UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549

FORM 10-Q

(Mark One)

☒ **QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the quarterly period ended March 31, 2022
OR

☐ **TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934**

For the transition period from ____ to ____
Commission File Number: 001-38098

APPIAN CORPORATION
(Exact Name of Registrant as Specified in its Charter)

Delaware	**54-1956084**
(State or other jurisdiction of incorporation or organization)	**(I.R.S. Employer Identification No.)**
7950 Jones Branch Drive **McLean, VA**	**22102**
(Address of principal executive offices)	**(Zip Code)**

Registrant's telephone number, including area code: (703) 442-8844

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

Title of each class	Trading symbol	Name of each exchange on which registered
Class A Common Stock	APPN	The Nasdaq Stock Market LLC

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

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

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

Large accelerated filer	☒	Accelerated filer	☐
Non-accelerated filer	☐	Small reporting company	☐
		Emerging growth company	☐

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

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

As of May 2, 2022, there were 40,850,302 shares of the registrant's Class A common stock and 31,497,796 shares of the registrant's Class B common stock, each with a par value of $0.0001 per share, outstanding.

Table of Contents

PART I—FINANCIAL INFORMATION

Item 1. FINANCIAL STATEMENTS

APPIAN CORPORATION AND SUBSIDIARIES
CONDENSED CONSOLIDATED BALANCE SHEETS
(in thousands, except share data)

	As of	
	March 31, 2022	December 31, 2021
	(unaudited)	
Assets		
Current assets		
Cash and cash equivalents	$ 106,795	$ 100,796
Short-term investments and marketable securities	53,438	55,179
Accounts receivable, net of allowance of $1,402 and $1,400 as of March 31, 2022 and December 31, 2021, respectively	121,630	130,049
Deferred commissions, current	25,670	24,668
Prepaid expenses and other current assets	30,354	26,781
Restricted cash, current	776	791
Total current assets	338,663	338,264
Property and equipment, net of accumulated depreciation of $15,473 and $14,106 as of March 31, 2022 and December 31, 2021, respectively	38,526	36,913
Long-term investments	8,184	12,044
Goodwill	27,271	27,795
Intangible assets, net of accumulated amortization of $1,630 and $1,260 as of March 31, 2022 and December 31, 2021, respectively	6,615	7,144
Operating right-of-use assets	27,556	27,897
Deferred commissions, net of current portion	49,398	49,017
Deferred tax assets	1,992	1,025
Restricted cash, net of current portion	2,328	2,373
Other assets	1,980	2,047
Total assets	$ 502,513	$ 504,519
Liabilities and Stockholders' Equity		
Current liabilities		
Accounts payable	$ 4,476	$ 5,766
Accrued expenses	18,654	15,483
Accrued compensation and related benefits	27,834	35,126
Deferred revenue, current	146,227	150,169
Operating lease liabilities, current	8,135	8,110
Other current liabilities	1,104	1,067
Total current liabilities	206,430	215,721
Operating lease liabilities, net of current portion	47,964	48,784
Deferred revenue, net of current portion	1,888	2,430
Deferred tax liabilities	98	209
Other non-current liabilities	3,377	3,458
Total liabilities	259,757	270,602
Stockholders' equity		
Class A common stock—par value $0.0001; 500,000,000 shares authorized and 40,829,564 shares issued and outstanding as of March 31, 2022; 500,000,000 shares authorized and 39,964,298 shares issued and outstanding as of December 31, 2021	4	4
Class B common stock—par value $0.0001; 100,000,000 shares authorized and 31,497,796 shares issued and outstanding as of March 31, 2022; 100,000,000 shares authorized and 31,497,796 shares issued and outstanding as of December 31, 2021	3	3
Additional paid-in capital	528,475	497,128
Accumulated other comprehensive loss	(5,041)	(5,687)
Accumulated deficit	(280,685)	(257,531)
Total stockholders' equity	242,756	233,917
Total liabilities and stockholders' equity	$ 502,513	$ 504,519

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

APPIAN CORPORATION AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(unaudited, in thousands, except share and per share data)

	Three Months Ended March 31, 2022	Three Months Ended March 31, 2021
Revenue		
Subscriptions	$ 83,720	$ 63,766
Professional services	30,546	25,089
Total revenue	114,266	88,855
Cost of revenue		
Subscriptions	8,206	5,854
Professional services	22,710	17,675
Total cost of revenue	30,916	23,529
Gross profit	83,350	65,326
Operating expenses		
Sales and marketing	45,916	35,984
Research and development	29,839	20,690
General and administrative	31,461	19,142
Total operating expenses	107,216	75,816
Operating loss	(23,866)	(10,490)
Other expense		
Other expense, net	787	2,893
Interest expense	74	81
Total other expense	861	2,974
Loss before income taxes	(24,727)	(13,464)
Income tax (benefit) expense	(1,573)	123
Net loss	$ (23,154)	$ (13,587)
Net loss per share:		
Basic and diluted	$ (0.32)	$ (0.19)
Weighted average common shares outstanding:		
Basic and diluted	72,216,870	70,730,235

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

APPIAN CORPORATION AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(unaudited, in thousands)

	Three Months Ended March 31,	
	2022	**2021**
Net loss	$ (23,154)	$ (13,587)
Comprehensive income, net of income taxes		
Foreign currency translation adjustment	757	4,015
Unrealized (losses) gains on available-for-sale securities	(111)	8
Total other comprehensive loss, net of income taxes	$ (22,508)	$ (9,564)

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

APPIAN CORPORATION AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF CHANGES IN STOCKHOLDERS' EQUITY
(unaudited, in thousands, except share data)

	Common Stock		Additional Paid-In Capital	Accumulated Other Comprehensive (Loss) Income	Accumulated Deficit	Total Stockholders' Equity
	Shares	Amount				
Balance, January 1, 2022	71,462,094	$ 7	$ 497,128	$ (5,687)	$ (257,531)	$ 233,917
Net loss	—	—	—	—	(23,154)	(23,154)
Issuance of common stock to directors	2,395	—	—	—	—	—
Vesting of restricted stock units	47,038	—	—	—	—	—
Exercise of stock options	815,833	—	24,404	—	—	24,404
Stock-based compensation expense	—	—	6,943	—	—	6,943
Other comprehensive income	—	—	—	646	—	646
Balance, March 31, 2022	72,327,360	$ 7	$ 528,475	$ (5,041)	$ (280,685)	$ 242,756
Balance, January 1, 2021	70,679,190	$ 7	$ 470,498	$ (5,010)	$ (168,890)	$ 296,605
Net loss	—	—	—	—	(13,587)	(13,587)
Issuance of common stock to directors	960	—	—	—	—	—
Vesting of restricted stock units	56,326	—	—	—	—	—
Exercise of stock options	88,269	—	625	—	—	625
Stock-based compensation expense	—	—	7,894	—	—	7,894
Other comprehensive income	—	—	—	4,023	—	4,023
Balance, March 31, 2021	70,824,745	$ 7	$ 479,017	$ (987)	$ (182,477)	$ 295,560

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

APPIAN CORPORATION AND SUBSIDIARIES
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(unaudited, in thousands)

	Three Months Ended March 31,	
	2022	2021
Cash flows from operating activities		
Net loss	$ (23,154)	$ (13,587)
Adjustments to reconcile net loss to net cash used in operating activities		
Depreciation and amortization	1,773	1,278
Bad debt expense	(2)	—
Change in fair value of available-for-sale securities	111	(8)
Deferred income taxes	(1,073)	(448)
Stock-based compensation	6,943	7,894
Changes in assets and liabilities		
Accounts receivable	8,416	12,651
Prepaid expenses and other assets	(3,579)	(279)
Deferred commissions	(1,383)	(2,642)
Accounts payable and accrued expenses	2,338	1,159
Accrued compensation and related benefits	(6,798)	(1,955)
Other current and non-current liabilities	18	151
Deferred revenue	(3,764)	(7,192)
Operating lease liabilities	(450)	168
Net cash used in operating activities	(20,604)	(2,810)
Cash flows from investing activities		
Purchases of investments	(16,240)	—
Proceeds from investments	21,729	5,625
Purchases of property and equipment	(3,390)	(468)
Net cash provided by investing activities	2,099	5,157
Cash flows from financing activities		
Proceeds from exercise of common stock options	24,404	625
Net cash provided by financing activities	24,404	625
Effect of foreign exchange rate changes on cash, cash equivalents, and restricted cash	40	(682)
Net increase in cash, cash equivalents, and restricted cash	5,939	2,290
Cash, cash equivalents, and restricted cash at beginning of period	103,960	112,462
Cash, cash equivalents, and restricted cash at end of period	$ 109,899	$ 114,752
Supplemental disclosure of cash flow information		
Cash paid for interest	$ 78	$ 88
Cash paid for income taxes	$ 197	$ 148

The accompanying notes are an integral part of these unaudited condensed consolidated financial statements.

1. Organization and Description of Business

Appian Corporation (together with its subsidiaries, "Appian," the "Company," "we," or "our") provides a low-code platform that accelerates the creation of high-impact business applications and workflows, enabling our customers to automate the most important aspects of their business. The Appian Low-Code Platform unifies the key capabilities needed to get work done faster: Process Mining + Workflow + Automation. Since 1999, industry leaders have trusted Appian and our open, enterprise-grade platform. Global organizations use our applications to improve customer experience, achieve operational excellence, and simplify global risk management and compliance.

We were incorporated in the state of Delaware in August 1999. We are headquartered in McLean, Virginia and operate in Canada, Switzerland, the United Kingdom, France, Germany, the Netherlands, Italy, Australia, Spain, Singapore, Sweden, and Japan.

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 ("U.S. GAAP") as contained in the Financial Accounting Standards Board ("FASB") Accounting Standards Codification ("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, 2021, filed with the Securities and Exchange Commission (the "SEC") on February 17, 2022.

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 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, the valuation of goodwill and intangible assets, leases, costs to obtain a contract with a customer, the valuation of financial instruments, and stock-based compensation.

The ongoing outbreak of the novel coronavirus disease ("COVID-19") resulted in the declaration of a global pandemic and introduced a level of disruption and uncertainty into the financial markets and global economy. While the pandemic has been moving toward a controlled stage in the United States, we continue to monitor the developments surrounding the pandemic as of the date of issuance of these financial statements. We are not aware of any specific events or circumstances that would require us to update our estimates, assumptions, and judgments or revise the carrying value of our assets or liabilities. We cannot estimate the impacts COVID-19 may have on our business going forward as such impacts will be largely dependent upon a number of factors outside of our control including the extent and duration of the outbreak as well as any mitigating actions which may be undertaken by global governments and the general public.

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.

Revenue Recognition

Refer to Note 3 for a detailed discussion on specific revenue recognition principles related to our major revenue streams.

Cost of Revenue

Subscriptions

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

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, third-party contractor costs, allocated facility costs and overhead, and the costs of billable expenses such as travel and lodging. 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 and allocated facility costs and overhead.

Concentration of Credit and Customer Risk

Our financial instruments exposed to concentration of credit and customer risk consist primarily of cash, cash equivalents, restricted cash, accounts receivable, and our short- and long-term investments. Deposits held with banks may exceed the amount of insurance provided on such deposits; however, we believe the financial institutions holding 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 no additional credit risk beyond amounts provided for collection loss are inherent in accounts receivable. Revenue generated from government agencies represented 18.1% and 20.9% of our revenue for the three months ended March 31, 2022 and 2021, respectively, of which the top three U.S. federal government agencies generated 4.6% and 6.9% of our revenue for the three months ended March 31, 2022 and 2021, respectively. Additionally, 33.5% and 32.2% of our revenue during the three months ended March 31, 2022 and 2021, respectively, was generated from foreign customers.

Cash, Cash Equivalents, and Restricted Cash

We consider all highly liquid investments with an original or remaining maturity of three months or less at the date of purchase, as well as overnight repurchase agreements, to be cash equivalents. Restricted cash consists of cash designated to settle an escrow liability stemming from a holdback agreement enacted pursuant to our acquisition of Lana Labs GmbH (“Lana Labs”). The restriction on 25% of the balance will lapse on the later of either two months following the establishment of Lana Labs' annual financial statements for the year ended December 31, 2021 or October 31, 2022. The restrictions on the remaining 75% of the balance will lapse on August 11, 2023.

The following table presents a reconciliation of cash, cash equivalents, and restricted cash as presented in the condensed consolidated statements of cash flows (in thousands):

	As of March 31,	
	2022	2021
Cash and cash equivalents	$ 106,795	$ 114,752
Restricted cash, current	776	—
Restricted cash, net of current portion	2,328	—
Total cash, cash equivalents, and restricted cash	$ 109,899	$ 114,752

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 and incorporates an estimation of expected lifetime credit losses on our receivables. 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. There was an immaterial increase in the allowance for doubtful accounts from December 31, 2021 to March 31, 2022.

Assets Recognized from the Costs to Obtain a Contract with a Customer

We capitalize costs of obtaining a contract with a customer, including sales commissions paid to our direct sales team, that are incremental costs to obtaining customer contracts. These costs are recorded as deferred commissions in the condensed consolidated balance sheets. Costs to obtain a contract for a new customer or upsell are amortized over an estimated economic life of five years as sales commissions on initial sales are not commensurate with sales commissions on contract renewals. We determine the estimated economic life based on both qualitative and quantitative factors such as expected renewals, product life cycles, contractual terms, and customer attrition. We periodically review the carrying amount of deferred contract acquisition costs to determine whether events or changes in circumstances have occurred that could impact the estimated economic life. Commissions paid relating to contract renewals are deferred and amortized over the related renewal period. We also capitalize the incremental fringe benefits associated with commission expenses paid to our direct sales team. Costs to obtain a contract for professional services arrangements are expensed as incurred as the contractual period of our professional services arrangements are one year or less.

Amortization associated with deferred commission is recorded to sales and marketing costs in our condensed consolidated statements of operations. Commission expense was $8.2 million and $6.8 million for the three months ended March 31, 2022 and 2021, respectively.

Property and Equipment

Property and equipment are stated at cost less accumulated depreciation. Depreciation is computed using the straight-line method over the estimated useful lives of the assets. Significant additions or improvements extending the useful life of an asset are capitalized, while repairs and maintenance costs which do not significantly improve the related assets or extend their useful lives are charged to expense as incurred.

