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

FORM 10-Q

☒ QUARTERLY REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934
For the quarterly period ended March 31, 2023

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: 001-39399

JAMF HOLDING CORP.
(Exact name of registrant as specified in its charter)

Delaware (State or other jurisdiction of incorporation or organization)	**82-3031543** (I.R.S. Employer Identification No.)

100 Washington Ave S, Suite 1100
Minneapolis, MN 55401
(Address of principal executive offices)

(612) 605-6625
(Registrant's telephone number, including area code)

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

Title of each class	Trading symbol	Name of each exchange on which registered
Common Stock, $0.001 par value per share	JAMF	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 ☐
Smaller reporting company ☐		Emerging growth company ☐

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

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

On April 26, 2023, the registrant had 123,987,014 shares of common stock, $0.001 par value, outstanding.

JAMF HOLDING CORP.

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GLOSSARY

We use acronyms, abbreviations, and other defined terms throughout this quarterly report on Form 10-Q. These terms are defined below. Jamf Holding Corp. and its wholly owned subsidiaries, collectively, are referred to as the “Company,” “we,” “us,” or “our.”

Term	Definition
2017 Option Plan	2017 Stock Option Plan
2020 Credit Agreement	Credit agreement dated July 27, 2020, as amended, supplemented, or modified
2020 Plan	Jamf Holding Corp. Omnibus Incentive Plan
2020 Revolving Credit Facility	Revolving credit facility available under the 2020 Credit Agreement
2021 ESPP	Jamf Holding Corp. 2021 Employee Stock Purchase Plan
2026 Notes	Convertible Senior Notes due 2026
ARR	Annual Recurring Revenue
AWS	Amazon Web Services
ASC 606	ASC Topic 606, *Revenue from Contracts with Customers*
ASC 805	ASC Topic 805, *Business Combinations*
ASC 850	ASC Topic 850, *Related Party Disclosures*
BYOD	Bring your own device
CODM	Chief operating decision maker
Credit Agreement Amendment	Amendment No. 2 to the 2020 Credit Agreement, effective April 7, 2023
Current Period ARR	ARR from the same cohort of customers used to calculate Prior Period ARR as of the current period end
Digita	Digita Security LLC
EUR	Euro
Exchange Act	The Securities Exchange Act of 1934, as amended
GAAP	U.S. generally accepted accounting principles
GBP	British pound sterling
IT	Information technology
JNGF	Jamf Nation Global Foundation
LIBO Rate	London interbank offered rate
Prior Period ARR	ARR from the cohort of all customers as of 12 months prior to period end
R&E	Research and experimental
RSU	Restricted stock unit
SaaS	Software-as-a-service
SAFE	Simple agreement for future equity
SEC	Securities and Exchange Commission
SMBs	Small-to-medium-sized businesses
SwiftConnect, Inc.	SwiftConnect
Term SOFR	Forward-looking secured overnight financing rate
UK	United Kingdom
U.S.	United States
Vista	Vista Equity Partners, LLC and its affiliates
Wandera	Wandera, Inc.
ZecOps	ZecOps, Inc.
ZecOps Merger Agreement	Agreement and Plan of Merger, dated as of September 23, 2022 in connection with the acquisition of ZecOps

PART I. FINANCIAL INFORMATION

Item 1. Financial Statements

JAMF HOLDING CORP.
CONDENSED CONSOLIDATED BALANCE SHEETS
(in thousands, except share and per share amounts)

	March 31, 2023 (Unaudited)	December 31, 2022
Assets		
Current assets:		
Cash and cash equivalents	$ 200,340	$ 224,338
Trade accounts receivable, net of allowances of $427 and $445 at March 31, 2023 and December 31, 2022, respectively	84,392	88,163
Income taxes receivable	806	465
Deferred contract costs	18,780	17,652
Prepaid expenses	22,903	14,331
Other current assets	6,535	6,097
Total current assets	333,756	351,046
Equipment and leasehold improvements, net	18,615	19,421
Goodwill	862,747	856,925
Other intangible assets, net	209,509	218,744
Deferred contract costs, non-current	41,933	39,643
Other assets	42,409	43,763
Total assets	$ 1,508,969	$ 1,529,542
Liabilities and stockholders' equity		
Current liabilities:		
Accounts payable	$ 14,982	$ 15,393
Accrued liabilities	48,993	67,051
Income taxes payable	547	486
Deferred revenues	278,407	278,038
Total current liabilities	342,929	360,968
Deferred revenues, non-current	62,435	68,112
Deferred tax liability, net	5,539	5,505
Convertible senior notes, net	365,127	364,505
Other liabilities	27,480	29,114
Total liabilities	803,510	828,204
Commitments and contingencies (Note 7)		
Stockholders' equity:		
Preferred stock, $0.001 par value, 50,000,000 shares authorized at March 31, 2023 and December 31, 2022; no shares issued and outstanding at March 31, 2023 and December 31, 2022	—	—
Common stock, $0.001 par value, 500,000,000 shares authorized at March 31, 2023 and December 31, 2022; 123,907,489 and 123,170,172 shares issued and outstanding at March 31, 2023 and December 31, 2022, respectively	124	123
Additional paid-in capital	1,072,148	1,049,875
Accumulated other comprehensive loss	(33,904)	(39,951)
Accumulated deficit	(332,909)	(308,709)
Total stockholders' equity	705,459	701,338
Total liabilities and stockholders' equity	$ 1,508,969	$ 1,529,542

