2026 for our office space and various expiration dates through 2019 for our equipment.

In April 2018, we entered into a new lease agreement for a new headquarters in Tysons, Virginia. The lease term commenced on October 1, 2018, for a period of 150 months. Total payments committed under the lease amount to \$87.2 million. In connection with the lease agreement, we also entered into a letter of credit of \$9.4 million to fund the security deposit required by the lease.

In connection with entering into the lease agreement, we amended our sublease with College Entrance Examination Board, which will terminate the sublease agreement. Pursuant to the termination amendment, the sublease will terminate in two stages, with the termination of a majority of the premises taking place on May 31, 2019, rather than July 31, 2021 as originally contemplated by the sublease.

We record rent expense using the total minimum rent commitment, amortized using the straight-line method over the term of the lease. The difference between monthly rental payments and recorded rent expense is charged to deferred rent. As of September 30, 2018 and December 31, 2017, deferred rent totaled \$0.7 million and \$2.0 million, respectively, and is included within other current liabilities and other long-term liabilities on the accompanying consolidated balance sheets.

Total rent and lease expense was \$1.9 million and \$5.8 million for the three and nine months ended September 30, 2018, respectively. Total rent and lease expense was \$1.7 million and \$5.2 million for the three and nine months ended September 30, 2017, respectively.

Other Commitments

We also have entered into a non-cancellable agreement for the use of technology that is integral in the development of our software and pay annual royalty fees of \$0.3 million.

Letters of Credit

As of September 30, 2018 and December 31, 2017, we had outstanding letters of credit totaling \$10.4 million and \$1.1 million, respectively, in connection with securing our leased office space. All letters of credit are secured by our borrowing arrangement as described in Note 4.

Legal

From time to time, we are subject to legal, regulatory and other proceedings and claims that arise in the ordinary course of business. There are no issues or resolution of any matters that are expected to have a material adverse impact on our consolidated financial statements.

10. Segment and Geographic Information

The following table summarizes revenue by geography for the three and nine months ended September 30, 2018 and 2017 (in thousands):

	Three Months Ended September 30,			Nine Months Ended September 30,				
	2018		2017		2018		2017	
Domestic	\$ 38,982	\$	31,878	\$	116,498	\$	93,860	
International	15,966		12,770		50,029		32,315	
Total	\$ 54,948	\$	44,648	\$	166,527	\$	126,175	

With respect to geographic information, revenue is attributed to respective geographies based on the contracting address of the customer. There were no individual foreign countries from which more than 10% of our total revenue was attributable for the three and nine months ended September 30, 2018 and 2017. Substantially all of our long-lived assets were held in the United States as of September 30, 2018 and December 31, 2017.

Item 2. 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 (1) our condensed consolidated financial statements and related notes appearing elsewhere in this Quarterly Report on Form 10-Q and (2) the audited consolidated financial statements and the related notes and management's discussion and analysis of financial condition and results of operations for the fiscal year ended December 31, 2017 included in our Annual Report on Form 10-K, filed with the Securities and Exchange Commission, or SEC, on February 23, 2018.

This Quarterly Report on Form 10-Q contains "forward-looking statements" within the meaning of Section 27A of the Securities Act of 1933, as amended, or the Securities Act, and Section 21E of the Securities Exchange Act of 1934, as amended, or the Exchange Act. These statements are often identified by the use of words such as "anticipate," "believe," "continue," "could," "estimate," "expect," "intend," "may," "plan," "project," "will," "would" or the negative or plural of these words or similar expressions or variations. Such forward-looking statements are subject to a number of risks, uncertainties, assumptions and other factors that could cause actual results and the timing of certain events to differ materially from future results expressed or implied by the forward-looking statements. Factors that could cause or contribute to such differences include, but are not limited to, those identified herein, and those discussed in the section titled "Risk Factors,",- set forth in Part I, Item 1A of our Annual Report on Form 10-K filed with the SEC on February 23, 2018 and in our other filings with the SEC. You should not rely upon forward-looking statements as predictions of future events. Furthermore, such forward-looking statements speak only as of the date of this report. Except as required by law, we undertake no obligation to update any forward-looking statements to reflect events or circumstances after the date of such statements.

Overview

We provide a software development platform that combines intelligent automation and enterprise low-code development to rapidly deliver powerful business applications. The applications created on our platform help companies drive digital transformation and competitive differentiation.

With our platform, organizations can rapidly and easily design, build and implement powerful, enterprise-grade custom applications through our intuitive, visual interface with little or no coding required. Our customers have used applications built on our low-code platform to launch new business lines, automate vital employee workflows, manage complex trading platforms, accelerate drug development and build global procurement systems. With our platform, decision makers can reimagine their products, services, processes and customer interactions by removing much of the complexity and many of the challenges associated with traditional approaches to software development.

In 2017 and 2018, we have generated the majority of our revenue from sales of subscriptions, software and support, which include (1) SaaS subscriptions bundled with maintenance and support and hosting services, and (2) term license subscriptions bundled with maintenance and support. To a lesser extent, we also generate revenue from the sale of perpetual software license agreements and associated maintenance and support agreements.

Our subscription fees are based primarily on the number of users who access and utilize the applications built on our platform and, to a lesser degree, non-user based single application licenses. Our customer contract terms vary from one to five years with most providing for payment in advance on an annual, quarterly or monthly basis. Due to the variability of our billing terms and the episodic nature of our customers purchasing additional subscriptions, we do not believe that changes in our deferred revenue in a given period are directly correlated with our revenue growth.

Since inception, we have invested in our professional services organization to help ensure that customers are able to build and deploy applications on our platform. We have several strategic partnerships, including with KPMG, PricewaterhouseCoopers and Deloitte, for them to refer customers to us and then to provide professional services directly to the customers using our platform. We intend to further grow our base of strategic partners to provide broader customer coverage and solution delivery capabilities. In addition, over time we expect professional services revenue as a percentage of total revenue to decline as we increasingly rely on strategic partners to help our customers deploy our software. We believe our investment in professional services, including strategic partners building their practices around Appian, will drive increased adoption of our platform.

Our customers include financial services, life sciences, government, telecommunications, media, energy, manufacturing and transportation organizations. Generally, our sales force targets its efforts to organizations with over 2,000 employees and \$2 billion in annual revenue. Revenue from government agencies represented 14.1% and 16.1% of our total revenue in the three and nine months ended September 30, 2018, respectively. No single end-customer accounted for more than 10% of our total revenue in the three and nine months ended September 30, 2018. Revenue from government agencies represented 14.2% and 15.4% of our total revenue in the three and nine months ended September 30, 2017, respectively. No single end-customer accounted for more than 10% of our total revenue in the three and nine months ended September 30, 2017.

Our platform is designed to be natively multi-lingual to facilitate collaboration and address challenges in multi-national organizations. We offer our platform globally. In the three and nine months ended September 30, 2018, 29.1% and 30.0%, respectively, of our total revenue was generated from customers outside of the United States. In the three and nine months ended September 30, 2017, 28.6% and 25.6%, respectively, of our total revenue was generated from customers outside of the United States. As of September 30, 2018, we operated in 12 countries. We believe that we have a significant opportunity to grow our international footprint. We are investing in new geographies, including through investment in direct and indirect sales channels, professional services and customer support and implementation partners.