The following table outlines the useful lives of our major asset categories:

Asset Category	Useful Life (in years)
Computer software	3
Computer hardware	3
Equipment	5
Office furniture and fixtures	10
Leasehold improvements	(a)

[a] Leasehold improvements have an estimated useful life of the shorter of the useful life of the assets or the lease term.

Business Combinations

We account for business combinations using the acquisition method of accounting as of the business combination date. Under this method, we allocate the fair value of purchase consideration to identifiable tangible and intangible assets acquired and liabilities assumed at their estimated fair values on the acquisition date. The excess of the consideration transferred over the fair value of the identifiable net assets acquired is recorded as goodwill and represents the future economic benefits expected to arise from other intangible assets acquired that do not qualify for separate recognition, including assembled workforce, non-contractual relationships, and expected future synergies. Determining the fair value of assets acquired and liabilities assumed requires us to use significant judgments and estimates, including the selection of valuation methodologies, estimates of future revenue, costs, and cash flows, and discount rates.

During the measurement period, which can be up to one year from the acquisition date, these estimates may be refined, as necessary, and we may record adjustments to the fair value of tangible and intangible assets acquired and liabilities assumed, with the corresponding offset to goodwill. Upon the conclusion of the measurement period or the final determination of the fair value of assets acquired or liabilities assumed, whichever comes first, any subsequent adjustments are recorded to our condensed consolidated statements of operations. Acquisition related expenses and post-acquisition integration costs are recognized separately from the business combination and are expensed as incurred.

Impairment of Goodwill and Long-Lived Assets

Long-lived assets and certain intangible assets are reviewed for impairment at least annually or more frequently whenever events or changes in circumstances indicate the carrying amount of an asset may not be recoverable through undiscounted cash flows from the use of the assets. If such assets are considered to be impaired, the assets are written down to their estimated fair value.

With respect to goodwill, we have the option to qualitatively assess whether it is more likely than not the fair value of a reporting unit is less than its carrying value. If we elect to perform a qualitative assessment and conclude it is more likely than not the fair value of the reporting unit is equal to or greater than its carrying value, no further assessment of that reporting unit's goodwill is necessary; otherwise, goodwill must be tested for impairment. Absent a specifically identified triggering event, we historically perform our annual assessment on the first day of the fourth quarter.

Because we operate under one reporting unit, the fair value of our reporting unit is based on our enterprise value. No indicators of impairment were identified for the three months ended March 31, 2022 or 2021.

Investments and Fair Value of Financial Instruments

Refer to Note 16 for a detailed discussion on our policies specific to investments and determining fair value.

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 containing only a service condition using the Black-Scholes option pricing model. The fair value of restricted stock units ("RSUs") is based on the closing market price of our common stock on the Nasdaq Global Market on the date of grant. For service-based awards such as RSUs, 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 and recognized using the accelerated attribution method over the derived service period based on the expected market performance as of the grant date. We account for forfeitures as they occur rather than estimating expected forfeitures.

Leases

Refer to Note 4 for a detailed discussion on our policies specific to leasing arrangements.

Recent Accounting Pronouncements

Adopted

In October 2021, the FASB issued Accounting Standard Update ("ASU") 2021-08, *Business Combinations (Topic 805): Accounting for Contract Assets and Contract Liabilities from Contracts with Customers*, which aims to improve the accounting for acquired revenue contracts with customers in a business combination. The ASU requires an entity (acquirer) to recognize and measure contract assets and contract liabilities acquired in a business combination in accordance with Topic 606. The guidance is effective for fiscal years beginning after December 15, 2022 and interim periods within those fiscal years. Early adoption is permitted including in interim periods. The adoption of the new guidance did not have a material impact on our condensed consolidated financial statements.

3. Revenue

Revenue Recognition

We generate subscriptions revenue primarily through the sale of software as a service ("SaaS") subscriptions bundled with maintenance and support and hosting services as well as term license subscriptions bundled with maintenance and support. We generate professional services revenue from fees for our consulting services, including application development and deployment assistance as well as training related to our platform.

The following table summarizes revenue from contracts with customers for the three months ended March 31, 2022 and 2021 (in thousands):

	Three Months Ended March 31,	
	2022	2021
SaaS subscriptions	$ 53,379	$ 39,053
Term license subscriptions	24,707	19,853
Maintenance and support	5,634	4,860
Total subscriptions	83,720	63,766
Professional services	30,546	25,089
Total revenue	$ 114,266	$ 88,855

Performance Obligations and Timing of Revenue Recognition

We primarily sell products and services that fall into the categories discussed below. Each category contains one or more performance obligations that are either (1) capable of being distinct (i.e., the customer can benefit from the product or service on its own or together with readily available resources, including those purchased separately from us) and distinct within the context of the contract (i.e., separately identified from other promises in the contract) or (2) a series of distinct products or services that are substantially the same and have the same pattern of transfer to the customer. Our term license subscriptions are delivered at a point in time while our SaaS subscriptions, maintenance and support, and professional services are delivered over time.

Subscriptions Revenue

Subscriptions revenue is primarily related to (1) SaaS subscriptions bundled with maintenance and support and hosting services and (2) term license subscriptions bundled with maintenance and support. We generally charge subscription fees on a per-user basis or through non-user based single application licenses. We bill customers and collect payment for subscriptions to our platform in advance on an annual, quarterly, or monthly basis. In certain instances, our customers have paid their entire contract up front.

SaaS Subscriptions

We generate cloud-based subscriptions revenue primarily from the sales of subscriptions to access our cloud offering, together with related support services to our customers. We perform all required maintenance and support for our cloud offering. Revenue is recognized on a ratable basis over the contract term beginning on the date the service is made available to the customer. Our cloud-based subscription contracts generally have a term of one to three years in length. We bill customers and collect payment for subscriptions to our platform in advance, and they are non-cancellable.

Term License Subscriptions

Our term license subscription revenue is derived from customers with on-premises installations of our platform pursuant to contracts that were historically one to three years in length. The majority of recent contracts have been one year in length. Although term license subscriptions are sold with maintenance and support, the software is fully functional at the beginning of the subscription and is considered a distinct performance obligation. On rare occasions, a cloud-based subscription may include the right for the customer to take possession of the license and as such, the revenue is treated as a license. Revenue from term license subscriptions is recognized when control of the software license has transferred to the customer, which is the later of delivery or commencement of the contract term.

Maintenance and Support

Maintenance and support subscriptions include both technical support and when-and-if-available software upgrades, which are treated as a single performance obligation as they are considered a series of distinct services that are substantially the same and have the same duration and measure of progress. Revenue from maintenance and support is recognized ratably over the contract period, which is the period over which the customer has continuous access to maintenance and support.

Professional Services Revenue

Our professional services revenue is comprised of fees for consulting services, including application development and deployment assistance as well as training services related to our platform. Our professional services are considered distinct performance obligations when sold standalone or with other products.

Consulting Services

We sell consulting services to assist customers in planning and executing the deployment of our software. Customers are not required to use consulting services to fully benefit from the software. Consulting services are regularly sold on a standalone basis and either (1) under a fixed-fee arrangement or (2) on a time and materials basis. Consulting contracts are each considered separate performance obligations because they do not integrate with each other or with other products and services to deliver a combined output to the customer, do not modify or customize (or are not modified or customized by) each other or other products and services, and do not affect the customer's ability to use the other consulting offerings or other products and services. Revenue under consulting contracts is recognized over time as services are delivered. For time and materials-based consulting contracts, we have elected the practical expedient of recognizing revenue upon invoicing since the invoiced amount corresponds directly to the value of our service to date.

Training Services

We sell various training services to our customers. Training services are sold in the form of prepaid training credits that are redeemed based on a fixed rate per course. Training revenue is recognized when the associated training services are delivered.

Significant Judgments and Estimates

Determining the Transaction Price

The transaction price includes both fixed and variable consideration. Variable consideration is included in the transaction price to the extent it is probable a significant reversal will not occur. The amount of variable consideration excluded from the transaction price for the three months ended March 31, 2022 and 2021 was insignificant. Our estimates of variable consideration are also subject to subsequent true-up adjustments and may result in changes to transaction prices; however, such true-up adjustments are not expected to be material.

Allocating the Transaction Price Based on Standalone Selling Prices ("SSP")

We allocate the transaction price to each performance obligation in a contract based on its relative SSP. The SSP is the observable price at which we sell the product or service separately. In the absence of observable pricing, we estimate SSP using the residual approach. We establish SSP as follows:

1. SaaS subscriptions - Given the highly variable selling price of our SaaS subscriptions, we establish the SSP of our SaaS subscriptions using a residual approach after first determining the SSP of consulting and training services. We have concluded the residual approach to estimating SSP of our SaaS subscriptions is an appropriate allocation of the transaction price.

2. Term license subscriptions - Given the highly variable selling price of our term license subscriptions, we have established SSP of term license subscriptions using a residual approach after first determining the SSP of maintenance and support. Maintenance and support is sold on a standalone basis in conjunction with renewals of our legacy perpetual software licenses and within a narrow range of the net license fee. Because an economic relationship exists between the license and maintenance and support, we have concluded the residual approach to estimating SSP of term license subscriptions is an appropriate allocation of the transaction price.

3. Maintenance and support - We establish the SSP of maintenance and support as a percentage of the stated net subscription fee based on observable pricing of maintenance and support renewals from our legacy perpetual software licenses.

4. Consulting and training services - The SSP of consulting and training services is established based on the observable pricing of standalone sales within each geographic region where the services are sold.

Contract Balances

Timing may differ between the satisfaction of performance obligations and the invoicing and collection of amounts related to our contracts with customers. Contract assets primarily relate to unbilled amounts for contracts with customers for which the amount of revenue recognized exceeds the amount billed to the customer. Contract assets are transferred to accounts receivable when the right to invoice becomes unconditional. As of March 31, 2022 and December 31, 2021, contract assets of $15.6 million and $14.0 million, respectively, are included in the Prepaid expenses and other current assets and Other assets line items in our condensed consolidated balance sheets.

Contract liabilities consist of deferred revenue and include payments received in advance of the satisfaction of performance obligations. Deferred revenue is then recognized as the revenue recognition criteria are met. Deferred revenue that will be recognized during the succeeding 12-month period is recorded as current, and the remaining deferred revenue is recorded as non-current. For the three months ended March 31, 2022, we recognized $65.7 million of revenue that was included in the deferred revenue balance as of December 31, 2021.

Transaction Price Allocated to the Remaining Performance Obligations

As of March 31, 2022, we had an aggregate transaction price of $290.8 million allocated to unsatisfied performance obligations. We expect to recognize $186.0 million of this balance as revenue over the next 12 months with the remaining amount recognized thereafter.

4. Leases

As of March 31, 2022, we have operating leases for corporate offices. Our operating leases have remaining lease terms of roughly 1 year to 10 years, some of which include options to extend the leases for up to an additional 10 years.

Right-of-Use ("ROU") Assets and Lease Liabilities

At the inception of an arrangement, we determine whether the arrangement is or contains a lease based on the unique facts and circumstances present and the classification of the lease. Operating leases with a term greater than one year are recognized on the balance sheet as ROU assets, lease liabilities, and, if applicable, long-term lease liabilities. ROU assets represent our right to use an underlying asset for the lease term, and lease liabilities represent our obligation to make lease payments arising from the lease. We have elected not to recognize on our condensed consolidated balance sheets leases with a term of one year or less. For contracts with lease and non-lease components, we have elected not to allocate the contract consideration but rather to account for the lease and non-lease components as a single lease component.

Lease liabilities and their corresponding ROU assets are recorded based on the present value of lease payments over the expected lease term. The implicit rates within most of our leases are generally not determinable; therefore, we use the incremental borrowing rate at the lease commencement date to determine the present value of lease payments. The determination of our incremental borrowing rate requires judgment and is estimated for each lease based on the rate we would have to pay for a collateralized loan with the same term and payments as the lease. We consider various factors, including our level of collateralization, estimated credit rating, and the currency in which the lease is denominated. Operating lease ROU assets also include any lease prepayments, offset by lease incentives. Certain of our leases include options to extend or terminate the lease. An option to extend the lease is considered in connection with determining the ROU asset and lease liability when it is reasonably certain we will exercise that option while an option to terminate is considered unless it is reasonably certain we will not exercise the option. For certain equipment leases, we apply a portfolio approach to effectively account for the operating lease ROU assets and liabilities.

Headquarters Lease

In April 2018, we entered into a lease agreement with respect to 176,222 square feet of office space in McLean, Virginia for a new corporate headquarters. The initial term of the lease was 150 months. We took initial possession of the first phase of the new headquarters in October 2018 and began to recognize rent expense as of that date. In February 2019, we took possession of an additional 28,805 square feet of adjacent office space.

In January 2020, we entered into an amendment which adjusted the original terms of the headquarters lease. Under this amendment, we exercised an option to expand occupancy, adding 34,158 square feet of office space. Occupancy of the added space commenced on October 14, 2020. Pursuant to the guidance of ASC 842, *Leases*, the amendment is considered a modification to the original lease and is accounted for as a separate contract because it represents a new ROU asset and the lease costs on the new space are charged at prevailing market rates. Effective July 1, 2020, we took possession of the space, began to recognize rent expense, and recorded a $7.9 million ROU asset and lease liability on our condensed consolidated balance sheets.

In November 2021, we entered into a third amendment to our headquarters lease, in which we exercised an option to expand occupancy into two adjacent office spaces of 32,883 and 25,925 square feet, with occupancy to commence on September 1, 2022 and May 1, 2023, respectively. Concurrent with the amendment, we also entered into a sublease agreement in which we agreed to sublease 32,883 square feet of space effective September 1, 2022. The sublease terminates on August 31, 2025 but may be extended one additional year at the sublessee’s option. The amendment is considered a modification to the original lease and each space is accounted for as a separate contract because it represents a new ROU asset and the lease costs charged on the new spaces are at prevailing market rates. As of March 31, 2022, we have not taken possession of either space nor met the criteria for the leases and sublease to be considered commenced. Accordingly, we have not reported an ROU asset or liability on our condensed consolidated balance sheets nor have recorded expense or sublease income on our condensed consolidated statements of operations in relation to the additional spaces.