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

JAMF HOLDING CORP.
CONDENSED CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except share and per share amounts)
(unaudited)

	Three Months Ended March 31,	
	2023	2022
Revenue:		
Subscription	$ 127,230	$ 102,201
Services	4,384	3,944
License	598	2,113
Total revenue	132,212	108,258
Cost of revenue:		
Cost of subscription (exclusive of amortization expense shown below)	23,159	19,902
Cost of services (exclusive of amortization expense shown below)	3,292	3,107
Amortization expense	3,296	5,218
Total cost of revenue	29,747	28,227
Gross profit	102,465	80,031
Operating expenses:		
Sales and marketing	60,208	46,325
Research and development	32,072	24,802
General and administrative	28,436	25,612
Amortization expense	7,241	7,029
Total operating expenses	127,957	103,768
Loss from operations	(25,492)	(23,737)
Interest income (expense), net	1,285	(859)
Foreign currency transaction gain (loss)	604	(781)
Loss before income tax provision	(23,603)	(25,377)
Income tax provision	(597)	(252)
Net loss	$ (24,200)	$ (25,629)
Net loss per share, basic and diluted	$ (0.20)	$ (0.21)
Weighted-average shares used to compute net loss per share, basic and diluted	123,422,066	119,594,341

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

JAMF HOLDING CORP.
CONDENSED CONSOLIDATED STATEMENTS OF COMPREHENSIVE LOSS
(in thousands)
(unaudited)

	Three Months Ended March 31,	
	2023	**2022**
Net loss	$ (24,200)	$ (25,629)
Other comprehensive income (loss):		
Foreign currency translation adjustments	6,047	(8,083)
Total other comprehensive income (loss)	6,047	(8,083)
Comprehensive loss	$ (18,153)	$ (33,712)

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

JAMF HOLDING CORP.
CONDENSED CONSOLIDATED STATEMENTS OF STOCKHOLDERS' EQUITY
(in thousands, except share amounts)
(unaudited)

	Stock Class					
	Common					
	Shares	Amount	Additional Paid-In Capital	Accumulated Other Comprehensive Loss	Accumulated Deficit	Stockholders' Equity
Three Months Ended March 31, 2023:						
Balance, December 31, 2022	**123,170,172**	**$ 123**	**$ 1,049,875**	**$ (39,951)**	**$ (308,709)**	**$ 701,338**
Exercise of stock options	367,171	—	2,723	—	—	2,723
Vesting of restricted stock units	370,146	1	—	—	—	1
Share-based compensation	—	—	19,550	—	—	19,550
Foreign currency translation adjustments	—	—	—	6,047	—	6,047
Net loss	—	—	—	—	(24,200)	(24,200)
Balance, March 31, 2023	**123,907,489**	**$ 124**	**$ 1,072,148**	**$ (33,904)**	**$ (332,909)**	**$ 705,459**
Three Months Ended March 31, 2022:						
Balance, December 31, 2021	**119,426,064**	**$ 119**	**$ 913,581**	**$ (7,866)**	**$ (167,408)**	**$ 738,426**
Exercise of stock options	211,200	—	1,197	—	—	1,197
Vesting of restricted stock units	22,191	—	—	—	—	—
Share-based compensation	—	—	16,010	—	—	16,010
Foreign currency translation adjustments	—	—	—	(8,083)	—	(8,083)
Net loss	—	—	—	—	(25,629)	(25,629)
Balance, March 31, 2022	**119,659,455**	**$ 119**	**$ 930,788**	**$ (15,949)**	**$ (193,037)**	**$ 721,921**

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

JAMF HOLDING CORP.
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)
(unaudited)