Recent Developments

In August 2018, we completed an underwritten public offering of 2,000,000 shares of our Class A common stock, of which 1,675,000 shares of Class A common stock were sold by us and 325,000 shares of Class A common stock were sold by existing stockholders, at an offering price to the public of \$35.15 per share. Our net proceeds from the offering was \$57.8 million, after deducting underwriting discounts and commissions and offering expenses. We did not receive any of the proceeds from the sale of shares by the selling stockholders.

Our Business Model

Our business model focuses on maximizing the lifetime value of customer relationships, which is a function of the duration of a customer's deployment of Appian as well as the price and number of subscriptions of Appian that a customer purchases. The costs we incur with respect to any customer may exceed revenue from that customer in earlier periods because we generally recognize costs associated with customer acquisition faster than we generate and recognize the associated revenue. We incur significant customer acquisition costs, including expenses associated with hiring new sales representatives, who generally take more than one year to become productive given the length of our sales cycle, and marketing costs, all of which are expensed as incurred.

The following are several key factors that affect our performance:

• Market Adoption of Our Platform. Our ability to grow our customer base and drive market adoption of our platform is affected by the pace at which organizations digitally transform. We expect that our revenue growth will be primarily driven by the pace of adoption and penetration of our platform. We offer a leading custom software development platform and intend to continue to invest to expand our customer base. The degree to which prospective customers recognize the need for low-code software that enables organizations to digitally transform, and subsequently allocate budget dollars to purchase our software, will drive our ability to acquire new customers and increase sales to existing customers, which, in turn, will affect our future financial performance.

- *Growth of Our Customer Base.* We believe we have a substantial opportunity to grow our customer base. We define a customer as an entity with an active subscription or maintenance and support contract related to a perpetual software license as of the specified measurement date. To the extent we contract with one or more entities under common control, we count those entities as separate customers. We have aggressively invested, and intend to continue to invest, in our sales force in order to drive sales to new customers. In particular, we have recently made, and plan to continue to make, investments to enhance the expertise of our sales and marketing organization within our key industry verticals of financial services, life sciences and government. In addition, we have established relationships with strategic partners who work with organizations undergoing digital transformations. Our ability to continue to grow our customer base is dependent, in part, upon our ability to compete within the increasingly competitive markets in which we participate.
- Further Penetration of Existing Customers. Our sales force seeks to generate additional revenue from existing customers by adding new users to our platform. Many of our customers begin by building a single application and then grow to build dozens of applications on our platform. Generally, the development of new applications on our platform results in the expansion of our user base within an organization and a corresponding increase in revenue to us because we charge subscription fees on a per-user basis for the significant majority of our customer contracts. As a result of this "land and expand" strategy, we have generated significant additional revenue from our customer base. Our ability to increase sales to existing customers will depend on a number of factors, including the size of our sales force and professional services teams, customers' level of satisfaction with our platform and professional services, pricing, economic conditions and our customers' overall spending levels. We have also re-focused some of our professional services personnel to become customer success managers. Their role is to ensure the customer realizes value from our platform and support the "land and expand" strategy versus delivering billable hours.
- Mix of Subscription and Professional Services Revenue. We believe our professional services have driven customer success and facilitated the adoption of our platform by customers. During the initial period of deployment by a customer, we generally provide a greater amount of support in building applications and training than later in the deployment, with a typical engagement extending from two to six months. At the same time, many of our customers have historically purchased subscriptions only for a limited set of their total potential end users. As a result of these factors, the proportion of total revenue for a customer associated with professional services is relatively high during the initial deployment period. Over time, as the need for professional services associated with user deployments decreases and the number of end users increases, we expect the mix of total revenue to shift more toward subscription revenue. In addition, we intend to further grow our base of strategic partners to provide broader customer coverage and solution delivery capabilities. These partners perform professional services with respect to any new service contracts they sign. As we expand the network of strategic partners, we expect the proportion of our total revenue from subscriptions to increase over time relative to professional services. For the three months ended September 30, 2018 and 2017, 56.2% and 50.8% of our revenue, respectively, was derived from sales of subscriptions, software and support, while the remaining 43.8% and 49.2%, respectively, was derived from the sale of professional services.
- *Investments in Growth*. We have made and plan to continue to make investments for long-term growth, including investment in our platform and infrastructure to continuously maximize the power and simplicity of the platform to meet the evolving needs of our customers and to take advantage of our market opportunity. We intend to continue to increase our investment in sales and marketing, as we further expand our sales teams, increase our marketing activities and grow our international operations.

Key Metrics

We monitor the following metrics to help us measure and evaluate the effectiveness of our operations (dollars in thousands):

	Three Months Ended September 30,				Nine Months September				
		2018		2017		2018		2017	
Subscription Revenue	\$	29,384	\$	20,665	\$	81,908	\$	59,284	
	September 30,								
		2018		2017					
Subscription Revenue Retention Rate		117 %		122 %					

Subscription Revenue

Subscription revenue is a portion of our revenue contained in the subscriptions, software and support revenue line of our consolidated statements of operations, and includes (1) software as a service, or SaaS, subscriptions bundled with maintenance and support and hosting services, and (2) term license subscriptions bundled with maintenance and support. As we generally sell our software on a per-user basis, our subscription revenue for any customer is primarily determined by the number of users who access and utilize the applications built on our platform, as well as the price paid. We believe that increasing our subscription revenue is an indicator of the demand for our platform, the pace at which the market for our solutions is growing, the productivity of our sales force and strategic relationships in growing our customer base, and our ability to further penetrate our existing customer base.

Subscription Revenue Retention Rate

A key factor to our success is the renewal and expansion of subscription agreements with our existing customers. We calculate this metric over a set of customers who have been with us for at least one full year. To calculate our subscription revenue retention rate for a particular trailing 12-month period, we first establish the recurring subscription revenue for the previous trailing 12-month period. This effectively represents recurring dollars that we should expect in the current trailing 12-month period from the cohort of customers from the previous trailing 12-month period without any expansion or contraction. We subsequently measure the recurring subscription revenue in the current trailing 12-month period. Subscription revenue retention rate is then calculated by dividing the aggregate recurring subscription revenue in the current trailing 12-month period by the previous trailing 12-month period. This calculation includes the impact on our revenue from customer non-renewals, pricing changes and growth in the number of users on our platform. Our subscription revenue retention rate can fluctuate from period to period due to large customer contracts in any given period.

Key Components of Results of Operations

Revenue

We generate revenue primarily through sales of subscriptions to our platform, as well as professional services. We generally sell our software on a per-user basis. We generally bill customers and collect payment for subscriptions to our platform in advance on an annual, quarterly or monthly basis. In certain instances, we have had customers pay their entire contract value up front.

Our revenue is comprised of the following:

Subscriptions, Software and Support

Subscriptions, software and support revenue is primarily derived from:

- SaaS subscriptions bundled with maintenance and support and hosting services;
- on-premises term license subscriptions bundled with maintenance and support; and
- to a lesser extent, perpetual software license agreements and associated maintenance and support.