Lease Costs

Expense for operating leases is recognized on a straight-line basis over the lease term as an operating expense while the expense for finance leases is recognized as depreciation expense and interest expense. We have lease agreements which require payments for lease and non-lease components (i.e., common area maintenance) that are accounted for as a single lease component. Variable lease payment amounts that cannot be determined at the commencement of the lease, such as maintenance costs based on future obligations, are not included in ROU assets or lease liabilities but rather are expensed as incurred and recorded as variable lease expense.

The following table sets forth the components of lease expense for the three months ended March 31, 2022 and 2021 (in thousands):

	Three Months Ended March 31,	
	2022	2021
Operating lease cost	$ 1,634	$ 1,630
Short-term lease cost	88	41
Variable lease cost	973	25
Total	$ 2,695	$ 1,696

Supplemental Lease Information

Supplemental balance sheet information related to operating leases as of March 31, 2022 and December 31, 2021 was as follows (in thousands, except for lease term and discount rate):

	As of	
	March 31, 2022	December 31, 2021
Operating right-of-use assets	$ 27,556	$ 27,897
Operating lease liabilities, current	$ 8,135	$ 8,110
Operating lease liabilities, net of current portion	47,964	48,784
Total operating lease liabilities	$ 56,099	$ 56,894
Weighted average remaining lease term (in years)	9.3	9.5
Weighted average discount rate	9.5 %	9.5 %

Supplemental cash flow and expense information related to operating leases for the three months ended March 31, 2022 and 2021 was as follows (in thousands):

	Three Months Ended March 31,	
	2022	2021
Operating cash outflows for operating leases	$ 2,085	$ 1,749
Amortization of operating ROU assets	306	324
Interest expense on operating lease liabilities	1,321	402

A summary of our future minimum lease commitments under non-cancellable leases as of March 31, 2022 is as follows (in thousands):

	Operating Leases
2022 (excluding the three months ended March 31, 2022)	$ 6,361
2023	8,303
2024	8,619
2025	9,316
2026	9,363
Thereafter	48,775
Total lease payments	90,737
Less: imputed interest	(34,638)
Total	$ 56,099

5. Business Combinations

In August 2021, we acquired 100% of the outstanding common stock of Lana Labs, a developer of process mining software, for approximately $30.7 million, net of cash acquired and debt. The acquisition was made due to the attractive nature of the product offerings of Lana Labs and in furtherance of our objective to enhance our automation platform. The transaction was financed through available cash on hand.

The allocation of the purchase price is preliminary pending the finalization of the fair value of the acquired net assets, liabilities assumed, deferred income taxes, and assumed income and non-income based tax liabilities. As of the acquisition date, the purchase price was assigned to the acquired assets and assumed liabilities as follows (in thousands):

Cash acquired	$ 256
Other current assets	106
Property and equipment	59
Developed technology	5,974
Customer relationships	750
Goodwill	24,521
Other non-current assets	27
Total assets acquired	31,693
Current liabilities	638
Non-current liabilities	38
Total liabilities assumed	676
Net assets acquired	$ 31,017

There were no changes to our reportable segments as a result of the acquisition, and acquisition costs incurred in relation to the transaction were immaterial. We do not expect the purchase price allocated to goodwill and intangible assets to be deductible for tax purposes.

Since the acquisition date, measurement period adjustments have included a $0.8 million adjustment to developed technology and goodwill related to an update to the discount rate utilized in our valuation of intangibles, a $0.3 million increase in deferred revenue stemming from our early adoption of new accounting guidance surrounding deferred revenue recognized pursuant to a business combination, a $0.1 million deferred tax adjustment, and an immaterial adjustment to working capital. No additional measurement period adjustments were recognized for the three months ended March 31, 2022.

6. Goodwill and Intangible Assets

Goodwill was comprised of the following as of March 31, 2022 and December 31, 2021 (in thousands):

	Carrying Amount
Balance as of December 31, 2020	$ 4,862
Goodwill acquired	24,521
Foreign currency translation adjustments	(1,588)
Balance as of December 31, 2021	27,795
Goodwill acquired	—
Foreign currency translation adjustments	(524)
Balance as of March 31, 2022	$ 27,271

Intangible assets, net consisted of the following as of March 31, 2022 and December 31, 2021 (in thousands):

	As of	
	March 31, 2022	December 31, 2021
Developed technology	$ 7,133	$ 7,271
Customer relationships - Non-Robotic Process Automation (“RPA”)	856	872
Customer relationships - RPA	256	261
Intangible assets, gross	8,245	8,404
Less: accumulated amortization	(1,630)	(1,260)
Intangible assets, net	$ 6,615	$ 7,144

Intangible amortization expense was $0.4 million and $0.1 million for the three months ended March 31, 2022 and 2021, respectively. As of March 31, 2022, the weighted average remaining amortization periods for developed technology, non-RPA customer relationships, and RPA customer relationships were approximately 4.2 years, 8.9 years, and 7.8 years, respectively.

The projected annual amortization expense related to amortizable intangible assets as of March 31, 2022 is as follows (in thousands):

	Projected Amortization
2022 (excluding the three months ended March 31, 2022)	$ 1,181
2023	1,522
2024	1,522
2025	1,211
2026	779
Thereafter	400
Total projected amortization expense	$ 6,615

7. Property and Equipment, net

Property and equipment, net consisted of the following as of March 31, 2022 and December 31, 2021 (in thousands):

	March 31, 2022	December 31, 2021
Leasehold improvements	$ 42,630	$ 41,005
Office furniture and fixtures	3,259	2,536
Computer hardware	6,577	6,001
Computer software	1,354	1,353
Equipment	179	124
Property and equipment, gross	53,999	51,019
Less: accumulated depreciation	(15,473)	(14,106)
Property and equipment, net	$ 38,526	$ 36,913

Depreciation expense totaled $1.4 million and $1.2 million for the three months ended March 31, 2022 and 2021, respectively. We had no disposals or retirements and recorded no gains or losses on disposal during each of the three months ended March 31, 2022 and 2021.

8. Accrued Expenses

Accrued expenses consisted of the following as of March 31, 2022 and December 31, 2021 (in thousands):

	March 31, 2022	December 31, 2021
Accrued hosting costs	$ 3,044	$ 1,995
Accrued legal costs	7,899	5,511
Accrued marketing and tradeshow expenses	1,019	1,167
Accrued third party license fees	1,283	1,066
Accrued contract labor costs	1,299	891
Accrued reimbursable employee expenses	1,023	870
Accrued taxes payable	732	550
Accrued audit and tax expenses	504	439
Accrued capital expenditures	—	379
Other accrued expenses	1,851	2,615
Total	$ 18,654	$ 15,483

9. Debt

Line of Credit

In November 2017, we entered into a $20.0 million revolving line of credit with a lender. In December 2021, we executed the first loan modification agreement which extended the revolving line of credit's maturity date from November 2022 to November 2025 and amended certain borrowing terms and financial covenants, and in January 2022, we executed the second loan modification agreement to increase the aggregate amount of funds our foreign subsidiaries are allowed to maintain outside of the United States.

Under the amended agreement, we may elect whether amounts drawn on the revolving line of credit bear interest on the outstanding principal amount at a rate per annum equal to either a) the Prime rate plus an additional interest rate margin or b) the secured overnight financing rate ("SOFR") 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 0.75% to 1.25% in the case of Prime rate advances and from 1.75% to 2.25% in the case of SOFR advances. The revolving line of credit contains an unused facility fee up to 0.20% 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 (i) an adjusted quick ratio of at least 1.35 to 1.00 subject to a net cash threshold as set forth in the agreement 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 March 31, 2022. As of March 31, 2022, we had no outstanding borrowings under this revolving line of credit, and we had outstanding letters of credit totaling $11.2 million in connection with securing our leased office space.

10. 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 or unusual items, discrete events, or changes in tax law. Our operating subsidiaries are exposed to statutory effective tax rates ranging from zero to approximately 35%. 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 months ended March 31, 2022 and 2021, the actual effective tax rates were 6.4% and (0.9)%, respectively. The year to date tax benefit for the three months ended March 31, 2022 was primarily driven by a discrete benefit of $1.1 million related to the release of a valuation allowance for Lana Labs as a result of post-integration tax planning and the merger of German subsidiaries.

We assess uncertain tax positions in accordance with ASC 740-10, *Accounting for Uncertainties in Income Taxes*. As of March 31, 2022, our net unrecognized tax benefits totaled $3.1 million, which if recognized would result in no net effect on the effective tax rate due to a valuation allowance. 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 or settlements of tax audits is not material to our condensed consolidated financial statements.

We file income tax returns in the U.S. federal jurisdiction and in various state and foreign jurisdictions. Due to our net operating loss (“NOL”) carryforward, the tax years 2016 through 2021 remain open to examination by the major taxing jurisdictions to which we are subject. There are no open examinations that would have a meaningful impact to our condensed consolidated financial statements.

11. Stock-Based Compensation

Equity Incentive Plans

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 initial public offering. The 2017 Plan provides for the grant of incentive stock options to employees and for the grant of nonstatutory stock options, restricted stock awards, RSUs, stock appreciation rights, performance-based stock awards, and other forms of equity compensation to employees, including officers, 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 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 March 31, 2022, there were 7,186,749 shares of Class A common stock reserved for issuance under the 2017 Plan, of which 3,749,501 were available to be issued.

Stock Options

We estimate the fair value of stock options containing only a service condition using the Black-Scholes option 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.

In May 2019, our Board of Directors granted a stock option to purchase 700,000 shares of our Class A common stock to our Chief Executive Officer (the “2019 CEO Grant”) under the 2017 Plan with an exercise price of $33.98 per share. The 2019 CEO Grant is eligible to vest based on the achievement of a stock price appreciation target of our Class A common stock. Specifically, the 2019 CEO Grant vests when shares of our Class A common stock close at or above $84.63 per share for a period equal to or greater than 90 consecutive calendar days or upon the occurrence of a change in control in which the value of our Class A common stock is equal to or greater than $84.63 per share within five years of the grant date. The fair value of the 2019 CEO Grant was determined using a Monte Carlo simulation. The fair value of the award at the grant date was $9.5 million and was amortized over the derived service period of 2.6 years. In February 2021, the 2019 CEO Grant satisfied all of the conditions required to be considered fully vested and as a result, we accelerated the recognition of approximately $3.3 million in stock-based compensation expense in the three months ended March 31, 2021.

The following table summarizes stock option activity for the three months ended March 31, 2022:

	Number of Shares	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (Years)	Aggregate Intrinsic Value (in thousands)
Outstanding at January 1, 2022	2,953,356	$ 15.16	4.0	$ 147,812
Granted	—	—	—	—
Exercised	(815,833)	29.91	—	28,281
Expired	(580)	9.81	—	—
Forfeited	(8,000)	12.10	—	—
Outstanding at March 31, 2022	2,128,943	$ 9.52	4.3	$ 109,212
Exercisable at March 31, 2022	1,996,823	$ 9.35	4.2	$ 102,776

There were no stock options granted during the three months ended March 31, 2022 and 2021. The total fair value of stock options that vested during the three months ended March 31, 2022 and 2021 was $0.2 million and $9.7 million, respectively. As of March 31, 2022, the total compensation cost related to unvested stock options not yet recognized was nominal and will be recognized over a weighted average period of 0.2 years.

Restricted Stock Units

The following table summarizes RSU activity for the three months ended March 31, 2022:

	Number of Shares	Weighted Average Grant Date Fair Value
Non-vested and outstanding at January 1, 2022	1,209,529	$ 70.99
Granted	222,599	57.16
Vested	(47,038)	69.01
Forfeited	(45,053)	68.09
Non-vested and outstanding at March 31, 2022	1,340,037	68.86

As of March 31, 2022, total unrecognized compensation cost related to unvested RSUs was approximately $79.1 million, which will be recognized over a weighted average period of 1.9 years.

The following table summarizes the components of our stock-based compensation expense by instrument type for the three months ended March 31, 2022 and 2021 (in thousands):

	Three Months Ended March 31,	
	2022	2021
RSUs	$ 6,786	$ 4,005
Stock options	1	3,733
Common stock awards to Board of Directors	156	156
Total stock-based compensation expense	$ 6,943	$ 7,894

Stock-based compensation expense for RSUs, stock options, and issuances of common stock to the Board of Directors is included in the following line items in the accompanying condensed consolidated statements of operations for the three months ended March 31, 2022 and 2021 (in thousands):

	Three Months Ended March 31,	
	2022	2021
Cost of revenue		
Subscriptions	$ 179	$ 297
Professional services	1,057	641
Operating expenses		
Sales and marketing	1,788	1,108
Research and development	2,314	1,015
General and administrative	1,605	4,833
Total stock-based compensation expense	$ 6,943	$ 7,894

12. Stockholders' Equity

As of March 31, 2022, 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 of $0.0001 per share, of which 40,829,564 shares of Class A common stock and 31,497,796 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 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 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.

13. Basic and Diluted Loss per Common Share

The following outstanding securities, prior to the use of the treasury stock method or the if-converted method, have been excluded from the computation of diluted weighted-average shares outstanding for the respective periods below because they would have been antidilutive:

	Three Months Ended March 31,	
	2022	2021
Stock options	2,128,943	3,309,771
Non-vested restricted stock units	1,340,037	1,125,631

14. Commitments and Contingencies

Contractual Warranty and Indemnification Obligations

We provide limited product warranties. Historically, any payments made under these provisions have been immaterial. We also agree to standard indemnification provisions in the ordinary course of business. Pursuant to these provisions, we agree to indemnify, hold harmless, and reimburse the indemnified party for losses suffered or incurred by the indemnified party, generally our customers, in connection with certain intellectual property infringement claims by any third party arising from the use of our products or services in accordance with the agreement. The term of our contractual indemnity provisions often survives termination or expiration of the applicable agreement. We carry insurance that covers certain third-party claims relating to our services and limits our exposure. We have never incurred costs to defend lawsuits or settle claims related to these indemnification provisions.

Minimum Purchase Commitments

In July 2021, we executed a non-cancellable cloud hosting arrangement with Amazon Web Services (“AWS”) that contains provisions for minimum purchase commitments. Specifically, purchase commitments under the agreement total $131.0 million over five years, including $22.0 million in the first year, $25.0 million in the second year, and $28.0 million in each of the third, fourth, and fifth years. The timing of payments under the agreement may vary, and the total amount of payments may exceed the minimum depending on the volume of services utilized. Spending under this agreement for the three months ended March 31, 2022 totaled $7.8 million.