	Three Months Ended March 31,	
	2023	2022
Operating activities		
Net loss	$ (24,200)	$ (25,629)
Adjustments to reconcile net loss to cash used in operating activities:		
Depreciation and amortization expense	12,424	13,893
Amortization of deferred contract costs	4,774	3,755
Amortization of debt issuance costs	684	679
Non-cash lease expense	1,493	1,291
Provision for credit losses and returns	14	128
Share-based compensation	19,550	16,010
Deferred tax benefit	(27)	(468)
Adjustment to contingent consideration	—	88
Other	(677)	725
Changes in operating assets and liabilities:		
Trade accounts receivable	3,915	(2,190)
Income tax receivable/payable	(273)	533
Prepaid expenses and other assets	(8,598)	(3,668)
Deferred contract costs	(8,145)	(6,952)
Accounts payable	(575)	(413)
Accrued liabilities	(19,765)	(11,250)
Deferred revenue	(5,394)	10,478
Net cash used in operating activities	(24,800)	(2,990)
Investing activities		
Acquisitions, net of cash acquired	—	(4,023)
Purchases of equipment and leasehold improvements	(1,121)	(1,964)
Purchase of investments	(750)	—
Other	14	8
Net cash used in investing activities	(1,857)	(5,979)
Financing activities		
Debt issuance costs	—	(50)
Cash paid for contingent consideration	(206)	(4,588)
Proceeds from the exercise of stock options	2,723	1,197
Net cash provided by (used in) financing activities	2,517	(3,441)
Effect of exchange rate changes on cash, cash equivalents, and restricted cash	42	(145)
Net decrease in cash, cash equivalents, and restricted cash	(24,098)	(12,555)
Cash, cash equivalents, and restricted cash, beginning of period	231,921	177,150
Cash, cash equivalents, and restricted cash, end of period	$ 207,823	$ 164,595

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

JAMF HOLDING CORP.
CONDENSED CONSOLIDATED STATEMENTS OF CASH FLOWS (continued)
(in thousands)
(unaudited)

	Three Months Ended March 31,	
	2023	2022
Supplemental disclosures of cash flow information:		
Cash paid for:		
Interest	$ 313	$ 293
Income taxes, net of refunds	894	192
Non-cash activities:		
Operating lease assets obtained in exchange for operating lease liabilities	—	8,314
Purchases of equipment and leasehold improvements accrued but not paid	83	—
Reconciliation of cash, cash equivalents, and restricted cash within the condensed consolidated balance sheets to the amounts shown in the condensed consolidated statements of cash flows above:		
Cash and cash equivalents	$ 200,340	$ 164,595
Restricted cash included in other current assets	283	—
Restricted cash included in other assets	7,200	—
Total cash, cash equivalents, and restricted cash	$ 207,823	$ 164,595

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

JAMF HOLDING CORP.
NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS
(unaudited)

Note 1. Basis of presentation and description of business

Description of business

We are the standard in managing and securing Apple at work, and we are the only company in the world that provides a complete management and security solution for an Apple-first environment that is designed to be enterprise secure, consumer simple, and protective of personal privacy. We help IT and security teams confidently protect the devices, data, and applications used by their workforce, while providing employees with consumer-simple, privacy-protecting technology. With Jamf's software, devices can be deployed to employees brand new in the shrink-wrapped box, set up automatically and personalized at first power-on and administered continuously throughout the lifecycle of the device. Our customers are located throughout the world.

Basis of presentation and principles of consolidation

The accompanying condensed consolidated financial statements, which include the accounts of the Company and its wholly owned subsidiaries, have been prepared in accordance with GAAP and applicable rules and regulations of the SEC regarding interim financial reporting. All intercompany accounts and transactions have been eliminated.

Unaudited interim condensed consolidated financial information

The interim condensed consolidated balance sheet as of March 31, 2023, the condensed consolidated statements of operations, of comprehensive loss, of stockholders' equity, and of cash flows for the three months ended March 31, 2023 and 2022, and the related notes are unaudited. The condensed consolidated balance sheet as of December 31, 2022 was derived from our audited consolidated financial statements that were included in our Annual Report on Form 10-K for the year ended December 31, 2022, which was filed with the SEC on March 1, 2023. The accompanying unaudited condensed consolidated financial statements and related notes should be read in conjunction with the consolidated financial statements and related notes included in the Company's Annual Report on Form 10-K for the year ended December 31, 2022.

These unaudited interim condensed consolidated financial statements have been prepared on the same basis as the annual consolidated financial statements and, in management's opinion, include all adjustments necessary for the fair presentation of the consolidated financial position, results of operations, and cash flows of the Company. All adjustments made were of a normal recurring nature. The results for the three months ended March 31, 2023 are not necessarily indicative of the results to be expected for the year ending December 31, 2023 or for any future period.

Use of estimates

The preparation of the condensed consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities as of the reporting date, and the reported amounts of revenues and expenses during the reporting period. These estimates are based on management's best knowledge of current events and actions that the Company may undertake in the future and include, but are not limited to, revenue recognition, stock-based compensation, commissions, the fair values of assets acquired and liabilities assumed in business combinations, useful lives for finite-lived assets, recoverability of long-lived assets, the value of right-of-use assets and lease liabilities, allowance for expected credit losses, commitments and contingencies, and accounting for income taxes and related valuation allowances against deferred tax assets. Actual results could differ from those estimates.