Our maintenance and support agreements provide customers with the right to unspecified software upgrades, maintenance releases and patches released during the term of the maintenance and support agreement on a when-and-if-available basis, and rights to technical support. When our platform is deployed within a customer's own data center or private cloud, it is installed on the customer's infrastructure and offered as a term or perpetual license. When our platform is delivered as a SaaS subscription, we handle its operational needs in third-party hosted data centers.

Professional Services

Our professional services revenue is comprised of fees for consulting services, including application development and deployment assistance and training related to our platform. Over time, as the need for professional services associated with user deployments decreases and the number of end users increases, we expect the mix of total revenue to shift more toward subscription revenue. We have several strategic partnerships, including with Deloitte, KPMG and PricewaterhouseCoopers. Our agreements with our strategic partners have indefinite terms and may be terminated for convenience by either party. We intend to further grow our base of strategic partners to provide broader customer coverage and solution delivery capabilities. These partners refer software subscription customers to us and perform professional services with respect to any new service contracts they originate, increasing our software subscription revenue without any change to our professional services revenue. As we expand the network of strategic partners, we expect professional services revenue to decline as a percentage of total revenue over time since our strategic partners may perform professional services associated with software subscriptions that we sell.

Cost of Revenue

Subscriptions, Software and Support

Cost of subscriptions, software and support revenue consists primarily of fees paid to our third-party managed hosting providers and other third-party service providers, personnel costs, including payroll and benefits for our technology operations and customer support teams, and allocated facility costs and overhead. We expect cost of revenue to continue to increase in absolute dollars for the foreseeable future as our customer base grows.

Professional Services

Cost of professional services revenue includes all direct and indirect costs to deliver our professional services and training, including employee compensation for our global professional services and training personnel, travel costs, third-party contractor costs and allocated facility costs and overhead. The unpredictability of the timing of entering into significant professional services agreements sold on a standalone basis may cause significant fluctuations in our quarterly financial results.

Gross Margin

Gross profit and gross margin, or gross profit as a percentage of total revenue, has been, and will continue to be, affected by various factors, including the mix of subscription, software and support revenue and professional services revenue. Subscription pricing, the costs associated with third-party hosting facilities, and the extent to which we expand our professional services to support future growth will impact our gross margins. Our gross margin may fluctuate from period to period based on the above factors.

Subscriptions, Software and Support Gross Margin. Subscriptions, software and support gross margin is primarily affected by the growth in our subscriptions, software and support revenue as compared to the growth in, and timing of, costs to support such revenue. We expect to continue to invest in the customer support and SaaS operations to support the growth in the business and the timing of those investments is expected to cause gross margins to fluctuate in the short term but improve over time.

Professional Services Gross Margin. Professional services gross margin is affected by the growth in our professional services revenue as compared to the growth in, and timing of, the cost of our professional services organization as we continue to invest in the growth of our business. Professional services gross margin is also impacted by the ratable recognition of some of our professional services revenue as compared to the recognition of related costs of services in the period incurred, as well as the amount of services performed by subcontractors as opposed to internal resources.

Operating Expenses

Operating expenses consist of sales and marketing, research and development and general and administrative expenses. Salaries, bonuses and other personnel-related costs are the most significant components of each of these expense categories.

Sales and Marketing Expense

Sales and marketing expense primarily includes personnel costs, including salaries, bonuses, commissions, stock-based compensation and other personnel costs related to sales teams. Additional expenses in this category include travel and entertainment, marketing and promotional events, marketing activities, subcontracting fees and allocated facility costs and overhead.

In order to continue to grow our business, geographical footprint and brand awareness, we expect to continue investing resources in sales and marketing by increasing the number of sales and account management teams. As a result, we expect sales and marketing expense to increase in absolute dollars as we continue to invest to acquire new customers and further expand usage of our platform within our existing customer base.

Research and Development Expense

Research and development expense consists primarily of personnel costs for our employees who develop and enhance our platform, including salaries, bonuses, stock-based compensation and other personnel costs. Also included are non personnel costs such as subcontracting, consulting and professional fees to third party development resources, allocated facility costs, overhead and depreciation and amortization costs.

Our research and development efforts are focused on enhancing the speed and power of our software platform. We expect research and development expenses to continue to increase as they are critical to maintain and improve our quality of applications and our competitive position.

General and Administrative Expense

General and administrative expense consists primarily of personnel costs, including salaries, bonuses, stock-based compensation and other personnel costs for our administrative, legal, information technology, human resources, finance and accounting employees and executives. Additional expenses included in this category are non-personnel costs, such as travel-related expenses, contracting and professional fees, audit fees, tax services and legal fees, as well as insurance and other corporate expenses, along with allocated facility costs and overhead. We expect our general and administrative expense to increase in absolute dollars as we continue to support our growth and as a result of our becoming a public company.

Other Expense (Income)

Other Expense (Income), Net

Other expense (income), net consists primarily of unrealized and realized gains and losses related to changes in foreign currency exchange rates, interest income on our cash and cash equivalents, loss on our extinguishment of debt and fair value adjustments for our preferred stock warrant liability.

Interest Expense (Income)

Interest expense (income) consists primarily of interest on our debt and unused fees on our credit facility.

Results of Operations

The following table sets forth our consolidated statements of operations data:

	Thre	ee Months End	ded September 30,	Nine Months End	led September 30,
		2018	2017	2018	2017
			(in thou	ısands)	_
Consolidated Statements of Operations Data:					
Revenue:					
Subscriptions, software and support	\$	30,905	\$ 22,660	\$ 90,904	\$ 66,116
Professional services		24,043	21,988	75,623	60,059
Total revenue		54,948	44,648	166,527	126,175
Cost of revenue:					
Subscriptions, software and support		3,261	2,341	8,713	6,891
Professional services		16,831	14,272	54,002	39,049
Total cost of revenue		20,092	16,613	62,715	45,940
Gross profit		34,856	28,035	103,812	80,235
Operating expenses:					
Sales and marketing		25,467	19,725	75,815	59,503
Research and development		11,737	8,596	32,392	25,867
General and administrative		12,537	6,237	29,022	19,721
Total operating expenses		49,741	34,558	137,229	105,091
Operating loss		(14,885)	(6,523)	(33,417)	(24,856)
Other expense (income):					
Other expense (income), net		110	(425)	1,785	(1,658)
Interest expense (income)		67	(2)	134	451
Total other expense (income)		177	(427)	1,919	(1,207)
Net loss before income taxes		(15,062)	(6,096)	(35,336)	(23,649)
Income tax (benefit) expense		(34)	188	212	489
Net loss	\$	(15,028)	\$ (6,284)	\$ (35,548)	\$ (24,138)

The following table sets forth our consolidated statements of operations data expressed as a percentage of total revenue:

	Three Months Ended	Three Months Ended September 30,		September 30,	
	2018	2017	2018	2017	
Consolidated Statements of Operations Data:		_			
Revenue:					
Subscriptions, software and support	56.2 %	50.8 %	54.6 %	52.4 %	
Professional services	43.8	49.2	45.4	47.6	
Total revenue	100.0	100.0	100.0	100.0	
Cost of revenue:					
Subscriptions, software and support	5.9	5.2	5.2	5.5	
Professional services	30.6	32.0	32.4	30.9	
Total cost of revenue	36.5	37.2	37.6	36.4	
Gross margin	63.5	62.8	62.4	63.6	
Operating expenses:					
Sales and marketing	46.3	44.2	45.5	47.2	
Research and development	21.4	19.3	19.5	20.5	
General and administrative	22.8	14.0	17.4	15.6	
Total operating expenses	90.5	77.5	82.4	83.3	
Operating loss	(27.0)	(14.7)	(20.0)	(19.7)	
Other expense (income):					
Other expense (income), net	0.2	(1.0)	1.1	(1.3)	
Interest expense (income)	0.1	_	0.1	0.4	
Total other expense (income)	0.3	(1.0)	1.2	(0.9)	
Net loss before income taxes	(27.3)	(13.7)	(21.2)	(18.8)	
Income tax (benefit) expense	(0.1)	0.4	0.1	0.4	
Net loss	(27.2)%	(14.1)%	(21.3)%	(19.2)%	

Comparison of the Three Months Ended September 30, 2018 and 2017

Revenue

	Т	Three Months Ended September 30,			% Change	
		2018 2017				
		(dollars in thousands)				
Revenue						
Subscriptions, software and support	\$	30,905	\$	22,660	36.4 %	
Professional services		24,043		21,988	9.3	
Total revenue	\$	54,948	\$	44,648	23.1	

Total revenue increased \$10.3 million, or 23.1%, in the three months ended September 30, 2018 compared to the same period in 2017, due to an increase in our subscriptions, software and support revenue of \$8.2 million and an increase in our professional services revenue of \$2.1 million. The increase in subscriptions, software and support revenue was attributable to \$4.1 million of revenue from expanded deployments and corresponding sales of additional subscriptions to existing customers and \$4.1 million in sales of subscriptions to new customers. The increase in professional services revenue was due to \$6.7 million in sales to new customers, offset by \$4.6 million less revenue from existing customers.

Cost of Revenue

	Thi	Three Months Ended September 30,				
		2018	2017			
		(dollars in tl				
Cost of revenue:						
Subscriptions, software and support	\$	3,261	\$ 2,341	39.3 %		
Professional services		16,831	14,272	17.9		
Total cost of revenue	\$	20,092	\$ 16,613	20.9		
Subscriptions, software and support gross margin		89.4 %	89.7 %			
Professional services gross margin		30.0	35.1			
Total gross margin		63.4	62.8			

Cost of revenue increased \$3.5 million, or 20.9%, in the three months ended September 30, 2018 compared to the same period in 2017, primarily due to a \$2.0 million increase in professional services and product support personnel costs, a \$0.4 million increase in contractor costs, a \$0.4 million increase in billable expenses, a \$0.4 million increase in other cost of revenue and a \$0.3 million increase in facility and overhead costs. Personnel costs increased due to an increase in professional services and product support staff personnel headcount of 22.5% from September 30, 2017 to September 30, 2018 and a \$0.1 million increase in stock-based compensation expense during the three months ended September 30, 2018. Contractor costs increased in the three months ended September 30, 2018 compared to the same period in 2017 because of an increase in the usage of subcontractors for professional service engagements. The increase in other cost of revenue was due to increased hosting costs as sales of our cloud offering increased in the three months ended September 30, 2018. Facility and overhead costs increased to support our personnel growth.

Subscriptions, software and support gross margin decreased to 89.4% in the three months ended September 30, 2018 compared to 89.7% in the same period in 2017 due to increased hosting costs as sales of our cloud offering increased. Professional services gross margin decreased to 30.0% in the three months ended September 30, 2018 compared to 35.1% in the same period in 2017 due to the re-focusing of some professional services personnel to customer success managers and an increase in the usage of subcontractors for professional services engagements. To a lesser degree, the gross margin of our professional services revenue for the three months ended September 30, 2018 was also negatively impacted by a decrease in the utilization rate of professional services resources as compared to the three months ended September 30, 2017 due to an increase in hiring. Due to the higher percentage of subscriptions, software and support revenue for the three months ended September 30, 2018 as compared to the three months ended September 30, 2017, gross margin increased to 63.4% in the three months ended September 30, 2018 compared to 62.8% in the same period in 2017.

Sales and Marketing Expense

Thre	ee Months Ended Sep	otember 30,	% Change
	2018	2017	
	(dollars in thousa	nds)	
\$	25,467 \$	19,725	29.1 %
	46.3 %	44.2 %	

Sales and marketing expense increased \$5.7 million, or 29.1%, in the three months ended September 30, 2018 compared to the same period in 2017, primarily due to a \$4.2 million increase in sales and marketing personnel costs, a \$0.8 million increase in facility and overhead costs, a \$0.6 million increase in marketing costs and a \$0.1 million increase in professional fees. Personnel costs increased due to an increase in sales and marketing personnel headcount by 22.3% from September 30, 2017 to September 30, 2018, increased sales commissions driven by our revenue growth and a \$0.4 million increase in stock-based compensation expense during the three months ended September 30, 2018. Facility and overhead costs increased to support our personnel growth. Marketing costs increased due to a rise in marketing event sponsorship and

attendance, as well as an increase in advertising costs. Professional fees increased due to an increase in consulting fees to support our ongoing marketing events and activities.

Research and Development Expense

	Th	ree Months Ended	% Change	
		2018	2017	_
	<u> </u>	(dollars in tho	usands)	
Research and development	\$	11,737 \$	8,596	36.5 %
% of revenue		21.4 %	19.3 %	

Research and development expense increased \$3.1 million, or 36.5%, in the three months ended September 30, 2018 compared to the same period in 2017, primarily due to a \$2.5 million increase in research and development personnel costs, a \$0.5 million increase in facility and overhead costs and a \$0.1 million increase in professional fees. Personnel costs increased due to an increase in research and development personnel headcount by 35.6% from September 30, 2017 to September 30, 2018 and a \$0.1 million increase in stock-based compensation expense during the three months ended September 30, 2018. Facility and overhead costs increased to support our personnel growth. Professional fees increased due to an increase in consulting fees to support the development and enhancement of our platform.

General and Administrative Expense

	Th	ree Months Ende	% Change		
		2018 2017			
		(dollars in thousands)			
General and administrative expense	\$	12,537	\$ 6,237	101.0 %	
% of revenue		22.8 %	14.0 %		

General and administrative expense increased \$6.3 million, or 101.0%, in the three months ended September 30, 2018 compared to the same period in 2017, primarily due to a \$5.4 million increase in general and administrative personnel costs, a \$0.8 million increase in facility and overhead costs and a \$0.1 million increase in professional fees. Personnel costs increased due to a \$4.6 million increase in stock-based compensation expense during the three months ended September 30, 2018 and an increase in general and administrative personnel headcount by 29.0% from September 30, 2017 to September 30, 2018 in order to support the additional requirements of being a public company. Stock-based compensation expense increased during the three months ended September 30, 2018 due to the vesting of an option to purchase 1,828,080 shares of our Class A common stock in August 2018, resulting in \$4.5 million of stock-based compensation expense. Facility and overhead costs increased to support our personnel growth. Professional fees increased due to the use of consulting services to assist with the implementation of new software to support our back-office functions.