Exclusive of the AWS contract, we have other non-cancellable agreements for subscription software products that contain provisions stipulating minimum purchase commitments. However, the annual purchase commitments under these contracts are, individually and in the aggregate, immaterial to our condensed consolidated financial statements.

Letters of Credit

At each of March 31, 2022 and December 31, 2021, we had outstanding letters of credit totaling $11.2 million in connection with securing our leased office space. All letters of credit are secured by our borrowing arrangement as described in Note 9.

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 resolutions of any matters expected to have a material adverse impact on our condensed consolidated financial statements.

15. Segment and Geographic Information

We consider operating segments to be components of our business in which separate financial information is available and evaluated regularly by our Chief Operating Decision Maker ("CODM"). Our CODM, who is our Chief Executive Officer, reviews financial information on a consolidated basis when deciding how to allocate resources and assessing performance. Accordingly, we have determined we have a single reporting segment and operating unit structure.

The following table summarizes revenue by geography for the three months ended March 31, 2022 and 2021 (in thousands):

	Three Months Ended March 31,	
	2022	2021
Domestic	$ 76,039	$ 60,282
International	38,227	28,573
Total	$ 114,266	$ 88,855

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 months ended March 31, 2022 or 2021. Substantially all of our long-lived assets were held in the United States as of March 31, 2022 and December 31, 2021.

16. Investments and Fair Value Measurements

Fair Value Measurements

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.

The asset or liability's fair value measurement level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement. Valuation techniques maximize the use of relevant observable inputs and minimize the use of unobservable inputs. There were no instruments measured at fair value on a recurring basis using significant unobservable inputs as of March 31, 2022 and December 31, 2021.

The valuation techniques that may be used to measure fair value are as follows:

- Market approach - Uses prices and other relevant information generated by market transactions involving identical or comparable assets or liabilities;
- Income approach - Uses valuation techniques to convert future amounts to a single present amount based on current market expectations about those future amounts;
- Cost approach - Based on the amount that currently would be required to replace the service capacity of an asset (i.e., replacement cost).

The carrying amounts of our cash and cash equivalents, accounts receivable, accounts payable, and accrued expenses approximate fair value as of March 31, 2022 and December 31, 2021 because of the relatively short duration of these instruments.

Investments

Our investment portfolio consists largely of debt investments classified as available-for-sale. Changes in the fair value of available-for-sale securities, excluding other-than-temporary impairments, are recorded in other comprehensive income (loss). The components of our investments as of March 31, 2022 are as follows (in thousands):

	As of March 31, 2022						
	Fair Value Measurement				Balance Sheet Classification		
	Fair Value Level	Cost Basis	Unrealized Gains (Losses)	Market Value	Cash and Cash Equivalents	Short-term Investments and Marketable Securities	Long-term Investments
Money market fund	Level 1	$ 43,555	$ —	$ 43,555	$ 43,555	$ —	$ —
U.S. Treasuries	Level 1	7,003	(3)	7,000	—	7,000	—
Commercial paper	Level 2	23,110	—	23,110	—	23,110	—
Corporate bonds	Level 2	26,148	(114)	26,034	—	17,850	8,184
Asset-backed securities	Level 2	5,493	(15)	5,478	—	5,478	—
Total investments		$ 105,309	$ (132)	$ 105,177	$ 43,555	$ 53,438	$ 8,184

At December 31, 2021, our investments consisted of the following (in thousands):

	As of December 31, 2021						
	Fair Value Measurement				Balance Sheet Classification		
	Fair Value Level	Cost Basis	Unrealized Gains (Losses)	Market Value	Cash and Cash Equivalents	Short-term Investments and Marketable Securities	Long-term Investments
Money market fund	Level 1	$ 38,301	$ —	$ 38,301	$ 38,301	$ —	$ —
U.S. Treasury bonds	Level 1	8,171	—	8,171	—	8,171	—
Commercial paper	Level 2	23,312	—	23,312	—	23,312	—
Corporate bonds	Level 2	20,107	(14)	20,093	—	8,049	12,044
Asset-backed securities	Level 2	15,655	(8)	15,647	—	15,647	—
Total investments		$ 105,546	$ (22)	$ 105,524	$ 38,301	$ 55,179	$ 12,044

There were no Level 3 assets held at any point during the three months ended March 31, 2022 and 2021. Additionally, there were no transfers between Levels 1 and 2 during the three and three months ended March 31, 2022 and 2021.

The amortized cost basis and fair value of debt securities as of March 31, 2022, by contractual maturity, are as follows (in thousands):

	As of March 31, 2022	
	Cost Basis	Fair Value
Due in one year or less	$ 97,104	$ 96,993
Due after one year through five years	8,205	8,184
Total investments	$ 105,309	$ 105,177

Actual maturities may differ from the contractual maturities in the table above because borrowers have the right to call or prepay certain obligations.

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 year ended December 31, 2021 included in our Annual Report on Form 10-K, filed with the Securities and Exchange Commission, or SEC, on February 17, 2022.

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, including statements regarding our future financial and operating performance, anticipated expansion of the usage of partners to perform professional services, the increase of our subscriptions revenue as a percentage of total revenue, the fluctuation of gross margin on a quarterly basis, our future capital requirements, and uncertain negative impacts the COVID-19 pandemic, including the emergence of new variant strains of COVID-19, may have on our business, financial condition, results of operations, and changes in overall level of spending and volatility in the global economy. 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 17, 2022 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 low-code platform that accelerates the creation of high-impact business applications and workflows, enabling our customers to automate the most important aspects of their business. Global organizations use our applications to improve customer experience, achieve operational excellence, and simplify global risk management and compliance.

With our platform, organizations can rapidly and easily discover, design, and automate powerful, enterprise-grade workflows and custom applications through our intuitive, visual interface with little or no coding required. Our customers have used workflows and applications built on our 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.

We have generated the majority of our revenue from sales of subscriptions, which include (1) SaaS subscriptions bundled with maintenance and support and hosting services and (2) term license subscriptions bundled with maintenance and support. Our subscription fees are based primarily on the number of users who access and utilize the applications built on our platform or, alternatively, non-user based single application licenses. Our customer contract terms generally vary from one to three 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 changes in our deferred revenue in a given period are directly correlated with our revenue growth.

Since inception, we have invested in our Customer Success organization to help ensure customers are able to build and deploy applications on our platform. We have several strategic partnerships, including with KPMG, Accenture, PwC, Infosys, Wipro, and Deloitte, for them to refer customers to us in order to purchase subscriptions 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, government, life sciences, insurance, manufacturing, energy, healthcare, telecommunications, and transportation organizations. Generally, our sales team targets its efforts to organizations with over 2,000 employees and $2 billion in annual revenue. Revenue from government agencies represented 18.1% and 20.9% of our total revenue in the three months ended March 31, 2022 and 2021, respectively. No single end-customer accounted for more than 10% of our total revenue in the three months ended March 31, 2022 or 2021.

Our platform supports multiple languages to facilitate collaboration and address challenges in multinational organizations. We offer our platform globally. In the three months ended March 31, 2022 and 2021, 33.5% and 32.2%, respectively, of our total revenue was generated from customers outside of the United States. As of March 31, 2022, we operated in 13 countries. We believe we have a significant opportunity to grow our international footprint, and 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

COVID-19

Beginning in late 2019 and continuing into 2022, the outbreak of the novel coronavirus disease, or COVID-19, resulted in the declaration of a global pandemic and adversely affected economic activity across virtually all sectors and industries on a local, national, and global scale. The impact of COVID-19, including the emergence of new variant strains of COVID-19, on the economy and our business continues to be a fluid situation.

Operationally, we remain focused on supporting our customers, employees, and communities during this time. At the outset of the pandemic, we responded quickly to adopt a virtual corporate strategy consisting of enabling most of our employees to work productively from home while continuing to guard the health and safety of our teams, support our customers, and mitigate risk. In the third quarter of 2021, we announced an option allowing for our employees to return to offices in select jurisdictions if they elect to do so. We remain focused on ensuring continuity for our customers, and we continue to conduct business as usual, with necessary or advisable modifications to employee travel, employee work locations, and marketing events.

Through March 31, 2022, we have not seen a meaningful adverse impact to our financial position, results of operations, and cash flows and liquidity as a result of COVID-19. While the verticals from which we have historically generated the majority of our revenue have been less impacted by COVID-19 to date, there may be impacts to our financial condition and results of operations in 2022 and beyond as a result of reduced demand for our products and services and longer sales cycles. The ultimate impact of COVID-19 and any variant strains thereof on our business is not estimable at this time and will be largely dependent upon a number of factors outside of our control including the extent and duration of the outbreak as well as any mitigating actions which may be undertaken by global governments and the general public.

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 our platform as well as the price and number of subscriptions of our platform that a customer purchases. We incur significant customer acquisition costs, including expenses associated with hiring new sales representatives, who can take anywhere from six months to a year to become productive given the length of our sales cycle, and marketing costs, all of which, with the exception of sales commissions, are expensed as incurred.

Key Factors Affecting Our Performance

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 our revenue growth will be primarily driven by the pace of adoption and penetration of our platform. We offer a leading custom software 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 as of the specified measurement date. Furthermore, we define a new customer as an entity that has entered into its first active subscription or maintenance and support contract within one calendar year of the specified measurement date while existing customers are defined as entities that have maintained an active subscription or maintenance and support contract for at least one calendar year from the specified measurement date. Legacy customers from entities acquired in business combinations are not counted as new customers until they enter into a new active subscription or maintenance and support contract with us subsequent to the completion of the business combination. Additionally, 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 team in order to drive sales to new customers. We continue to make investments to enhance the expertise of our sales and marketing organization within our key industry verticals of financial services, government, and life sciences. 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 differentiate ourselves within the increasingly competitive markets in which we participate.

- **Further Penetration of Existing Customers.** Our sales team 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 or through non-user based single application licenses. 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 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 strategic partners and the “land and expand” strategy versus delivering billable hours.

- **Mix of Subscriptions 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 subscriptions revenue as a percentage of total revenue to increase. In addition, we continue to 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 originate. As the usage of partners expands, we expect the proportion of our total revenue from subscriptions to increase over time relative to professional services. For the three months ended March 31, 2022 and 2021, 73.3% and 71.8% of our revenue, respectively, was derived from sales of subscriptions while the remaining 26.7% and 28.2%, 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 their power and speed, to meet the evolving needs of our customers, and to take advantage of our market opportunity. In addition, we continue to pursue strategic acquisitions that enhance our product offerings. We also intend to continue to invest 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. All dollar amounts are presented in thousands.

Cloud Subscription Revenue

	Three Months Ended March 31,	
	2022	2021
Cloud subscription revenue	$ 53,379	$ 39,053

Cloud subscription revenue includes SaaS subscriptions bundled with maintenance and support and hosting services. We generally sell our SaaS subscriptions on a per-user basis or through non-user based single application licenses. As such, our cloud subscription revenue for any customer is primarily determined by the number of users who access and utilize the applications built on our platform or by the number of application licenses purchased, as well as the price paid. We believe increasing cloud 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 team and strategic relationships in growing our customer base, and our ability to further penetrate our existing customer base.

Cloud Subscription Revenue Retention Rate

	As of March 31,	
	2022	2021
Cloud subscription revenue retention rate	117 %	118 %

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 cloud subscription revenue retention rate for a particular trailing 12-month period, we first establish the recurring cloud subscription revenue for the previous trailing 12-month period. This effectively represents recurring dollars 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 cloud subscription revenue in the current trailing 12-month period from the cohort of customers from the previous trailing 12-month period. Cloud subscription revenue retention rate is then calculated by dividing the aggregate recurring cloud 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 cloud 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 or through non-user based single application licenses. 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

Subscriptions revenue is primarily derived from:

- SaaS subscriptions bundled with maintenance and support and hosting services; and
- On-premises term license subscriptions bundled with 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. On-premises term license subscriptions are offered when the customer prefers to self-manage the deployment of our platform within their own infrastructure. When our platform is delivered as a SaaS subscription, we manage their operational needs in third-party hosted data centers.

Professional Services

Our professional services revenue is comprised of fees for consulting services, including application development, 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 professional services revenue as a percentage of total revenue to decrease. Additionally, professional services revenue may be negatively impacted if there is a decline in our procurement of new customers as a result of the COVID-19 pandemic.

We have several strategic partnerships, including with KPMG, Accenture, PwC, Infosys, Wipro, and Deloitte. These partners refer software subscription customers to us and generally perform professional services with respect to any new service contracts they originate, increasing our subscriptions revenue without any change to our professional services revenue. 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. 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 we sell. Professional services revenue may also decline in absolute dollars if we increasingly rely on our network to procure new customers.

Cost of Revenue

Subscriptions

Cost of subscriptions 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, third-party contractor costs, allocated facility costs and overhead, and the costs of billable expenses such as travel and lodging. The unpredictability of the timing of entering into significant professional services agreements sold on a standalone basis may cause significant fluctuations in our cost of professional services which, in turn, may impact our quarterly financial results and allocated facility costs and overhead.

Gross Margin

Gross profit and gross margin, or gross profit as a percentage of total revenue, have been, and will continue to be, affected by various factors, including the mix of SaaS subscriptions and on-premises term license subscriptions, the mix of total subscriptions 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. Our gross margin may fluctuate from period to period based on the above factors.

Subscriptions Gross Margin

Subscriptions gross margin is primarily affected by the growth in our subscriptions revenue as compared to the growth in, and timing of, costs to support such revenue. We expect to continue to invest in customer support and SaaS operations to support growth in our business, and the timing of those investments is expected to cause subscriptions gross margin to fluctuate on a quarterly basis.

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 Customer Success organization as we continue to invest in the growth of our business. Professional services gross margin is also impacted by the amount of services performed by subcontractors and partners as opposed to internal resources. Beginning in 2020, we lowered our usage of subcontractors, and the COVID-19 pandemic resulted in fewer in-person professional services engagements and deployments, both of which reduced certain classes of expenses and improved professional services margins. In 2021 and continuing into 2022, these margins have declined but remain subject to fluctuation based on the factors discussed above and uncertainties related to the COVID-19 pandemic outside of our control.