Segment and geographic information

Our CODM is our Chief Executive Officer, who reviews financial information presented on a consolidated basis for purposes of making operating decisions, assessing financial performance, and allocating resources. We operate our business as one operating segment and therefore we have one reportable segment.

Revenues by geographic region as determined based on the location where the sale originated were as follows:

	Three Months Ended March 31,	
	2023	2022
	(in thousands)	
The Americas [1]	$ 89,811	$ 75,149
Europe, the Middle East, India, and Africa	32,351	25,997
Asia Pacific	10,050	7,112
	$ 132,212	$ 108,258

[1] The vast majority of our Americas revenues comes from the United States.

Note 2. Summary of significant accounting policies

The Company's significant accounting policies are discussed in Note 2 to the consolidated financial statements included in the Company's Annual Report on Form 10-K for the year ended December 31, 2022. There have been no significant changes to these policies during the three months ended March 31, 2023. The following describes the impact of certain policies.

Trade accounts receivable, net

The allowance for credit losses is based on an expected loss model that estimates losses over the expected life of the trade accounts receivable. The Company estimates expected credit losses based on the Company's historical loss information, current and future economic and market conditions, and ongoing review of customers' account balances.

Activity related to our allowance for credit losses for trade accounts receivable was as follows:

	Three Months Ended March 31,	
	2023	2022
	(in thousands)	
Balance, beginning of period	$ 445	$ 391
Provision	14	122
Write-offs	(55)	(27)
Recoveries of amounts previously written off	23	6
Balance, end of period	$ 427	$ 492

Revenue recognition

The Company applies ASC 606 and follows a five-step model to determine the appropriate amount of revenue to be recognized in accordance with ASC 606.

Disaggregation of Revenue

The Company separates revenue into subscription and non-subscription categories to disaggregate those revenues that are term-based and renewable from those that are one-time in nature. Revenue from subscription and non-subscription contractual arrangements were as follows:

	Three Months Ended March 31,	
	2023	2022
	(in thousands)	
SaaS subscription and support and maintenance	$ 120,762	$ 96,350
On-premise subscription	6,468	5,851
Subscription revenue	127,230	102,201
Professional services	4,384	3,944
Perpetual licenses	598	2,113
Non-subscription revenue	4,982	6,057
Total revenue	$ 132,212	$ 108,258

Contract Balances

If revenue is recognized in advance of the right to invoice, a contract asset is recorded in other current assets on the condensed consolidated balance sheets. The opening and closing balances of contract assets were as follows:

	Three Months Ended March 31,	
	2023	2022
	(in thousands)	
Balance, beginning of the period	$ 817	$ 1,792
Balance, end of the period	636	1,885
Change	$ (181)	$ 93

For the three months ended March 31, 2023 and 2022, the allowance for expected credit losses associated with contract assets was not material.

Contract liabilities consist of customer billings in advance of revenue being recognized. The Company invoices its customers for subscription, support and maintenance, and services in advance. Changes in contract liabilities, including revenue earned during the period from the beginning contract liability balance and new deferrals of revenue during the period, were as follows:

	Three Months Ended March 31,	
	2023	2022
	(in thousands)	
Balance, beginning of the period	$ 346,150	$ 282,128
Revenue earned	(107,595)	(85,337)
Deferral of revenue	103,895	95,708
Other [(1)]	(1,608)	—
Balance, end of the period	$ 340,842	$ 292,499

[(1)] Includes contract assets netted against contract liabilities on a contract-by-contract basis.

There were no significant changes to our contract assets and liabilities during the three months ended March 31, 2023 and 2022 outside of our sales activities.

Remaining Performance Obligations

Revenue allocated to remaining performance obligations represents contracted revenue that has not yet been recognized, which includes deferred revenue and noncancellable amounts to be invoiced. As of March 31, 2023, the Company had $424.5 million of remaining performance obligations, with 72% expected to be recognized as revenue over the succeeding 12 months, and the remainder generally expected to be recognized over the three years thereafter.

Deferred Contract Costs

Sales commissions, as well as associated payroll taxes and retirement plan contributions (together, contract costs), that are incremental to the acquisition of customer contracts are capitalized using a portfolio approach as deferred contract costs in the condensed consolidated balance sheets when the period of benefit is determined to be greater than one year.

Total amortization of contract costs was $4.8 million and $3.8 million for the three months ended March 31, 2023 and 2022, respectively.

The Company periodically reviews these deferred contract costs to determine whether events or changes in circumstances have occurred that could affect the period of benefit of these deferred contract costs. There were no impairment losses recorded during the three months ended March 31, 2023 and 2022.