Other Expense (Income), Net

	Th	Three Months Ended September 30,			% Change
		2018	2017		
		(dollars in thousands)			
Other expense (income), net	\$	110	\$	(425)	125.9 %
% of revenue		0.2 %		(1.0)%	

Other expense (income), net increased by \$0.5 million in the three months ended September 30, 2018 compared to the same period in 2017, primarily due to \$0.2 million in foreign exchange loss in the three months ended September 30, 2018 compared to \$0.3 million in foreign exchange gain in the three months ended September 30, 2017. The increase in foreign

exchange loss was primarily due to currency fluctuations of the British Pound Sterling, Euro, Australian dollar and Swiss Franc versus the U.S. dollar during the three months ended September 30, 2018 compared to the same period in 2017.

Interest Expense (Income)

Thre	e Months En	ded Se	ptember 30,	
	2018		2017	
	(dollars in thousands)			
\$	67	\$	(2)	
	0.1 %		—%	

Interest expense (income) increased by \$0.1 million in the three months ended September 30, 2018 compared to the same period in 2017, primarily due to entering into the \$20.0 million revolving line of credit in November 2017.

Comparison of the Nine Months Ended September 30, 2018 and 2017

Revenue

Nin	Nine Months Ended September 30,			% Change
	2018		2017	
	(dollars in	thousa	nds)	
\$	90,904	\$	66,116	37.5 %
	75,623		60,059	25.9
\$	166,527	\$	126,175	32.0
	_	2018 (dollars in \$ 90,904 75,623	2018 (dollars in thousa \$ 90,904 \$ 75,623	2018 2017 (dollars in thousands) \$ 90,904 \$ 66,116 75,623 60,059

Total revenue increased \$40.4 million, or 32.0%, in the nine months ended September 30, 2018 compared to the same period in 2017, due to an increase in our subscriptions, software and support revenue of \$24.8 million and an increase in our professional services revenue of \$15.6 million. The increase in subscriptions, software and support revenue was attributable to \$16.5 million of revenue from expanded deployments and corresponding sales of additional subscriptions to existing customers, including a \$4.4 million perpetual software license sold to a federal agency. The increase was also due to \$8.3 million in sales of subscriptions to new customers. The increase in professional services revenue was due to \$0.9 million of additional revenue from existing customers and \$14.7 million in sales to new customers.

Cost of Revenue

	Nine	Months Ended S	% Change	
		2018	2017	_
		(dollars in thou	sands)	
Cost of revenue:				
Subscriptions, software and support	\$	8,713 \$	6,891	26.4 %
Professional services		54,002	39,049	38.3
Total cost of revenue	\$	62,715 \$	45,940	36.5
Subscriptions, software and support gross margin		90.4 %	89.6 %	
Professional services gross margin		28.6	35.0	
Total gross margin		62.3	63.6	

Cost of revenue increased \$16.8 million, or 36.5%, in the nine months ended September 30, 2018 compared to the same period in 2017, primarily due to a \$9.3 million increase in contractor costs, a \$4.6 million increase in professional services and product support personnel costs, a \$1.5 million increase in billable expenses, a \$0.8 million increase in other cost of

revenue and a \$0.6 million increase in facility and overhead costs. Contractor costs increased in the nine months ended September 30, 2018 compared to the same period in 2017 because of an increase in the usage of subcontractors for professional service engagements. Personnel costs increased due to an increase in professional services and product support staff personnel headcount of 22.5% from September 30, 2017 to September 30, 2018, offset by a \$0.6 million decrease in stock-based compensation expense during the nine months ended September 30, 2018. Billable expenses increased because we had more professional services engagements in the nine months ended September 30, 2018 as compared to the nine months ended September 30, 2017. The increase in other cost of revenue is due to increased hosting costs as sales of our cloud offering increased in the nine months ended September 30, 2018. Facility and overhead costs increased to support our personnel growth.

Subscriptions, software and support gross margin increased to 90.4% in the nine months ended September 30, 2018 compared to 89.6% in the same period in 2017 due to the sale of the \$4.4 million perpetual software license and a \$0.1 million decrease in stock-based compensation expense. There is minimal cost of revenue for our perpetual software revenue, therefore increasing our subscriptions, software and support gross margin. Professional services gross margin decreased to 28.6% in the nine months ended September 30, 2018 compared to 35.0% in the same period in 2017 due to an increase in the usage of subcontractors for professional services engagements and the re-focusing of some professional services personnel to customer success managers. To a lesser degree, the gross margin of our professional services revenue for the nine months ended September 30, 2018 was also negatively impacted by a decrease in the utilization rate of professional services resources as compared to the nine months ended September 30, 2017 due to an increase in hiring. Due to the decrease in our professional services margin, gross margin decreased to 62.3% in the nine months ended September 30, 2018 compared to 63.6% in the same period in 2017.

Sales and Marketing Expense

	Ni	ne Months End	led Sep	otember 30,	% Change
		2018		2017	
		(dollars in	nds)		
nd marketing	\$	75,815	\$	59,503	27.4 %
venue		45.5 %		47.2 %	

Sales and marketing expense increased \$16.3 million, or 27.4%, in the nine months ended September 30, 2018 compared to the same period in 2017, primarily due to a \$10.5 million increase in sales and marketing personnel costs, a \$3.3 million increase in facility and overhead costs, a \$2.3 million increase in marketing costs and a \$0.2 million increase in professional fees. Personnel costs increased due to an increase in sales and marketing personnel headcount by 22.3% from September 30, 2017 to September 30, 2018 and increased sales commissions driven by our revenue growth, offset by a \$1.0 million decrease in stock-based compensation expense during the nine months ended September 30, 2018. Facility and overhead costs increased to support our personnel growth. Marketing costs increased due to a rise in marketing event sponsorship and attendance, as well as an increase in advertising costs. Professional fees increased due to an increase in consulting fees to support our ongoing marketing events and activities.

Research and Development Expense

	Nine	Months Ended Sep	tember 30,	% Change		
	- :	2018	2017			
		(dollars in thousands)				
Research and development	\$	32,392 \$	25,867	25.2 %		
% of revenue		19.5 %	20.5 %			

Research and development expense increased \$6.5 million, or 25.2%, in the nine months ended September 30, 2018 compared to the same period in 2017, primarily due to a \$5.1 million increase in research and development personnel costs, a \$1.3 million increase in facility and overhead costs and a \$0.1 million increase in professional fees. Personnel costs increased due to an increase in research and development personnel headcount by 35.6% from September 30, 2017 to September 30,

2018, offset by a \$1.4 million decrease in stock-based compensation expense during the nine months ended September 30, 2018. Facility and overhead costs increased to support our personnel growth. Professional fees increased due to an increase in consulting fees to support the development and enhancement of our platform.