Operating Expenses

Operating expenses consist of sales and marketing, research and development, and general and administrative expenses. Personnel-related costs such as salaries, bonuses, commissions, payroll tax payments, and stock-based compensation expense are the most significant components of each of these expense categories. Other components of each category include professional fees for third-party services such as contract labor, legal, development resources, and consulting as well as allocated facility and overhead, which can include, among other types of costs, travel and entertainment expenditures, human resources costs such as placement fees, referral bonuses, training costs, and employee relations spending, office-related expenditures, and information technology costs for such items as infrastructure, software, and cloud computing services.

In general, our operating expenses are expected to continue to increase in absolute dollars as we invest resources in growing our various teams.

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 activities and promotional events, 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. Additionally, as the COVID-19 pandemic improves and certain restrictions are loosened, we would expect certain classes of expense such as travel and entertainment and in-person marketing events to increase relative to recent years. 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, and overhead.

Our research and development efforts are focused on enhancing the speed and power of our software platform. We expect research and development expense to continue to increase in absolute dollars as such costs are critical to maintain and improve the 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, as well as our executives. Additional expenses included in this category are non-personnel costs such as travel-related expenses, contracting and professional fees for such services as audits, taxation, and legal, insurance and other corporate expenses, allocated facility costs and overhead, bad debt expenses, and depreciation and amortization costs.

Absent certain non-recurring legal expenses incurred in 2022 and prior years, we expect our general and administrative expense to increase in absolute dollars as we continue to support our growth.

Other Expense

Other Expense, Net

Other expense, 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 and investments, gains or losses on the disposal of property and equipment, and other sources of income or expense not related to our core business operations.

Interest Expense

Interest expense consists primarily of interest on our debt, unused credit facility fees, and commitment fees on our letters of credit.

Results of Operations

The following table sets forth our condensed consolidated statements of operations data (in thousands):

	Three Months Ended March 31,	
	2022	2021
Revenue		
Subscriptions	$ 83,720	$ 63,766
Professional services	30,546	25,089
Total revenue	114,266	88,855
Cost of revenue		
Subscriptions(1)	8,206	5,854
Professional services(1)	22,710	17,675
Total cost of revenue	30,916	23,529
Gross profit	83,350	65,326
Operating expenses		
Sales and marketing(1)	45,916	35,984
Research and development(1)	29,839	20,690
General and administrative(1)	31,461	19,142
Total operating expenses	107,216	75,816
Operating loss	(23,866)	(10,490)
Other expense		
Other expense, net	787	2,893
Interest expense	74	81
Total other expense	861	2,974
Loss before income taxes	(24,727)	(13,464)
Income tax (benefit) expense	(1,573)	123
Net loss	$ (23,154)	$ (13,587)

(1) Stock-based compensation as a component of these line items is as follows:

	Three Months Ended March 31,	
	2022	2021
Cost of revenue		
Subscriptions	$ 179	$ 297
Professional services	1,057	641
Operating expenses		
Sales and marketing	1,788	1,108
Research and development	2,314	1,015
General and administrative	1,605	4,833
Total stock-based compensation expense	$ 6,943	$ 7,894

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

	Three Months Ended March 31,	
	2022	2021
Revenue		
Subscriptions	73.3 %	71.8 %
Professional services	26.7	28.2
Total revenue	100.0	100.0
Cost of revenue		
Subscriptions	7.2	6.6
Professional services	19.9	19.9
Total cost of revenue	27.1	26.5
Gross profit	72.9	73.5
Operating expenses		
Sales and marketing	40.2	40.5
Research and development	26.1	23.3
General and administrative	27.5	21.5
Total operating expenses	93.8	85.3
Operating loss	(20.9)	(11.8)
Other expense		
Other expense, net	0.7	3.3
Interest expense	0.1	0.1
Total other expense	0.8	3.3
Loss before income taxes	(21.6)	(15.2)
Income tax (benefit) expense	(1.4)	0.1
Net loss	(20.3)%	(15.3)%

Comparison of the Three Months Ended March 31, 2022 and 2021

Revenue

	Three Months Ended March 31,		
	2022	2021	% Change
	(dollars in thousands)		
Revenue			
Subscriptions	$ 83,720	$ 63,766	31.3 %
Professional services	30,546	25,089	21.8 %
Total revenue	$ 114,266	$ 88,855	28.6 %

Total revenue increased $25.4 million, or 28.6%, in the three months ended March 31, 2022 compared to the same period in 2021 due to an increase in our subscriptions revenue of $20.0 million and an increase in our professional services revenue of $5.5 million. The increase in subscriptions revenue was driven largely by a $14.3 million increase in cloud subscription revenue and a $4.9 million increase in on-premises subscription revenue. With respect to new versus existing customers, there was a $12.7 million increase in subscriptions revenue stemming from expanded deployments and corresponding sales of additional subscriptions to existing customers while $7.1 million of the increase was the result of sales of subscriptions to new customers. The remainder of the increase is attributable to revenue recognized from Lana Labs. The increase in professional services revenue was due primarily to a $6.8 million increase in sales to new customers, which was partially offset by a $1.3 million decrease in revenue from existing customers. Professional services revenue was also impacted by the level of usage of partners to perform professional services in the three months ended March 31, 2022 as compared to the same period in 2021.

Cost of Revenue

	Three Months Ended March 31,		
	2022	2021	% Change
	(dollars in thousands)		
Cost of revenue			
Subscriptions	$ 8,206	$ 5,854	40.2 %
Professional services	22,710	17,675	28.5 %
Total cost of revenue	$ 30,916	$ 23,529	31.4 %
Subscriptions gross margin	90.2 %	90.8 %	
Professional services gross margin	25.7 %	29.6 %	
Total gross margin	72.9 %	73.5 %	

Cost of revenue increased $7.4 million, or 31.4%, in the three months ended March 31, 2022 compared to the same period in 2021, primarily due to a $5.1 million increase in professional services and product support personnel costs, a $1.6 million increase in other cost of revenue, a $0.4 million increase in facility and overhead costs, a $0.2 million increase in contractor costs, and a $0.1 million increase in billable expenses. Personnel costs increased due to an increase in professional services and product support personnel headcount of 20.4% from March 31, 2021 to March 31, 2022, coupled with a $0.3 million increase in stock-based compensation. 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 March 31, 2022. The increase in facility and overhead costs was due largely to an increase in certain allocated costs tied directly to our growth such as spending for offices, human resources costs, and information technology infrastructure. Contractor costs increased in the three months ended March 31, 2022 compared to the same period in 2021 due to an increase in the usage of subcontractors and consultants for professional services engagements. Billable expenses increased primarily due to an increase in travel and entertainment related expenses in the three months ended March 31, 2022 as a result of more in-person engagements compared to three months ended March 31, 2021.

Subscriptions gross margin slightly decreased to 90.2% for the three months ended March 31, 2022 compared to 90.8% in the same period in 2021 due to increased hosting costs as sales of our cloud offering increased and became a larger proportion of our overall subscriptions revenue. This increase in hosting costs was partially offset by an increase in subscriptions revenue. Professional services gross margin decreased to 25.7% for the three months ended March 31, 2022 compared to 29.6% in the same period in 2021 due largely to higher personnel and human resources costs in the comparable periods, partially offset by an increase in professional services revenue. Furthermore, fewer in-person professional services engagements and deployments during the three months ended March 31, 2021 as compared to the three months ended March 31, 2022 led to temporarily improved margins in the prior year. Due largely to the increase in professional services cost of revenue, gross margin fell slightly to 72.9% in the three months ended March 31, 2022 as compared to 73.5% in the same period in 2021.

Sales and Marketing Expense

	Three Months Ended March 31,		
	2022	2021	% Change
	(dollars in thousands)		
Sales and marketing	$ 45,916	$ 35,984	27.6 %
% of revenue	40.2 %	40.5 %	

Sales and marketing expense increased $9.9 million, or 27.6%, in the three months ended March 31, 2022 compared to the same period in 2021, primarily due to a $7.0 million increase in sales and marketing personnel costs, a $2.8 million increase in facility and overhead costs, and a $0.7 million increase in marketing costs, which were partially offset by a $0.5 million decrease in professional fees. Personnel costs increased due to an increase in sales and marketing personnel headcount of 19.7% from March 31, 2021 to March 31, 2022, increased sales commissions driven by our revenue growth, and a $0.7 million increase in stock-based compensation expense. Facility and overhead costs increased due to increases in certain allocated costs tied directly to our growth such as spending for offices, human resources costs, and information technology infrastructure. Additionally, travel and entertainment expenses increased due to a higher number of in-person engagements and events relative to the prior year and an increase in the number of employees returning to offices in some of our jurisdictions. Marketing costs increased due to an increase in the number of marketing events held during the three months ended March 31, 2022 as compared to the three months ended March 31, 2021, including spending on our annual user conference Appian World, which resumed its in-person format in April 2022. Additionally, marketing costs increased due to an increase in spending on advertising campaigns. Professional fees decreased due to a decrease in the use of third-party sales and marketing consultants for certain initiatives.

Research and Development Expense

	Three Months Ended March 31,		% Change
	2022	2021	
	(dollars in thousands)		
Research and development	$ 29,839	$ 20,690	44.2 %
% of revenue	26.1 %	23.3 %	

Research and development expense increased $9.1 million, or 44.2%, in the three months ended March 31, 2022 compared to the same period in 2021, primarily due to a $7.4 million increase in research and development personnel costs, a $1.0 million increase in facility and overhead costs, and a $0.7 million increase in professional fees. Personnel costs increased due to an increase in research and development personnel headcount of 28.7% from March 31, 2021 to March 31, 2022, coupled with a $1.3 million increase in stock-based compensation expense. Facility and overhead costs increased due to increases in certain allocated costs tied directly to our growth such as spending for offices, human resources costs, and information technology infrastructure. Professional fees increased due to an increase in consulting fees stemming from higher usage of external resources to assist in our platform development efforts.

General and Administrative Expense

	Three Months Ended March 31,		% Change
	2022	2021	
	(dollars in thousands)		
General and administrative expense	$ 31,461	$ 19,142	64.4 %
% of revenue	27.5 %	21.5 %	

General and administrative expense increased $12.3 million, or 64.4%, in the three months ended March 31, 2022 compared to the same period in 2021, primarily due to a $10.7 million increase in professional fees and a $3.1 million increase in facility and overhead costs, partially offset by a $1.5 million decrease in general and administrative personnel costs. Professional fees increased due to higher legal fees incurred in connection with two separate lawsuits, one involving reciprocal false advertising and related claims with a competitor and one involving an effort to enforce our intellectual property. Facility and overhead costs increased primarily due to an increase in certain allocated costs tied to our growth such as insurance premiums, information technology spending, human resources costs, and office-related expenses. Personnel costs decreased due to a $3.2 million decrease in stock-based compensation, which stemmed from the accelerated recognition of expense pursuant to the vesting of the 2019 CEO grant during the three months ended March 31, 2021. This decrease was partially offset by an increase in general and administrative personnel headcount of 19.7% from March 31, 2021 to March 31, 2022.

Other Expense, Net

	Three Months Ended March 31,		
	2022	2021	% Change
	(dollars in thousands)		
Other expense, net	$ 787	$ 2,893	(72.8)%
% of revenue	0.7 %	3.3 %	

Other expense, net was $0.8 million in the three months ended March 31, 2022 compared to other expense, net of $2.9 million in the three months ended March 31, 2021. This change was primarily due to $1.9 million in foreign exchange losses in the three months ended March 31, 2022 as compared to $3.0 million in foreign exchange losses in the three months ended March 31, 2021, coupled with a $1.0 million in other income stemming from a payment received from a local government pursuant to the company meeting certain economic development criteria.

Interest Expense

	Three Months Ended March 31,		
	2022	2021	% Change
	(dollars in thousands)		
Interest expense	$ 74	$ 81	(8.6)%
% of revenue	0.1 %	0.1 %	

Interest expense decreased by a nominal amount in the three months ended March 31, 2022 compared to the same period in 2021, primarily due to lower commitment fees on the letter of credit outstanding.

Liquidity and Capital Resources

The following table presents selected financial information and statistics as of March 31, 2022 and December 31, 2021 as well as for the three months ended March 31, 2022 and 2021 (in thousands):

	As of	
	March 31, 2022	December 31, 2021
Cash and cash equivalents	$ 106,795	$ 100,796
Short-term investments and marketable securities	53,438	55,179
Property and equipment, net	38,526	36,913
Long-term investments	8,184	12,044
Working capital*	131,457	121,752

	Three Months Ended March 31,	
	2022	2021
Net cash used in operating activities	$ (20,604)	$ (2,810)
Net cash provided by investing activities	2,099	5,157
Net cash provided by financing activities	24,404	625

* Exclusive of the current portion of restricted cash

As of March 31, 2022, we had $106.8 million of cash and cash equivalents and $53.4 million of short-term investments and marketable securities. We believe our existing cash and cash equivalents and short-term investments and marketable securities, 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. We expect future sources of funds to consist primarily of cash generated from sales of subscriptions and the related professional services. We may also elect to raise additional sources of funding through draws on our existing line of credit, entering into new debt financing arrangements, or conducting additional public offerings. 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, the introduction of new and enhanced products and functions as well as platform enhancements and professional services offerings, the level of market acceptance of our applications, spending we may incur on our headquarters, and the global economic uncertainty and financial market conditions caused by the COVID-19 pandemic and its impact on our business.

In the event 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, short-term 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.

We recently have, and in the future may enter into, investments in or acquisitions of complementary businesses, products, or technologies, which could also require us to seek additional equity financing, incur indebtedness, or use cash resources. We have no present binding agreements or commitments 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.

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 initial public offering in May 2017, net proceeds of $57.8 million from our underwritten public offering in August 2018, net proceeds of $101.3 million from our underwritten public offering in September 2019, and net proceeds of $107.9 million from our underwritten public offering in June 2020. In addition, we have financed our operations through sales of subscriptions and professional services and borrowings under our credit facilities.

We also have the ability to draw upon a $20.0 million revolving line of credit which we entered into in November 2017. In December 2021, we executed the first loan modification agreement which extended the revolving line of credit's maturity date from November 2022 to November 2025 and amended certain borrowing terms and financial covenants, and in January 2022, we executed the second loan modification agreement to increase the aggregate amount of funds our foreign subsidiaries are allowed to maintain outside of the United States.