Strategic investments

In the third quarter of 2022, the Company executed a $2.0 million convertible promissory note with SwiftConnect. The note contains customary terms for an instrument of its type, including repayment or conversion upon certain future liquidity events. The note matures on July 29, 2024, and the Company intends to hold the note until maturity, unless it is otherwise repaid or converted pursuant to its terms. The investment is recorded at cost and included in other assets on the condensed consolidated balance sheets. As of both March 31, 2023 and December 31, 2022, the balance of the investment was $2.0 million. The Company evaluates its strategic investments quarterly for impairment. During the period ended March 31, 2023, there were no changes in the carrying value of the Company’s strategic investments. All gains and losses on the Company’s strategic investments, whether realized or unrealized, are recognized in the condensed consolidated statements of operations.

Note 3. Financial instruments fair value

Assets and liabilities measured at fair value on a recurring basis

The Company invests in money market funds with original maturities at the time of purchase of three months or less, which are measured and recorded at fair value on a recurring basis. Money market funds are valued based on quoted market prices in active markets and classified within Level 1 of the fair value hierarchy.

In addition, the contingent consideration associated with the Digita acquisition was measured and recorded at fair value on a recurring basis. The estimated fair value of the contingent payments associated with the Digita acquisition was determined using a Monte Carlo simulation model, which uses Level 3 inputs, including assumptions about the probability of growth of subscription services and the related pricing of the services offered. Significant increases (decreases) in the probability of growth of subscription services as well as the related pricing of the services offered would have resulted in a higher (lower) fair value measurement. The Company made the final payment related to the contingent consideration in the first quarter of 2023. See Note 4 for more information.

The fair value of these financial instruments were as follows:

	March 31, 2023			
	Level 1	Level 2	Level 3	Total
	(in thousands)			
Assets				
Cash equivalents:				
Money market funds	$ 114,808	$ —	$ —	$ 114,808
Total cash equivalents	$ 114,808	$ —	$ —	$ 114,808

	December 31, 2022			
	Level 1	Level 2	Level 3	Total
	(in thousands)			
Assets				
Cash equivalents:				
Money market funds	$ 132,306	$ —	$ —	$ 132,306
Total cash equivalents	$ 132,306	$ —	$ —	$ 132,306
Liabilities				
Contingent consideration:				
Accrued liabilities	$ —	$ —	$ 6,206	$ 6,206
Total contingent consideration	$ —	$ —	$ 6,206	$ 6,206

The carrying value of accounts receivable and accounts payable approximate their fair value due to their short maturities and are excluded from the tables above.

The following table provides a summary of the changes in contingent consideration, which is classified as Level 3:

	Three Months Ended March 31,	
	2023	2022
	(in thousands)	
Balance, beginning of period	$ 6,206	$ 10,100
Total (gains) losses included in:		
Net loss	—	88
Payments	(6,206)	(4,588)
Balance, end of period	$ —	$ 5,600

The change in the fair value of the contingent consideration is included in general and administrative expenses in the condensed consolidated statements of operations. The adjustment for the three months ended March 31, 2022 primarily reflected updated assumptions about the probability of growth of subscription services.

Fair value measurements of other financial instruments

The following table presents the net carrying value and estimated fair value of the 2026 Notes, which are not recorded at fair value in the condensed consolidated balance sheets:

	March 31, 2023		December 31, 2022	
	Net Carrying Value	Estimated Fair Value	Net Carrying Value	Estimated Fair Value
	(in thousands)			
2026 Notes	$ 365,127	$ 307,671	$ 364,505	$ 308,504

As of March 31, 2023 and December 31, 2022, the difference between the net carrying value of the 2026 Notes and the principal amount of $373.8 million represents the unamortized debt issuance costs of $8.6 million and $9.2 million, respectively. See Note 8 for more information. The estimated fair value of the 2026 Notes, which is classified as Level 2, was determined based on quoted bid prices of the 2026 Notes in an over-the-counter market on the last trading day of the reporting period.

Note 4. Acquisitions

ZecOps

On November 16, 2022, the Company completed its acquisition of ZecOps, a leader in mobile detection and response, pursuant to the terms of the ZecOps Merger Agreement. This acquisition uniquely positioned Jamf to help IT and security teams strengthen their organization's mobile security posture.

Under the terms of the ZecOps Merger Agreement, the Company acquired 100% of the equity interest in ZecOps for total purchase consideration of $44.5 million. The total purchase consideration included cash consideration of $28.4 million, equity consideration of $15.1 million (based on the closing price of the Company's common stock on November 16, 2022), and repayment of the $1.0 million SAFE investment in ZecOps the Company entered into in the third quarter of 2022. The cash consideration included (i) $0.3 million in cash held back in an escrow fund as partial security for post-closing true-up adjustments and (ii) $7.2 million in cash held back in an escrow fund as partial security for post-closing indemnification claims with (A) 50% of the then existing escrowed amount to be released 18 months following the closing date and (B) the remaining escrowed amount to be released on March 1, 2025. The cash consideration was funded by the Company's cash on hand. The equity consideration consisted of up to 711,111 shares of the Company's common stock, based on (i) the deemed total equity consideration value under the ZecOps Merger Agreement of $19.2 million divided by (ii) the agreed upon floor of the Company's stock price of $27.00 per share. On the closing date, 710,691 shares of the equity consideration were issued to applicable ZecOps equityholders, and 420 shares were issued into a reserve account, subject to the completion of customary shareholder certifications. The reserved shares were subsequently released in January 2023. In the first quarter of 2023, the Company recorded an immaterial measurement period adjustment.