General and Administrative Expense

	Ni	ne Months Ended	% Change			
		2018	2017			
		(dollars in thousands)				
General and administrative expense	\$	29,022 \$	19,721	47.2 %		
% of revenue		17.4 %	15.6 %			

General and administrative expense increased \$9.3 million, or 47.2%, in the nine months ended September 30, 2018 compared to the same period in 2017, primarily due to a \$6.1 million increase in general and administrative personnel costs, a \$1.9 million increase in facility and overhead costs and a \$1.3 million increase in professional fees. Personnel costs increased due to a \$3.3 million increase in stock-based compensation expense during the nine months ended September 30, 2018 and an increase in general and administrative personnel headcount by 29.0% from September 30, 2017 to September 30, 2018 in order to support the additional requirements of being a public company. Stock-based compensation expense increased during the nine months ended September 30, 2018 due to the vesting of an option to purchase 1,828,080 shares of our Class A common stock in August 2018, resulting in \$4.5 million of stock-based compensation expense. Facility and overhead costs increased to support our personnel growth. Professional fees increased due to the use of consulting services to assist with the implementation of new software to support our back-office functions, legal costs incurred during the negotiation of the lease agreement for our new headquarters and additional costs incurred as a result of becoming a public company.

Other Expense (Income), Net

	N	Nine Months Ended September 30,			% Change
		2018		2017	
		(dollars in			
Other expense (income), net	\$	1,785	\$	(1,658)	207.7 %
% of revenue		1.1 %		(1.3)%	

Other expense (income), net increased by \$3.4 million in the nine months ended September 30, 2018 compared to the same period in 2017, primarily due to \$2.1 million in foreign exchange loss in the nine months ended September 30, 2018 compared to \$2.3 million in foreign exchange gain in the nine months ended September 30, 2017, offset by a \$0.4 million loss on the extinguishment of debt and a \$0.3 million fair value adjustment of the preferred stock warrant liability in the nine months ended September 30, 2017. There was also a \$0.3 million increase in interest income in the nine months ended September 30, 2018 compared to the same period in 2017. The increase in foreign exchange loss was primarily due to currency fluctuations of the British Pound Sterling, Euro, Australian dollar and Swiss Franc versus the U.S. dollar during the nine months ended September 30, 2018 compared to the same period in 2017.

Interest Expense

N	Nine Months Ended September 30,			% Change
	2018		2017	
	(dollars in thousands)			
\$	134	\$	451	(70.3)%
	0.1 %		0.4 %	

Interest expense decreased by \$0.3 million in the nine months ended September 30, 2018 compared to the same period in 2017, primarily due to the repayment of our \$20.0 million senior term loan in April 2017.

Liquidity and Capital Resources

As of September 30, 2018, we had \$107.3 million of cash and cash equivalents. On August 23, 2018, we closed our sale of 1,675,000 shares of our Class A common stock in an underwritten public offering at an offering price to the public of \$35.15 per share, resulting in net proceeds of \$57.8 million.

We believe that our existing cash and cash equivalents, together with any positive cash flows from operations and available borrowings under our line of credit, will be sufficient to support working capital and capital expenditure requirements 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 research and development efforts, the expansion of sales and marketing activities, particularly internationally, and the introduction of new and enhanced products and functions, platform enhancements and professional services offerings and the level of market acceptance of our applications. In the event that additional financing is required from outside sources, we may be unable to raise the funds on acceptable terms, if at all. To the extent existing cash and cash equivalents and investments and cash from operations are not sufficient to fund future activities, we may need to raise additional funds. We may seek to raise additional funds through equity, equity-linked or debt financings. If we raise additional funds through the incurrence of indebtedness, such indebtedness may have rights that are senior to holders of our equity securities and could contain covenants that restrict operations. Any additional equity financing may be dilutive to our existing stockholders. Although we are not currently a party to any agreement or letter of intent with respect to potential investments in, or acquisitions of, complementary businesses, services or technologies, we may enter into these types of arrangements in the future, which could also require us to seek additional equity financing, incur indebtedness, or use cash resources. We have no present understandings, commitments or agreements to enter into any such acquisitions. If we are unable to raise additional capital when desired, our business, operating results and financial condition could be adversely affected.

The following table shows a summary of our cash flows for the nine months ended September 30, 2018 and 2017:

	N	Nine Months Ende	d September 30,
		2018	2017
		(in thous	ands)
Cash used in operating activities	\$	(23,953)	\$ (10,135)
Cash used in investing activities		(2,183)	(295)
Cash provided by financing activities		60,532	50,504

Sources of Funds

We have financed our operations in large part with equity and debt financing arrangements, including net proceeds of \$77.8 million from our IPO in May 2017 and net proceeds of \$57.8 million from our underwritten public offering in August 2018, as well as through sales of software and professional services and borrowings under our credit facilities.

As of September 30, 2018, we had no outstanding borrowings. In November 2017, we entered into a \$20.0 million revolving line of credit with a lender. The facility matures in November 2022. We may elect whether amounts drawn on the revolving line of credit bear interest at a floating rate per annum equal to either the LIBOR or the prime rate plus an additional interest rate margin that is determined by the availability of borrowings under the revolving line of credit. The additional

interest rate margin will range from 2.00% to 2.50% in the case of LIBOR advances and from 1.00% to 1.50% in the case of prime rate advances. The revolving line of credit contains an unused facility fee in an amount between 0.15% and 0.25% of the average unused portion of the revolving line of credit, which is payable quarterly. The agreement contains certain customary affirmative and negative covenants and requires us to maintain (1) an adjusted quick ratio of at least 1.35 to 1.0 and (ii) minimum adjusted EBITDA in the amounts and for the periods set forth in the agreement. Any amounts borrowed under the credit facility are collateralized by substantially all of our assets. We were in compliance with all covenants as of September 30, 2018.

Use of Funds

Our principal uses of cash are funding operations and other working capital requirements. Over the past several years, revenue has increased significantly from year to year and, as a result, cash flows from customer collections have increased. However, operating expenses have also increased as we have invested in growing our business. Our operating cash requirements may increase in the future as we continue to invest in the strategic growth of our company.

Historical Cash Flows

Operating Activities

For the nine months ended September 30, 2018, net cash used in operating activities of \$24.0 million consisted of a net loss of \$35.5 million and \$1.2 million of cash used in changes in working capital, offset by \$12.8 million in adjustments for non-cash items. Adjustments for non-cash items consisted of stock-based compensation of \$11.2 million, depreciation and amortization expense of \$1.5 million and a provision for deferred income taxes of \$0.1 million. The decrease in cash and cash equivalents resulting from changes in working capital primarily consisted of a \$6.2 million increase in accounts receivable, due to increased sales in the nine months ended September 30, 2018 as well as the timing of billings and collections. There was also a \$5.5 million increase in deferred commissions due to increased sales and a \$0.4 million decrease in other liabilities. These decreases were partially offset by a \$7.8 million increase in deferred revenue, as a result of increased subscription sales. There was also a \$1.8 million increase in accrued compensation and related benefits, primarily due to an increase in accrued vacation, a \$1.2 million increase in accounts payable and accrued expenses, primarily due to the timing of payments and a \$0.1 million decrease in prepaid expenses and other assets.