Under the amended agreement, we may elect whether amounts drawn on the revolving line of credit bear interest on the outstanding principal amount at a rate per annum equal to either a) the Prime rate plus an additional interest rate margin or b) the secured overnight financing rate (“SOFR”) 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 0.75% to 1.25% in the case of Prime rate advances and from 1.75% to 2.25% in the case of SOFR advances. The revolving line of credit contains an unused facility fee up to 0.20% 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 (i) an adjusted quick ratio of at least 1.35 to 1.00 subject to a net cash threshold as set forth in the agreement 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 March 31, 2022. As of March 31, 2022, we had no outstanding borrowings under this revolving line of credit, and we had outstanding letters of credit totaling $11.2 million in connection with securing our leased office space.

Uses of Funds

Our current principal uses of cash are funding operations and other working capital requirements. Historically, we have also utilized cash to pay for the acquisition of entities we believe to be complementary to our business, and we may pursue similar opportunities in the future. 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 uses of cash in 2022 to date have included capital expenditures related to the expansion of our headquarters. Cash uses in the prior year through March 31, 2021 also consisted primarily of modest capital expenditures.

Furthermore, in 2021 we executed a non-cancellable cloud hosting arrangement with Amazon Web Services that contains provisions for minimum purchase commitments. Purchase commitments under the agreement total $131.0 million over five years, including $22.0 million in the first year, $25.0 million in the second year, and $28.0 million in each of the third, fourth, and fifth years. The timing of payments under the agreement may vary, and the total amount of payments may exceed the minimum depending on the volume of services utilized. Spending under this agreement for the three months ended March 31, 2022 totaled $7.8 million.

Historical Cash Flows

Operating Activities

For the three months ended March 31, 2022, net cash used in operating activities of $20.6 million consisted of a net loss of $23.2 million and $5.2 million of cash used from changes in working capital, partially offset by $7.8 million in adjustments for non-cash items. Adjustments for non-cash items consisted primarily of stock-based compensation of $6.9 million, depreciation and amortization expense of $1.8 million, and changes in the fair value of available-for-sale investment securities of $0.1 million. These adjustments were partially offset by deferred income tax adjustments of $1.1 million. The decrease in cash, cash equivalents, and restricted cash resulting from changes in working capital primarily consisted of a $6.8 million decrease in accrued compensation and related benefits as a result of comparatively higher declines in certain year-end employee benefit accruals such as bonuses, payroll taxes, and commissions, a $3.8 million net decrease in deferred revenue as a result of decreased subscription sales, a $3.6 million increase in prepaid expenses and other assets primarily due to higher prepayments under the AWS cloud hosting arrangement as well as the timing of other payments, a $1.4 million increase in deferred commissions due to increased sales activity combined with the timing of order completions, and a $0.5 million decrease in operating lease liabilities. These decreases to working capital were partially offset by a $8.4 million decrease in accounts receivable stemming from increased cash collections year over year as well as the timing of billings and a $2.3 million increase in accounts payable and accrued expenses primarily due to the timing of payments.

For the three months ended March 31, 2021, net cash used in operating activities of $2.8 million consisted of a net loss of $13.6 million, offset by $2.1 million of cash provided by changes in working capital and $8.7 million in adjustments for non-cash items. Adjustments for non-cash items consisted of stock-based compensation of $7.9 million, depreciation and amortization expense of $1.3 million, and deferred income tax adjustments of $0.4 million. The increase in cash, cash equivalents, and restricted cash resulting from changes in working capital primarily consisted of a $12.7 million decrease in accounts receivable stemming from increased cash collections as well as the timing of billings, a $1.2 million increase in accounts payable and accrued expenses primarily due to the timing of payments, a $0.2 million increase in operating lease liabilities, and a $0.2 million increase in other current and non-current liabilities. These increases to working capital were partially offset by a $7.2 million net decrease in deferred revenue as a result of decreased subscription sales, a $2.6 million increase in deferred commissions due to increased sales activity, a $2.0 million decrease in accrued compensation and related benefits as a result of lower employee benefit accruals for such costs as commissions and bonuses, and a $0.3 million increase in prepaid expenses and other assets primarily due to the timing of payments.

Investing Activities

For the three months ended March 31, 2022, net cash provided by investing activities was $2.1 million, consisting of $21.7 million in proceeds from the sale of investments, partially offset by $16.2 million in purchases of investments and $3.4 million in purchases of property and equipment.

For the three months ended March 31, 2021, net cash provided by investing activities was $5.2 million, which was due to $5.6 million in proceeds from the sale of investments, partially offset by $0.5 million in purchases of property and equipment.

Financing Activities

For the three months ended March 31, 2022, net cash provided by financing activities was $24.4 million, consisting entirely of proceeds received from stock option exercises.

For the three months ended March 31, 2021, net cash provided by financing activities was $0.6 million, consisting entirely of proceeds received from stock option exercises.

Critical Accounting 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 our financial statements and accompanying notes. Although we believe 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 and judgments embedded in the condensed consolidated financial statements for the periods presented include revenue recognition, income taxes and the related valuation allowance, stock-based compensation, the valuation of goodwill and intangible assets, valuation of financial instruments, leases, and costs to obtain a contract with a customer.

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, 2021, filed with the SEC on February 17, 2022. Furthermore, while the pandemic has been moving toward a controlled stage in the United States, we continue to monitor the developments surrounding the COVID-19 pandemic, including the emergence of new variant strains of COVID-19. We are not aware of any specific events or circumstances that would require us to update our estimates, assumptions, and judgments.

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.

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. The uncertainty that exists with respect to the economic impact of the global COVID-19 pandemic has also introduced significant volatility in the financial markets.

Interest Rate Risk

We had total cash, cash equivalents, and restricted cash of $109.9 million as of March 31, 2022, which consisted of $43.6 million invested in a money market fund, cash in readily available checking accounts, and overnight repurchase investments. These securities, which are not dependent on interest rate fluctuations that may cause principal amounts to fluctuate, are held for reinvestment and working capital purchases.

In addition, as of March 31, 2022, we held $61.6 million of fixed income securities such as U.S. Treasuries, commercial paper, corporate bonds, and asset-backed securities. These securities are subject to market risk due to fluctuations in interest rates, which may affect our interest income and the fair value of our investments. We classify investments as available-for-sale, including those with stated maturities beyond twelve months. As such, no gains or losses due to changes in interest rates are recognized in our condensed consolidated statements of operations unless such securities are sold prior to maturity or due to expected credit losses. A hypothetical 100 basis point change in interest rates would not have had a material effect on the fair market value of our investment portfolio as of March 31, 2022. To date, fluctuations in interest income have also not been significant. Our investments are made for the purpose of preserving capital, fulfilling liquidity needs, and maximizing total return. We do not enter into investments for trading or speculative purposes.

At March 31, 2022, we had no outstanding borrowings.

Inflation Risk

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

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 Australian dollar, Swedish krona, Swiss franc, British pound sterling, Euro, and Singapore dollar. 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 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 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 information required to be disclosed by a company in the reports 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 information required to be disclosed by a company in the reports 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 March 31, 2022. Based on the evaluation of our disclosure controls and procedures as of March 31, 2022, 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 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 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 the objectives of the control system are met. Further, the design of a control system must reflect the fact 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 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 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

Other than as discussed below, during the period covered by this report, there were no material developments in the legal proceedings disclosed in our Annual Report on Form 10-K for the year ended December 31, 2021.

Pegasystems Litigation

As previously disclosed, on May 29, 2020, we filed a civil complaint against Pegasystems, Inc. ("Pegasystems"), and Youyong Zou, a Virginia resident, in the Circuit Court for Fairfax County, Virginia, alleging claims for trade secret misappropriation, violation of the Virginia Computer Crimes Act ("VCCA"), tortious interference, and statutory business and common law conspiracy. *Appian Corp. v. Pegasystems Inc. & Youyong Zou*, No. 2020-07216 (Fairfax Cty. Ct.).

On April 12, 2022, we voluntarily dismissed our tortious interference claim, and on April 13, 2022, the court denied Pegasystems' motion to strike our claims after Appian concluded its case in chief, allowing the case to proceed to verdict. As of May 4, 2022, the trial is ongoing and set to be presented to the jury for deliberations imminently.

Also, as previously disclosed, on July 3, 2019, Pegasystems filed a claim against us and BPM.com, Inc., a market analyst company, in U.S. District Court for the District of Massachusetts alleging, among other things, that we had engaged in false advertising by re-publishing a study by BPM.com comparing us favorably to Pegasystems and by failing to disclose we commissioned the study. *Pegasystems Inc. v. Appian Corp. & Business Process Management Inc.*, No. 1:19-cv-11461 (D. Mass). On April 15, 2022, each of the parties filed motions for summary judgment with the court. We continue to believe Pegasystems' claims are without merit.

Other Matters

From time to time, we may become involved in legal proceedings or be subject to claims arising in the ordinary course of our business. Other than as disclosed elsewhere in this Quarterly Report, 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 year ended December 31, 2021, filed with the SEC on February 17, 2022. 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

Period	Total number of shares purchased[1]	Average price paid per share	Total number of shares purchased as part of publicly announced plan	Maximum number of shares that may yet be purchased under the plan [2]
January 1 to January 31, 2022	6,187	$ 61.66	6,187	980,213
February 1 to February 28, 2022	4,169	$ 55.16	4,169	976,044
March 1 to March 31, 2022	4,050	$ 53.54	4,050	971,994
Total	14,406	$ 57.49	14,406	971,994

[1] Shares purchased represent shares purchased on the open market pursuant to the Appian Corporation Employee Stock Purchase Plan ("ESPP"), which was approved by the Company's stockholders on June 11, 2021. Shares purchased under the ESPP are deposited into the participants' accounts.
[2] Because the number of shares that may be purchased under the ESPP depends on each employee's voluntary election to participate and contribution elections and on the fair market value of our Class A Common Stock at various future dates, the actual number of shares that may be purchased under the plan cannot be determined in advance. We have filed a registration statement on S-8 that covers 1,000,000 shares.

Item 3. DEFAULTS UPON SENIOR SECURITIES

Not applicable.

Item 4. MINE SAFETY DISCLOSURES

Not applicable.

Item 5. OTHER INFORMATION

The information set forth below is included herein for the purposes of providing the disclosure required under "Item 5.02 Departure of Directors or Certain Officers; Election of Directors; Appointment of Certain Officers; Compensatory Arrangements of Certain Officers" of Form 8-K.

On May 3, 2022, the Compensation Committee of the Board of Directors (the "Committee") conducted its annual review of the compensation of our Chief Executive Officer. In connection with that review, the Committee approved increasing the annual base salary of Matthew Calkins, the Company's Chief Executive Officer and President, to $1,000,000, effective immediately.

Item 6. EXHIBITS

Exhibit No.	Description	Reference
10.1	Second Loan Modification Agreement, dated as of January 28, 2022, by and between Appian Corporation and Silicon Valley Bank.	Attached.
10.2	Employment Agreement, dated as of April 2, 2022, by and between Appian Corporation and Mark Matheos.+	Attached.
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.	Attached.
31.2	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.	Attached.
32.1*	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.	Attached.
101.INS	XBRL Instance Document - The instance document does not appear in the interactive data file because its XBRL tags are embedded within the inline XBRL document.	Attached.
101.SCH	XBRL Taxonomy Extension Schema Document	Attached.
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document	Attached.
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document	Attached.
101.LAB	XBRL Taxonomy Extension Label Linkbase Document	Attached.
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document	Attached.
104	Cover page formatted as Inline XBRL and contained in Exhibit 101	Attached.

+ Indicates management contract or compensatory plan.
* The certifications furnished in Exhibit 32.1 hereto are deemed to accompany this Quarterly Report on Form 10-Q and will not be deemed “filed” for purposes of Section 18 of the Securities Exchange Act of 1934, as amended, except to the extent the company specifically incorporates it by reference.

SIGNATURES

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

APPIAN CORPORATION

May 5, 2022	By:	/s/ Matthew Calkins	/s/ Mark Matheos
		Name: Matthew Calkins	Name: Mark Matheos
		Title: Chief Executive Officer and Chairman of the Board (Principal Executive Officer)	Title: Chief Financial Officer (Principal Financial Officer and Principal Accounting Officer)

Exhibit 10.1

SECOND LOAN MODIFICATION AGREEMENT

This Second Loan Modification Agreement (this "Loan Modification Agreement") is entered into as of January 28, 2022, by and between **SILICON VALLEY BANK**, a California corporation, with its principal place of business at 3003 Tasman Drive, Santa Clara, California 95054 and with a loan production office located at 1200 17th St. 16th Floor, Denver, Colorado 80202 ("Bank"), and **APPIAN CORPORATION**, a Delaware corporation, with its principal place of business at 7950 Jones Branch Drive, McLean, Virginia 22102 ("Borrower").

1. DESCRIPTION OF EXISTING INDEBTEDNESS AND OBLIGATIONS. Among other indebtedness and obligations which may be owing by Borrower to Bank, Borrower is indebted to Bank pursuant to a loan arrangement dated as of November 1, 2017, evidenced by, among other documents, a certain Third Amended and Restated Loan and Security Agreement dated as of November 1, 2017, between Borrower and Bank, as amended by a certain First Loan Modification Agreement dated as of December 30, 2021 (the "First LMA") (as amended, the "Loan Agreement"). Capitalized terms used but not otherwise defined herein shall have the same meaning as in the Loan Agreement.

2. DESCRIPTION OF COLLATERAL. Repayment of the Obligations is secured by the Collateral as described in the Loan Agreement (together with any other collateral security granted to Bank, the "Security Documents"). Hereinafter, the Security Documents, together with all other documents evidencing or securing the Obligations shall be referred to as the "Existing Loan Documents".