The final purchase accounting allocations for the ZecOps acquisition will be determined within one year from the acquisition date and depend on a number of factors, including the final valuation of our intangible assets acquired and finalization of income tax effects of the opening balance sheet. The following table summarizes the preliminary allocation of the purchase price to the estimated fair values of the assets acquired and liabilities assumed (in thousands):

Assets acquired:	
Cash and cash equivalents	$ 820
Trade accounts receivable, net	448
Prepaid expenses	39
Other current assets	2,104
Intangible assets acquired	9,500
Operating lease assets	104
Liabilities assumed:	
Accounts payable	(73)
Accrued liabilities	(2,260)
Income taxes payable	(48)
Deferred revenue	(1,014)
Operating lease liabilities	(85)
Deferred tax liability	(529)
Goodwill	35,458
Total purchase consideration	$ 44,464

The Company accounted for the acquisition by applying the acquisition method of accounting for business combinations in accordance with ASC 805. The allocation of the purchase price required management to make significant estimates in determining the fair value of assets acquired and liabilities assumed, especially with respect to intangible assets. These estimates included, but were not limited to:

- future expected cash flows from subscription contracts and acquired developed technologies;
- time to recreate customer relationships and anticipated growth in revenue;
- research and development costs;
  - obsolescence curves and other useful life assumptions, such as the period of time and intended use of acquired intangible assets in the Company's product offerings;
  - discount rates; and
  - tax-related valuation allowances.

The goodwill represents the excess of the purchase consideration over the fair value of the underlying net identifiable assets. The goodwill recognized in this acquisition is primarily attributable to expected synergies in sales opportunities across complementary products, customers, and geographies and cross-selling opportunities. The goodwill is not deductible for income tax purposes.

The estimated useful lives and fair values of the identifiable intangible assets acquired were as follows:

	Useful Life	Gross Value (in thousands)
Developed technology	5.0 years	$ 5,900
Customer relationships	5.0 years	2,300
Non-competes	3.0 years	1,300
Total identifiable intangible assets		$ 9,500

The weighted-average useful life of the intangible assets acquired was 4.7 years.

Developed technology represents the estimated fair value of the features underlying the ZecOps products as well as the platform supporting ZecOps customers and was valued using an excess earnings income approach. Customer relationships represent the estimated fair value of the underlying relationships with ZecOps customers and were valued using a replacement cost method, which estimates the cost to recreate the asset. Non-competes represent the estimated fair value of non-compete agreements acquired from ZecOps and were valued using a with-and-without income approach.

Pro forma results of operations for this acquisition were not presented as the effects were not material to our financial results.

Other

During the first quarter of 2022, the Company completed two acquisitions to expand our products and services offerings. These acquisitions were not significant individually or in the aggregate to our condensed consolidated financial statements. The combined purchase price for these acquisitions was $4.0 million, which was paid with cash on hand. The purchase price was allocated to the assets acquired based on their estimated fair values as of the date of each acquisition. The allocation included $0.9 million to developed technology with an estimated useful life of 5.0 years and $0.1 million to other assets, with the remaining $3.0 million allocated to goodwill. The goodwill is not deductible for income tax purposes. Acquisition-related expenses of $0.4 million were expensed as incurred. These expenses were recognized as acquisition costs in general and administrative expenses in the condensed consolidated statement of operations.

Digita

In 2019, the Company recorded contingent consideration in connection with its purchase of the outstanding membership interests of Digita. The maximum contingent consideration was $15.0 million if the acquired business achieved certain revenue milestones by December 31, 2022. The acquired business achieved the minimum revenue milestones, which resulted in the Company making cash payments of $6.2 million, $4.6 million, and $4.2 million in the first quarter of 2023, the first quarter of 2022, and the second quarter of 2021, respectively, to the former owners of the acquired business. See Note 3 for more information on the fair value of the contingent consideration.