For the nine months ended September 30, 2017, net cash used in operating activities of \$10.1 million consisted of a net loss of \$24.1 million, offset by \$12.2 million in adjustments for non-cash items and \$1.8 million of cash provided by changes in working capital. Adjustments for non-cash items consisted of stock-based compensation of \$10.9 million, depreciation and amortization expense of \$0.7 million, loss on extinguishment of debt of \$0.4 million and fair value adjustment for the warrant liability of \$0.3 million, offset by a provision for deferred income taxes of \$0.1 million. The increase in cash and cash equivalents resulting from changes in working capital primarily consisted of a \$4.3 million decrease in accounts receivable, primarily due to the timing of billings and collections, an increase in accounts payable and accrued expenses of \$1.2 million and an increase in deferred revenue of \$1.0 million, as a result of increased subscription sales. This increase was partially offset by a \$3.2 million increase in prepaid expenses and other assets, a \$1.0 million increase in deferred commissions due to increased sales, a \$0.3 million decrease in accrued compensation and related benefits, primarily due to the timing of year-end bonus payments and a \$0.2 million decrease in other liabilities.

Investing Activities

For the nine months ended September 30, 2018 and 2017, net cash used in investing activities was \$2.2 million and \$0.3 million, respectively, for the purchase of property and equipment.

Financing Activities

For the nine months ended September 30, 2018, net cash provided by financing activities was \$60.5 million, consisting of \$58.3 million in proceeds from our underwritten public offering, net of underwriting discounts and commissions, and \$2.6 million in proceeds received from stock option exercises. These increases were offset by the payment of public offering costs of \$0.4 million. For the nine months ended September 30, 2017, net cash provided by financing activities was \$50.5 million, consisting of \$80.2 million in proceeds from our IPO, net of underwriting discounts and commissions, \$19.6 million in proceeds from the issuance of long-term debt, net of issuance costs, and \$0.7 million in proceeds received from stock option

exercises. These increases were offset by the repayment of \$40.0 million of long-term debt, a \$7.6 million dividend payment to the Series A preferred stockholders and the payment of deferred IPO costs of \$2.4 million.

Contractual Obligations and Commitments

Except as set forth below, as of September 30, 2018, there was no material change in our contractual obligations and commitments from those disclosed in our Annual Report on Form 10-K for the year ended December 31, 2017, filed with the SEC on February 23, 2018.

On April 17, 2018, we entered into a lease agreement for a new headquarters in Tysons, Virginia pursuant to which we have leased approximately 176,000 square feet of office space. The initial term of the lease commenced on October 1, 2018 and expires 150 months later, unless earlier terminated, with an option to extend the lease term for two consecutive five-year periods. No annual rent is due for the first 15 months of the initial term of the lease, after which time the monthly base rent will be \$450,835, subject to a 3% annual increase. Within 12 months of the commencement of the initial term of the lease, an additional 28,805 square feet of adjacent office space will be added, or the "Must-Take Space". No annual rent is due for a prorated period of time following the addition of the Must-Take Space, after which time the monthly base rent for the Must-Take Space will be \$73,693, subject to a 3% annual increase. Including the Must-Take Space, total payments committed under the lease are approximately \$87.2 million over the term of the lease. We are also responsible for the payment of a portion of taxes and operating expenses. The payment schedule for the lease is as follows: \$9.1 million, \$13.3 million and \$64.4 million for 2019-2021, 2022-2023 and after 2023, respectively.

In connection with entering into the lease agreement, we amended our sublease with College Entrance Examination Board, which will terminate the sublease agreement. Pursuant to the termination amendment, the sublease will terminate in two stages, with the termination of a majority of the premises taking place on May 31, 2019, rather than July 31, 2021 as originally contemplated by the sublease.

Off-Balance Sheet Arrangements

As of September 30, 2018, we did not have any relationships with unconsolidated entities or financial partnerships, including entities sometimes referred to as structured finance or special purpose entities that were established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purposes. We do not engage in off-balance sheet financing arrangements. In addition, we do not engage in trading activities involving non-exchange traded contracts. We believe, therefore, that we are not materially exposed to any financing, liquidity, market or credit risk that could arise if we had engaged in these relationships.

Critical Accounting Policies and Estimates

The preparation of our condensed consolidated financial statements in conformity with accounting principles generally accepted in the United States of America, or U.S. GAAP, requires us to make estimates and judgments that affect the amounts reported in those financial statements and accompanying notes. Although we believe that the estimates we use are reasonable, due to the inherent uncertainty involved in making those estimates, actual results reported in future periods could differ from those estimates. Significant estimates embedded in the consolidated financial statements for the periods presented include revenue recognition, stock-based compensation and income taxes.

There have been no material changes in our critical accounting policies from those disclosed in our Annual Report on Form 10-K for the year ended December 31, 2017, filed with the SEC on February 23, 2018.

Recent Accounting Pronouncements

See Note 2 to the unaudited condensed consolidated financial statements in Part I, Item 1 of this Quarterly Report on Form 10-Q for a discussion of recent accounting pronouncements.

JOBS Act Transition Period

In April 2012, the Jumpstart Our Business Startups Act of 2012, or the JOBS Act, was enacted. Section 107(b) of the JOBS Act provides that an emerging growth company can take advantage of an extended transition period for complying with

new or revised accounting standards. Thus, an emerging growth company can delay the adoption of certain accounting standards until those standards would otherwise apply to private companies. We have elected to take advantage of the extended transition period to comply with new or revised accounting standards and to adopt certain of the reduced disclosure requirements available to emerging growth companies. As a result of the accounting standards election, we will not be subject to the same implementation timing for new or revised accounting standards as other public companies that are not emerging growth companies which may make comparison of our financials to those of other public companies more difficult.

Item 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK.

We are exposed to market risks in the ordinary course of our business. Market risk represents the risk of loss that may impact our financial position due to adverse changes in financial market prices and rates. Our market risk exposure is primarily the result of fluctuations in interest rates and foreign currency exchange rates.

Interest Rate Risk

We had cash and cash equivalents of \$107.3 million as of September 30, 2018, which consisted of cash in readily available checking accounts and overnight repurchase investments. These securities are not dependent on interest rate fluctuations that may cause the principal amount of these assets to fluctuate.

At September 30, 2018, we had no outstanding borrowings.

Foreign Currency Exchange Risk

Our reporting currency is the U.S. dollar. Due to our international operations, we have foreign currency risks related to revenue and operating expenses denominated in currencies other than the U.S. dollar, primarily the British Pound Sterling, Euro, Australian Dollar and Swiss Franc. Our sales contracts are primarily denominated in the local currency of the customer making the purchase. In addition, a portion of operating expenses are incurred outside the United States and are denominated in foreign currencies. Decreases in the relative value of the U.S. dollar to other currencies may negatively affect revenue and other operating results as expressed in U.S. dollars. We do not believe that an immediate 10% increase or decrease in the relative value of the U.S. dollar to other currencies would have a material effect on operating results.

We have experienced and will continue to experience fluctuations in net loss as a result of transaction gains or losses related to remeasuring certain current asset and current liability balances that are denominated in currencies other than the functional currency of the entities in which they are recorded. We have not engaged in the hedging of foreign currency transactions to date, although we may choose to do so in the future.