3. DESCRIPTION OF CHANGE IN TERMS.

A. Modification to Loan Agreement. The Loan Agreement shall be amended by deleting the following text, appearing in Section 6.6 thereof:

" (a) Maintain all of its operating and depository accounts with Bank and Bank's Affiliates; provided, however, that, (i) Borrower shall be permitted to maintain accounts with financial institutions other than Bank so long as such accounts contain solely non-cash securities and an aggregate amount of cash (for all such accounts together) not exceeding Fifty Thousand Dollars ($50,000.00) or are used solely for short- term and long-term investments and (ii) Borrower's Foreign Subsidiaries shall be permitted to maintain accounts with financial institutions other than Bank outside of the United States containing an aggregate amount (for all such accounts together) not to exceed Fifteen Million Dollars ($15,000,000.00) (or the Dollar Equivalent thereof for accounts containing funds denominated in a currency other than Dollars)."

and inserting in lieu thereof the following:

" (a) Maintain all of its operating and depository accounts with Bank and Bank's Affiliates; provided, however, that, (i) Borrower shall be permitted to maintain accounts with financial institutions other than Bank so long as such accounts contain solely non-cash securities and an aggregate amount of cash (for all such accounts together) not exceeding Fifty Thousand Dollars ($50,000.00) or are used solely for short- term and long-term investments and (ii) Borrower's Foreign Subsidiaries shall be permitted to maintain accounts with financial institutions other than Bank outside of the United States containing an aggregate amount (for all such accounts together) not to exceed Thirty Million Dollars ($30,000,000.00) (or the Dollar Equivalent thereof for accounts containing funds denominated in a currency other than Dollars)."

4. FEES AND EXPENSES. Borrower shall reimburse Bank for all documented out-of-pocket legal fees and expenses reasonably incurred by Bank directly in connection with this amendment to the Existing Loan Documents.

5. RATIFICATION OF PERFECTION CERTIFICATE. Borrower hereby ratifies, confirms and reaffirms, all and singular, the terms and disclosures contained in a certain Perfection Certificate of Borrower dated as of November 1, 2017, as amended as set forth on **Schedule 5** to the First LMA (as amended the "Perfection Certificate"), and acknowledges, confirms and agrees that the disclosures and information Borrower provided to Bank in the Perfection Certificate have not changed, as of the date hereof.

6. CONSISTENT CHANGES. The Existing Loan Documents are hereby amended wherever necessary to reflect the changes described above.

7. RATIFICATION OF LOAN DOCUMENTS. Borrower hereby ratifies, confirms, and reaffirms all terms and conditions of all security or other collateral granted to Bank, and confirms that the indebtedness secured thereby includes, without limitation, the Obligations.

8. RELEASE BY BORROWER.

A. FOR GOOD AND VALUABLE CONSIDERATION, Borrower hereby forever relieves, releases, and discharges Bank and its present or former employees, officers, directors, agents, representatives, attorneys, and each of them, from any and all claims, debts, liabilities, demands, obligations, promises, acts, agreements, costs and expenses, actions and causes of action, of every type, kind, nature, description or character whatsoever, whether known or unknown, suspected or unsuspected, absolute or contingent, arising out of or in any manner whatsoever connected with or related to facts, circumstances, issues, controversies or claims existing or arising from the beginning of time through and including the date of execution of this Loan Modification Agreement (collectively "Released Claims"). Without limiting the foregoing, the Released Claims shall include any and all liabilities or claims arising out of or in any manner whatsoever connected with or related to the Loan Documents, the recitals hereto, any instruments, agreements or documents executed in connection with any of the foregoing or the origination, negotiation, administration, servicing and/or enforcement of any of the foregoing.

B. In furtherance of this release, Borrower expressly acknowledges and waives any and all rights under Section 1542 of the California Civil Code, which provides as follows:

> "**A general release** does not extend to claims that the creditor or releasing party does not know or suspect to exist in his or her favor at the time of executing the release and that, if known by him or her, would have materially affected his or her settlement with the debtor or released party." (Emphasis added.)

C. By entering into this release, Borrower recognizes that no facts or representations are ever absolutely certain and it may hereafter discover facts in addition to or different from those which it presently knows or believes to be true, but that it is the intention of Borrower hereby to fully, finally and forever settle and release all matters, disputes and differences, known or unknown, suspected or unsuspected; accordingly, if Borrower should subsequently discover that any fact that it relied upon in entering into this release was untrue, or that any understanding of the facts was incorrect, Borrower shall not be entitled to set aside this release by reason thereof, regardless of any claim of mistake of fact or law or any other circumstances whatsoever. Borrower acknowledges that it is not relying upon and has not relied upon any representation or statement made by Bank with respect to the facts underlying this release or with regard to any of such party's rights or asserted rights.

D. This release may be pleaded as a full and complete defense and/or as a cross-complaint or counterclaim against any action, suit, or other proceeding that may be instituted, prosecuted or attempted in breach of this release. Borrower acknowledges that the release contained herein constitutes a material inducement to Bank to enter into this Loan Modification Agreement, and that Bank would not have done so but for Bank's expectation that such release is valid and enforceable in all events.

E. Borrower hereby represents and warrants to Bank, and Bank is relying thereon, as follows:

1 Except as expressly stated in this Loan Modification Agreement, neither Bank nor any agent, employee or representative of Bank has made any statement or representation to Borrower regarding any fact relied upon by Borrower in entering into this Loan Modification Agreement.

2 Borrower has made such investigation of the facts pertaining to this Loan Modification Agreement and all of the matters appertaining thereto, as it deems necessary.

3 The terms of this Loan Modification Agreement are contractual and not a mere recital.

4 This Loan Modification Agreement has been carefully read by Borrower, the contents hereof are known and understood by Borrower, and this Loan Modification Agreement is signed freely, and without duress, by Borrower.

5 Borrower represents and warrants that it is the sole and lawful owner of all right, title and interest in and to every claim and every other matter which it releases herein, and that it has not heretofore assigned or transferred, or purported to assign or transfer, to any person, firm or entity any claims or other matters herein released. Borrower shall indemnify Bank, defend and hold it harmless from and against all claims based upon or arising in connection with prior assignments or purported assignments or transfers by Borrower of any claims or matters released herein.

9. CONTINUING VALIDITY. Borrower understands and agrees that in modifying the existing Obligations, Bank is relying upon Borrower's representations, warranties, and agreements, as set forth in the Existing Loan Documents. Except as expressly modified pursuant to this Loan Modification Agreement, the terms of the Existing Loan Documents remain unchanged and in full force and effect. Bank's agreement to modifications to the existing Obligations pursuant to this Loan Modification Agreement in no way shall obligate Bank to make any future modifications to the Obligations. Nothing in this Loan Modification Agreement shall constitute a satisfaction of the Obligations. It is the intention of Bank and Borrower to retain as liable parties all makers of Existing Loan Documents, unless the party is expressly released by Bank in writing. No maker will be released by virtue of this Loan Modification Agreement.

10. COUNTERSIGNATURE. This Loan Modification Agreement shall become effective only when it shall have been executed by Borrower and Bank.

[The remainder of this page is intentionally left blank]

This Loan Modification Agreement is executed as a sealed instrument under the laws of the Commonwealth of Massachusetts as of the date first written above.

BORROWER:	BANK:
APPIAN CORPORATION	**SILICON VALLEY BANK**
By: /s/ Mark Lynch	By: /s/ Will Deevy
Name: Mark Lynch	Name: Will Deevy
Title: Chief Financial Officer	Title: Managing Director

Exhibit 10.2

APPIAN CORPORATION EMPLOYMENT AGREEMENT

This EMPLOYMENT AGREEMENT (“Agreement”) is made by and between APPIAN CORPORATION, a Delaware corporation, and its affiliates, successors, assigns and agents (“Appian” or “Company”), and **Mark Matheos** (“you” and all similar references or “employee”) (collectively, the “parties”) in consideration of employee’s at-will employment relationship with Appian.

1. Employment. By accepting employment with Appian, you agree: (a) to devote your professional time, best efforts, attention and energies to Appian’s business and to refrain from outside employment or professional practice other than on account of or for the benefit of Appian (unless Appian consents in writing to such outside work); (b) to perform any and all work assigned to you by Appian faithfully and at such times and places as Appian designates; (c) to abide by all policies of Appian, both current and future; and (d) that you are not currently bound by any agreement that could prohibit or restrict you from being employed by Appian or from performing any duties under this Agreement.

2. Compensation and Benefits. Upon the commencement of your employment, Appian will pay you as provided in your offer letter (or as otherwise agreed in writing), payable in accordance with its normal payroll practices. From time to time, Appian may adjust your salary and other compensation at its discretion. During your employment, if you meet the minimum requirements of Appian’s plans, you will be eligible to participate in any employee compensation or benefit plans (including group health and 401(k)), incentive award programs, and to receive other fringe benefits that Appian may decide to make available to you. Appian may add, amend or discontinue any of its plans, programs, policies and procedures at any time for any or no reason with or without notice.

3. Restrictive Covenants. You further understand that Appian invests significant resources in the training and development of its employees. Therefore, in light of this, you agree to the following restrictions which are reasonably designed to protect Appian’s legitimate business interests without unreasonably restricting your ability to seek or obtain work upon voluntary or involuntary termination of your employment with Appian:

3.1 Prohibition on Competition. During your employment with Appian and for a period of twelve (12) months from the date your employment with Appian terminates, you shall not, within the United States of America, directly or indirectly, provide, aid or assist any other person or entity in providing Similar Products or Services for or on behalf of any Named Company in the same or similar functional capacity as you did for Appian. This provision shall not be construed to prevent you from obtaining employment with any person or entity that provides Similar Products or Services, so long as your new endeavor does not violate the above-stated prohibition.

3.2 Covenant Not to Solicit or Perform Services for Customers or Prospective Customers. During your employment with Appian and for a period of eighteen (18) months from the date your employment with Appian terminates, you agree not to contact, directly or indirectly, any Customer or Prospective Customer with whom you have had any written, electronic, verbal, or other contact on behalf of Appian, to sell, market, render or provide Similar Products or Services.

3.3 Covenant Not to Perform Services for Appian’s Business Partners. During your employment with Appian and for a period of twelve (12) months from the date your employment with Appian terminates, you agree not to provide, directly or indirectly, Similar Products or Services for or on behalf of any of Appian’s Business Partners.

3.4 Restriction on the Solicitation of Appian’s Employees. During your employment with Appian, and for a period of twelve (12) months from the date your employment with Appian terminates, you agree not to, directly or indirectly, induce or solicit any Appian employee to terminate his or her employment or to seek or accept any employment with any other business entity.

3.5 Prohibition from Employing or Retaining Appian’s Employees. During your employment with Appian and for a period of twelve (12) months from the date your employment with Appian terminates, you agree not to retain, hire or employ, directly or indirectly, any Appian employee who was employed by Appian on your termination date, or during the twelve (12) months preceding your termination date.

3.6 Definitions. For the purpose of this Section of the Agreement, the following definitions shall apply:

3.6.1 "Similar Products or Services" shall include (i) any Low-Code software development Platform, Business Process Management software, Case Management software, Application Platform as a Service, or workflow software product, whether sold as an on-premise, hosted, or Software-as-a-Service offering; (ii) e-procurement systems; and (iii) any services pertaining to the implementation of such software technologies described in items 3.6.1(i)-3.6.1(ii) above.

3.6.2 "Customer" means any entity for which Appian has performed Services during your employment with the Company.

3.6.3 "Named Company" shall include any one of the companies listed in Exhibit A. At any time during the Specified Periods, in any year that this agreement is in effect, Appian may modify or replace companies listed in Exhibit A, at Appian's sole discretion; however, Appian must, in good faith, believe that all companies listed in Exhibit A are competitors of Appian. At any time, you may request a copy of Exhibit A from Appian's legal department.

3.6.4 "Specified Period" means one of the following quarterly two week periods: January 1 through January 15; April 1 through April 15; July 1 through July 15; and October 1 through October 15.

3.6.5 "Prospective Customer" means any entity that is not a Customer but with respect to whom, within twelve (12) months from your termination date, you conducted, prepared, submitted (or assisted or supervised such conduct) any proposal, client development work product or marketing efforts on behalf of Appian.

3.6.6 The term "Business Partner" means any entity that had a contractual agreement with Appian during your employment with the Company to engage in joint marketing and/or sales efforts, professional services (as a prime contractor or subcontractor), or as a re-seller of the Company's software.

3.6.7 The term "induce" means the act or process of enticing or persuading another person to take a certain course of action.

3.6.8 The term "solicit" means the act or process of obtaining by entreaty, persuasion, or application, formal or otherwise, a certain course of conduct.

3.7 Reasonableness of Restrictions. You agree that the restrictions set forth in this Section are reasonable, proper and no greater than necessary to protect the legitimate business interest of Appian and do not constitute an unlawful or unreasonable restraint upon your ability to earn a livelihood. In the event that any term set forth above including, but not limited to, the duration of the restraint or the geographic scope, is held unenforceable by court of competent jurisdiction, the parties agree that the unenforceable term may be reduced or modified by the court of competent jurisdiction.

3.8 Waiver. Any of the provisions listed in Sections 3.1 – 3.5 above may be waived in advance only with the express written consent of the CEO of Appian Corporation.

4. Employee Representations. You represent and warrant that you have the legal ability to perform your duties for Appian and that your employment does not violate the terms of any agreement, whether written or otherwise, including but not limited to any non- compete agreement, that would limit or impair your ability to perform your duties. You further represent and warrant that you will not use any confidential or proprietary information from a prior employer, or any other third party.

5. Nondisclosure of Confidential Information. You acknowledge that all information related to the business of Appian that is not in the public domain, nor available from sources other than Appian is considered Confidential. For the purpose of this Agreement, Confidential Information also includes Appian's Trade Secrets and/or Proprietary Information and Confidential Information of third parties provided to Appian under terms of a confidentiality or nondisclosure agreement.

For the purpose of this Agreement, the definition of a "Trade Secret" shall be congruent with the Virginia Uniform Trade Secret Act, Virginia Code Section 59.1-336(4). "Proprietary Information" includes, but is not limited to, the following types of information (whether or not reduced to writing): Appian's fees, rates, sales data, customer lists, discoveries, inventions, concepts, software in various states of development and related documentation, design sheets, design data, drawings, design specifications, techniques, consulting or development methodologies, models, source code, object code, documentation, diagrams, flow charts, research, development, processes, training materials, templates, procedures, "know-how," tools, client identities, client accounts, web design needs, client advertising needs and history, client reports, client proposals, product information and reports, accounts, billing methods, pricing, data, sources of supply, business methods, production or merchandising systems or plans, marketing, sales and business strategies and plans, finances, operations, and information regarding employees. Notwithstanding the foregoing, information publicly known that is generally employed by the trade at or after the time you first learn of such information (other than as a result of your breach of this Agreement) shall not constitute Proprietary Information.