Note 5. Goodwill and other intangible assets

The change in the carrying amount of goodwill was as follows:

	Three Months Ended March 31,	
	2023	2022
	(in thousands)	
Goodwill, beginning of period	$ 856,925	$ 845,734
Goodwill acquired	—	3,014
Measurement period adjustments	339	—
Foreign currency translation adjustment	5,483	(6,764)
Goodwill, end of period	$ 862,747	$ 841,984

The gross carrying amount and accumulated amortization of intangible assets other than goodwill were as follows:

	March 31, 2023				
	Useful Life	Gross Value	Accumulated Amortization	Net Carrying Value	Weighted-Average Remaining Useful Life
		(in thousands)			
Trademarks	3 - 8 years	$ 34,657	$ 23,309	$ 11,348	2.6 years
Customer relationships	2 - 12 years	250,094	102,518	147,576	7.0 years
Developed technology	5 - 6.5 years	118,157	70,029	48,128	4.5 years
Non-competes	2 - 3 years	2,901	1,381	1,520	2.1 years
Order backlog	2.5 years	3,564	2,627	937	0.8 years
Total intangible assets		$ 409,373	$ 199,864	$ 209,509	

	December 31, 2022				
	Useful Life	Gross Value	Accumulated Amortization	Net Carrying Value	Weighted-Average Remaining Useful Life
		(in thousands)			
Trademarks	3 - 8 years	$ 34,649	$ 22,200	$ 12,449	2.8 years
Customer relationships	2 - 12 years	249,659	96,973	152,686	7.2 years
Developed technology	5 - 6.5 years	116,881	66,373	50,508	4.7 years
Non-competes	2 - 3 years	2,864	1,066	1,798	2.3 years
Order backlog	2.5 years	3,518	2,215	1,303	1.0 year
Total intangible assets		$ 407,571	$ 188,827	$ 218,744	

The gross value in the tables above includes a cumulative foreign currency translation adjustment of $(9.2) million and $(11.0) million as of March 31, 2023 and December 31, 2022, respectively. The accumulated amortization in the tables above includes a cumulative foreign currency translation adjustment of $(0.5) million and $(1.0) million as of March 31, 2023 and December 31, 2022, respectively.

Amortization expense was $10.5 million and $12.2 million for the three months ended March 31, 2023 and 2022, respectively.

There were no impairments to goodwill or intangible assets during the three months ended March 31, 2023 and 2022.

Note 6. Leases

Supplemental balance sheet information related to the Company’s operating leases is as follows:

Leases	Balance Sheet Classification	March 31, 2023	December 31, 2022
		(in thousands)	
Assets			
Operating lease assets	Other assets	$ 22,343	$ 23,828
Liabilities			
Operating lease liabilities - current	Accrued liabilities	$ 6,494	$ 6,539
Operating lease liabilities - non-current	Other liabilities	20,265	21,895
Total operating lease liabilities		$ 26,759	$ 28,434

Maturities of the Company’s operating lease liabilities as of March 31, 2023 were as follows:

	Operating Leases (in thousands)
Years ending December 31:	
2023 (remaining nine months)	$ 5,580
2024	6,407
2025	4,775
2026	4,781
2027	2,726
Thereafter	5,341
Total lease payments	29,610
Less: imputed interest	2,851
Total present value of lease liabilities	$ 26,759

Note 7. Commitments and contingencies

Hosting Services and Other Support Software Agreements

The Company has various contractual agreements for hosting services and other support software. The below table reflects the minimum payments under these agreements as of March 31, 2023:

	Unrelated (in thousands)
Years ending December 31:	
2023 (remaining nine months)	$ 31,373
2024	38,590
2025	20,243
2026	1,126
2027	1,126
Thereafter	—
	$ 92,458

As of March 31, 2023, the Company also has a variable obligation of $17.5 million over the term of a three-year contract for third-party hosting services. The Company entered into this contract in May 2022. The variable obligation is not reflected in the table above.

Contingencies

From time to time, the Company may be subject to various claims, charges, and litigation. The Company records a liability when it is both probable that a liability has been incurred and the amount of the loss can be reasonably estimated. The Company maintains insurance to cover certain actions and believes that resolution of such claims, charges, or litigation will not have a material impact on the Company’s financial position, results of operations, or liquidity. The Company had no liabilities for contingencies as of March 31, 2023 or December 31, 2022.

Note 8. Debt

The following table summarizes the balances and availability of our 2026 Notes and 2020 Revolving Credit Facility:

	Outstanding [1]		Unutilized Amount		Interest Rate		
	March 31, 2023	December 31, 2022	March 31, 2023	December 31, 2022	March 31, 2023	December 31, 2022	Maturity Date
	(in thousands)						
2026 Notes	$ 365,127	$ 364,505	N/A	N/A	0.125%	0.125%	Sept. 1, 2026
2020 Revolving Credit Facility	1,037	1,037	$ 148,963	$ 148,963	1.25% [2]	1.25% [2]	July 27, 2025

[1] Represents the net carrying amount of our 2026 Notes and outstanding letters of credit under the 2020 Revolving Credit Facility.

[2] Represents the rate on the outstanding letters of credit under the 2020 Revolving Credit Facility. See further discussion on the interest rate applicable to borrowings under the 2020 Revolving Credit Facility below.