Item 4. CONTROLS AND PROCEDURES.

Evaluation of Disclosure Controls and Procedures

We maintain "disclosure controls and procedures," as defined in Rule 13a-15(e) and Rule 15d-15(e) under the Exchange Act 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 ensure 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 our management, including our principal executive and principal financial officers, as appropriate to allow timely decisions regarding required disclosure.

Our management, with the participation of our Chief Executive Officer and our Chief Financial Officer, evaluated the effectiveness of our disclosure controls and procedures as of September 30, 2018. Based on the evaluation of our disclosure controls and procedures as of September 30, 2018, our Chief Executive Officer and Chief Financial Officer concluded that, as of such date, our disclosure controls and procedures were effective at the reasonable assurance level

Changes in Internal Control Over Financial Reporting

There was no change in our internal control over financial reporting identified in connection with the evaluation required by Rule 13a-15(d) and 15d-15(d) of the Exchange Act that occurred during the period covered by this Quarterly Report on Form 10-Q that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

Inherent Limitations on Effectiveness of Controls

Our management, including our Chief Executive Officer and Chief Financial Officer, believes that our disclosure controls and procedures and internal control over financial reporting are designed to provide reasonable assurance of achieving their objectives and are effective at the reasonable assurance level. However, our management does not expect that our disclosure controls and procedures or our internal control over financial reporting will prevent all errors and all fraud. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. Further, the design of a control system must reflect the fact that there are resource constraints, and the benefits of controls must be considered relative to their costs. Because of the inherent limitations in all control systems, no evaluation of controls can provide absolute assurance that all control issues and instances of fraud, if any, have been detected. These inherent limitations include the realities that judgments in decision making can be faulty, and that breakdowns can occur because of a simple error or mistake. Additionally, controls can be circumvented by the individual acts of some persons, by collusion of two or more people or by management override of the controls. The design of any system of controls also is based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions; over time, controls may become inadequate because of changes in conditions, or the degree of compliance with policies or procedures may deteriorate. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected.

PART II—OTHER INFORMATION

Item 1. LEGAL PROCEEDINGS.

From time to time we may become involved in legal proceedings or be subject to claims arising in the ordinary course of our business. We are not presently a party to any legal proceedings that, if determined adversely to us, would individually or taken together have a material adverse effect on our business, operating results, financial condition or cash flows. Regardless of the outcome, litigation can have an adverse impact on us because of defense and settlement costs, diversion of management resources and other factors.

Item 1A. RISK FACTORS.

Our business is subject to risks and events that, if they occur, could adversely affect our financial condition and results of operations and the trading price of our securities. In addition to the other information set forth in this Quarterly Report on Form 10-Q, you should carefully consider the factors described in "Part I, Item 1A. Risk Factors" of our Annual Report on Form 10-K for the fiscal year ended December 31, 2017, filed with the SEC on February 23, 2018. There have been no material changes to the risk factors described in that report.

Item 2. UNREGISTERED SALES OF EQUITY SECURITIES AND USE OF PROCEEDS.

a. Recent Sales of Unregistered Equity Securities

Not applicable.

b. Use of Proceeds

Not applicable.

c. Issuer Purchases of Equity Securities

Not applicable.

Item 3. DEFAULTS UPON SENIOR SECURITIES.

Not applicable.

Item 4. MINE SAFETY DISCLOSURES.

Not applicable.

Item 5. OTHER INFORMATION.

Not applicable.

ITEM 6. EXHIBITS.

Exhibit Number	Description
<u>3.1(1)</u>	Amended and Restated Certificate of Incorporation of Appian Corporation.
<u>3.2(2)</u>	Amended and Restated Bylaws of Appian Corporation.
4.1 (3)	Form of Class A common stock certificate of Appian Corporation.
31.1#	Certification of Principal Executive Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
<u>31.2#</u>	Certification of Principal Financial Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.
<u>32.1#*</u>	Certifications 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.
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document

^{1.} Previously filed as Exhibit 3.2 to Amendment No. 3 to the Registrant's Registration Statement on Form S-1 (File No. 333-217510), filed with the Securities and Exchange Commission on May 12, 2017, and incorporated herein by reference.

^{2.} Previously filed as Exhibit 3.4 to Amendment No. 2 to the Registrant's Registration Statement on Form S-1 (File No. 333-217510), filed with the Securities and Exchange Commission on May 10, 2017, and incorporated herein by reference.

^{3.} Previously filed as Exhibit 4.1 to Amendment No. 3 to the Registrant's Registration Statement on Form S-1 (File No. 333-217510), filed with the Securities and Exchange Commission on May 12, 2017, and incorporated herein by reference.

[#] Filed herewith.

This certification is deemed not filed for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, or otherwise subject to the liability of that section, nor shall it be deemed incorporated by reference into any filing under the Securities Act of 1933, as amended, or the Securities Exchange Act of 1934, as amended.

SIGNATURE

Pursuant to the requirements of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned thereunto duly authorized.

APPIAN CORPORATION

November 1, 2018 By: /s/ Matthew Calkins

Name: Matthew Calkins

Title: Chief Executive Officer and Chairman of the Board (On behalf of the

Registrant and as Principal Executive Officer)

CERTIFICATION OF PRINCIPAL EXECUTIVE OFFICER PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Matthew Calkins, certify that:

- 1. I have reviewed this Quarterly Report on Form 10-Q for the period ended September 30, 2018 of Appian Corporation (the "registrant");
- 2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
- 3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
- 4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) 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) 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
 - (c) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
- 5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: November 1, 2018

/s/ Matthew Calkins

Matthew Calkins Chief Executive Officer (principal executive officer)

CERTIFICATION OF PRINCIPAL FINANCIAL OFFICER PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002

I, Mark Lynch, certify that:

- 1. I have reviewed this Quarterly Report on Form 10-Q for the period ended September 30, 2018 of Appian Corporation (the "registrant");
- 2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
- 3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
- 4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) 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) 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
 - (c) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
- 5. The registrant's other certifying officer(s) and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - (a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - (b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: November 1, 2018

/s/ Mark Lynch

Mark Lynch Chief Financial Officer (principal financial officer)

CERTIFICATIONS 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

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), Matthew Calkins, Chief Executive Officer of Appian Corporation (the "Company"), and Mark Lynch, Chief Financial Officer of the Company, each hereby certifies that, to the best of his knowledge:

- 1. The Company's Quarterly Report on Form 10-Q for the period ended September 30, 2018, to which this Certification is attached as Exhibit 32.1 (the "Periodic Report"), fully complies with the requirements of Section 13(a) or Section 15(d) of the Exchange Act; and
- 2. The information contained in the Periodic Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

IN WITNESS WHEREOF, the undersigned have set their hands hereto as of the 1st day of November, 2018.

/s/ Matthew Calkins	/s/ Mark Lynch
Matthew Calkins	Mark Lynch
Chief Executive Officer (principal executive officer)	Chief Financial Officer (principal financial officer)

• This certification accompanies the Form 10-Q 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 the Company under the Securities Act of 1933, as amended, or the Exchange Act (whether made before or after the date of the Form 10-Q), irrespective of any general incorporation language contained in such filing.