You agree to hold Confidential Information in the strictest of confidence and further agree not to release, divulge, misappropriate, publish or communicate Confidential Information to any person or entity outside of Appian without the express written consent of Appian's CEO or his express designee. You understand that the obligations contained in this Section are effective upon your first day of employment, or earlier (if you receive Confidential Information sooner), and shall survive the expiration of this Agreement, regardless of the reason your employment with Appian is terminated. Furthermore, nothing contained in this Section of the Agreement is designed to waive its statutory rights to seek relief pursuant to the Virginia Trade Secrets Act, Virginia Code Section 59.1-336 et seq.

6. Inventions. For the purposes of this Agreement, "Inventions" mean any concepts, ideas, processes, designs, specifications, improvements, discoveries or other developments, whether or not reduced to practice or patentable, that you conceive or create, in whole or in part, alone or jointly with others, during your employment by the Company, whether during normal work hours or otherwise, if such Inventions meet one of the following conditions (i) the Inventions directly relate to the Company's business (including without limitation the Company's present or contemplated products and research) or to tasks assigned to you by or on behalf of the Company or (ii) the Inventions are written or developed using any of the Company's equipment, facilities, materials, trade secrets, labor, money, time or other resources. "Inventions" also shall be deemed to include any concepts, ideas, processes, designs, specifications, improvements, discoveries or other developments, whether or not reduced to practice or patentable, that you conceive or create within ninety (90) days after your employment with the Company ends that directly relate to the Company's business as conducted prior to the date your employment ended or to any tasks assigned to you by or on behalf of the Company at any time during the last two (2) years of your employment by the Company. "Inventions" do not include any concepts, ideas, processes, designs, discoveries or other developments reduced to practice prior to joining Appian.

6.1 Assignment of Inventions. You agree that all Inventions are the sole and exclusive property of the Company and hereby assign to the Company all right, title and interest in all Inventions.

7. Termination and Resignation.

(a) Your employment is terminable at-will. That means that you or Appian may terminate your employment relationship at any time, for any reason or no reason at all. In the event that you terminate your employment, you will be entitled to earned and unpaid salary, less required and authorized withholdings and deductions, through your last day of employment. Regardless of the basis of your termination of employment, you agree to provide all assistance requested by Appian in transitioning your duties, responsibilities, clients and other Appian relationships to other Appian personnel, both during your employment and after your termination or resignation. Furthermore, you agree to cooperate with Appian from time to time as necessary concerning matters that may have arisen during the course of your employment with Appian. Such cooperation is an express condition of this Agreement.

(b) Notwithstanding anything to the contrary in subsection (a), in the event that Appian experiences a Change in Control (as defined in Exhibit B), and Appian terminates your employment without cause or you terminate your employment for Good Reason (as defined in Exhibit B) within one year of such Change in Control, you will receive the following severance from Appian:

(i) Base Salary Severance. You will receive continuing payments of severance at a rate equal to your base salary rate, less applicable tax withholdings, as in effect immediately prior to your termination of employment or, if greater, as in effect immediately prior to the Change in Control, for six (6) months ("Severance Period") from the date of such termination of employment, to be paid periodically in accordance with Appian's normal payroll policies.

(ii) Equity. With respect to any stock options, restricted stock units, or other form of equity allowed by Appian's equity plans ("Unvested Equity") held by you that are unvested at the time of termination, such Unvested Equity shall immediately vest and settle not later than 60 days after the date of your termination.

(iii) Continued Employee Benefits. If you elects continuation coverage pursuant to the Consolidated Omnibus Budget Reconciliation Act of 1985, as amended ("COBRA") for you and your eligible dependents (as applicable), within the time period prescribed pursuant to COBRA, Appian will reimburse you for, or pay directly on your behalf, the COBRA premiums for such coverage (at the coverage levels in effect immediately prior to your termination of employment) until the earlier of (A) the end of the Severance Period, or (B) the date upon which you and/or your eligible dependents becomes covered under similar plans.

(c) The severance provided in subsection 7(b) shall have the following contingencies:

(i) Release of Claims Agreement. The receipt of any severance payments or benefits pursuant to this Amendment is subject to you signing and not revoking a separation agreement and release of claims in a form acceptable to Appian (the "Release"), which must become effective and irrevocable no later than the twenty-first (21st) day following your termination of employment (the "Release Deadline"). If the Release does not become effective and irrevocable by the Release Deadline, you will forfeit any right to severance payments or benefits under this Agreement. No severance payments and benefits under this Amendment will be paid or provided until the Release becomes effective and irrevocable, and any such severance payments and benefits otherwise payable between the date of your termination of employment and the date the Release becomes effective and irrevocable will be paid on the date the Release becomes effective and irrevocable.

(ii) Confidential Information and Invention Assignment Agreements. Your receipt of any payments or benefits under this Amendment will be subject to you continuing to comply with Sections 3, 5 and 6 of this Agreement.

8. Return of Company Materials. Upon the termination of your employment with Appian, regardless of the basis of the termination, you shall promptly deliver to Appian any of the following items or materials: any laptop or personal computer issued to you, or paid for, by Appian; any material, in any form whatsoever, that constitutes Appian's Confidential Information, Trade Secret and/or Proprietary Information; the Employee Handbook; the Consulting Best Practices Book ("CBP"); and any other material that is the property of Appian Corporation or Appian Corporation's customers, including, but not limited to, books, key cards, passes, and other material. You agree that, to the extent permissible by law, Appian may withhold payment of any compensation or reimbursements until you return all such Appian materials.

9. Authority Limited. It is expressly agreed that you shall have no right or authority at any time to make any contract or binding promise of any nature on behalf of Appian, without Appian's express written consent except within established duties of your employment.

10. Assignment and Survival. The rights and obligations of Appian under this Agreement shall inure to the benefit of, and shall be binding upon, the successors and assigns of Appian. Your rights and obligations are personal and

may not be assigned or delegated without the Company's proper written consent. However, if you become deceased prior to the expiration of this Agreement, any sums that may be due to you as of the date of your death shall be paid to your executor, administrator, heirs, personal representative, successors or assigns. Furthermore, it is expressly understood that the obligations under Sections 3, 4, or 5 of this Agreement shall survive any termination of this Agreement.

11. Remedies. You acknowledge that the damages Appian will suffer as a result of your breach of any provision of Sections 3, 4, or 5 of this Agreement may be impossible to reasonably calculate and that violation of this Agreement will irreparably harm Appian. Accordingly, you agree that Appian will be entitled, in addition to all other rights and remedies that may be available, to obtain injunctive relief enjoining and restraining you from committing a breach of this Agreement. You also agree that in the event Appian is successful in whole or in part in any legal action against you under this Agreement, Appian will be entitled to recover all costs, including reasonable attorney fees from you.

12. Severability. If any provision of this Agreement is held invalid or unenforceable for any reason, the invalidity shall not nullify the validity of the remaining provisions of this Agreement. If any provision of this Agreement is determined by a court to be overly broad in duration, geographical coverage or scope, or unenforceable for any other reason, such provision will be narrowed so that it will be enforced as much as permitted by law.

13. Choice of Law. The laws of the Commonwealth of Virginia shall govern this Agreement. You and Appian consent to the jurisdiction and venue of any state or federal court in the Commonwealth of Virginia.

14. Waiver. Any party's waiver of any other party's breach of any provision of this Agreement shall not waive any other right or any future breaches of the same or any other provision. Appian's CEO may, in his or her sole discretion, waive in writing any provision of this Agreement.

15. Notices. Any notices, requests, demands or other communications provided for in this Agreement shall be in writing and shall be given either manually or by certified mail. Notice to Appian shall be addressed to Human Resources. Notice to you shall be addressed to the last address you have filed with Human Resources. You may change your address by providing written notice in accordance with this Section. If you fail to keep Appian informed of your most recent address, you agree to waive any claim against Appian related to any damage you may suffer as a result of Appian failing to provide you with a notice under this or any other Agreement you may have with Appian.

16. Entire Agreement. This Agreement is the entire agreement between you and Appian regarding these matters and supersedes any verbal and written agreements on such matters. This Agreement may be modified only by written agreement signed by you and Appian's CEO. All Section headings are for convenience only and do not modify or restrict any of this Agreement's terms.

17. Counterparts. For convenience of the parties, this Agreement may be executed in one or more counterparts, each of which shall be deemed an original for all purposes.

The parties state that they have read, understood and agree to be bound by this Agreement and that they have had the opportunity to seek the advice of legal counsel before signing it and have either sought such counsel or have voluntarily decided not to do so:

APPIAN CORPORATION	EMPLOYEE
By: /s/ Matt Calkins	By: /s/ Mark Matheos
Date: April 2, 2022	Date: April 2, 2022

Employment Agreement Exhibit A

Named Companies:

1. BizAgi
2. Nintex
3. Pegasystems, Inc.
4. Salesforce.com
5. Service Now
6. Outsystems
7. Mendix
8. Unqork, Inc.
9. Microsoft
10. Celonis
11. UI Path

Exhibit B

Additional Definitions

"Change in Control" means the occurrence of any of the following:

(i) A change in the ownership of Appian that occurs on the date that any one person or entity, or more than one person or entity acting as a group ("Person"), acquires ownership of the stock of Appian or that, together with the stock held by such Person, constitutes more than 50% of the total voting power of the stock of the Appian, provided that such Person is not Matthew Calkins; or

(ii) A change in the effective control of Appian that occurs on the date that a majority of members of the Board (each, a "Director") of Appian is replaced during any twelve (12) month period by Directors whose appointment or election is not endorsed by a majority of the members of the Board prior to the date of the appointment or election, except where such replacement of the Directors is as a result of Matthew Calkins voting a majority of Appian's shares in favor of such replacement. For purposes of this subsection (ii), if any Person is considered to be in effective control of Appian, the acquisition of additional control of the Parent by the same Person will not be considered a Change in Control; or

(iii) A change in the ownership of a substantial portion of Appian's assets which occurs on the date that any Person acquires (or has acquired during the twelve (12) month period ending on the date of the most recent acquisition by such person or persons) assets from Appian that have a total gross fair market value equal to or more than 50% of the total gross fair market value of all of the assets of the Company immediately prior to such acquisition or acquisitions; provided, however, that for purposes of this subsection (iii), the following will not constitute a change in the ownership of a substantial portion of Appian's assets: (A) a transfer to an entity
that is controlled by Appian's stockholders immediately after the transfer, or (B) a transfer of assets by Appian to: (1) a stockholder of Appian (immediately before the asset transfer) in exchange for or with respect to Appian's stock, (2) an entity, 50% or more of the total value or voting power of which is owned, directly or indirectly, by Appian, (3) a Person, that owns, directly or indirectly, 50% or more of the total value or voting power of all the outstanding stock of Appian, or (4) an entity, at least 50% of the total value or voting power of which is owned, directly or indirectly, by a Person described in this subsection (iii)(B)(3). For purposes of this subsection (iii), gross fair market value means the value of the assets of Appian, or the value of the assets being disposed of, determined without regard to any liabilities associated with such assets.

For purposes of this definition of Change in Control, persons will be considered to be acting as a group if they are owners of a corporation that enters into a merger, consolidation, purchase or acquisition of stock, or similar business transaction with the Company or Parent.

Notwithstanding the foregoing, a transaction will not be deemed a Change in Control unless the transaction qualifies as a change in control event within the meaning of Internal Revenue Code Section 409A, as it has been and may be amended from time to time, and any proposed or final Treasury Regulations and Internal Revenue Service guidance that has been promulgated or may be promulgated thereunder from time to time.

Further and for the avoidance of doubt, a transaction will not constitute a Change in Control if: (i) its sole purpose is to change the state of Appian's incorporation, or (ii) its sole purpose is to create a holding company that will be owned in substantially the same proportions by the persons who held Appian's securities immediately before such transaction.

"Good Reason" shall mean:

(i) a material diminution in your base compensation or target bonus below the amount as of the date of this Agreement or as increased during the course of his employment with Appian, excluding one or more reductions (totaling no more than 20% in the aggregate) generally applicable to all senior executives provided, however, that such exclusion shall not apply if the material diminution in your base compensation occurs within (A) 60 days prior to the consummation of a Change in Control where such Change in Control was under consideration at the time of your termination or (B) twelve (12) months after the date upon which such a Change in Control occurs;

(ii) a material diminution in your title, authority, duties or responsibilities;

(iii) a requirement that that you report to a corporate officer or employee of Appian other than the Chief Executive Officer of Appian;

(iv) a material diminution in the budget over which you retains authority;

(v) a material change in the geographic location at which you must perform services; or

(vi) any action or inaction that constitutes a material breach by Appian of this Agreement;

provided, however, that for you to be able to terminate your employment with Appian on account of Good Reason, you must provide notice of the occurrence of the event constituting Good Reason and your desire to terminate his employment with Appian on account of such within ninety (90) days following the initial existence of the condition constituting Good Reason, and Appian must have a period of thirty (30) days following receipt of such notice to cure the condition. If Appian does not cure the event constituting Good Reason within such thirty (30) day period, your termination shall be effective the day immediately following the end of such thirty (30) day period, unless Appian provides for an earlier termination.

Exhibit 31.1

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 March 31, 2022 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)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and

5. The registrant's other certifying officer(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: May 5, 2022

/s/ Matthew Calkins
Matthew Calkins
Chief Executive Officer
(Principal Executive Officer)

Exhibit 31.2

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

I, Mark Matheos, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q for the period ended March 31, 2022 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)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

   (a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;

   (b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;

   (c) Evaluated the effectiveness of the registrant’s disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and

   (d) Disclosed in this report any change in the registrant’s internal control over financial reporting that occurred during the registrant’s most recent fiscal quarter (the registrant’s fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant’s internal control over financial reporting; and

5. The registrant’s other certifying officer(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: May 5, 2022

/s/ Mark Matheos
Mark Matheos
Chief Financial Officer
(Principal Financial Officer)

Exhibit 32.1

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 Matheos, 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 March 31, 2022, 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 5th day of May, 2022.

/s/ Matthew Calkins	/s/ Mark Matheos
Matthew Calkins	Mark Matheos
Chief Executive Officer	Chief Financial Officer
(Principal Executive 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.