Convertible Senior Notes

On September 17, 2021, the Company issued $373.8 million aggregate principal amount of 0.125% 2026 Notes in a private offering. The initial conversion rate for the 2026 Notes is 20.0024 shares of the Company's common stock per $1,000 principal amount of 2026 Notes, which is equivalent to an initial conversion price of approximately $49.99 per share of common stock. As of March 31, 2023, the conditions allowing holders of the 2026 Notes to convert were not met.

The following table sets forth the interest expense related to the 2026 Notes for the periods presented:

	Three Months Ended March 31,	
	2023	2022
	(in thousands)	
Contractual interest expense	$ 117	$ 117
Amortization of issuance costs	622	617

The effective interest rate on the 2026 Notes was 0.81% for both the three months ended March 31, 2023 and 2022. See Note 3 for additional information on the Company's 2026 Notes.

Credit Agreement

The 2020 Credit Agreement provides for the 2020 Revolving Credit Facility of $150.0 million, which may be increased or decreased under specific circumstances, with a $25.0 million letter of credit sublimit and a $50.0 million alternative currency sublimit. In addition, the 2020 Credit Agreement provides for the ability of the Company to request incremental term loan facilities, in a minimum amount of $5.0 million for each facility. The 2020 Credit Agreement contains customary representations and warranties, affirmative covenants, reporting obligations, negative covenants, and events of default. We were in compliance with such covenants as of both March 31, 2023 and December 31, 2022.

Effective April 7, 2023, we entered into the Credit Agreement Amendment, which amends certain provisions of the 2020 Credit Agreement. The Credit Agreement Amendment updates the benchmark interest rate provisions to replace the LIBO Rate with the Adjusted Term SOFR for purposes of calculating interest for U.S. dollar-denominated borrowings under the terms of the 2020 Credit Agreement. Except as amended by the Credit Agreement Amendment, the remaining terms of the 2020 Credit Agreement remain in full force and effect. The interest rates applicable to revolving borrowings under the 2020 Credit Agreement are, at the Company's option, either (i) a base rate, which is equal to the greater of (a) the Prime Rate, (b) the Federal Funds Effective Rate plus 0.50%, and (c) the Adjusted Term SOFR Rate (subject to a floor) for a one month interest period (each term as defined in the 2020 Credit Agreement) plus 1.00%, (ii) the Adjusted Term SOFR Rate (subject to a floor) equal to the Term SOFR Rate for the applicable interest period plus 0.10%, or (iii) the Adjusted LIBO Rate (subject to a floor) equal to the LIBO Rate for the applicable interest period multiplied by the Statutory Reserve Rate, plus in the case of each of clauses (i), (ii), and (iii), the Applicable Rate (each term as defined in the 2020 Credit Agreement). The Applicable Rate (i) for base rate loans range from 0.25% to 1.00% per annum and (ii) for LIBO Rate and Term SOFR Rate loans range from 1.25% to 2.00% per annum, in each case, based on the Senior Secured Net Leverage Ratio (each term as defined in the 2020 Credit Agreement). Base rate borrowings may only be made in dollars. The Company pays a commitment fee during the term of the 2020 Credit Agreement ranging from 0.20% to 0.35% per annum of the average daily undrawn portion of the revolving commitments based on the Senior Secured Net Leverage Ratio.

As of March 31, 2023 and December 31, 2022, debt issuance costs related to the 2020 Credit Agreement of $0.6 million and $0.7 million, respectively, are included in other assets in the condensed consolidated balance sheets.

Note 9. Share-based compensation

The Company's equity incentive plans provide for granting various share-based awards to eligible employees, non-employee directors, and consultants of the Company. In addition, the Company offers an employee stock purchase plan to eligible employees.

The Company recognized stock-based compensation expense for all equity arrangements as follows:

	Three Months Ended March 31, 2023	Three Months Ended March 31, 2022
	(in thousands)	
Cost of revenue:		
Subscription	$ 2,267	$ 1,955
Services	309	304
Sales and marketing	7,499	5,859
Research and development	5,033	3,859
General and administrative	4,442	4,033
	$ 19,550	$ 16,010

Equity Incentive Plans

The maximum number of shares of common stock available for issuance under the 2020 Plan was 29,183,546 shares as of January 1, 2023. As of March 31, 2023, 14,101,048 shares of common stock were reserved for additional grants under the 2020 Plan and 128,928 shares of common stock were reserved for additional grants under the 2017 Option Plan. All stock options previously granted by the Company were at an exercise price at or above the estimated fair market value of the Company's common stock as of the grant date.

Return Target Options

The table below summarizes return target option activity for the three months ended March 31, 2023:

	Options	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term (Years)	Aggregate Intrinsic Value (in thousands)
Outstanding, December 31, 2022	3,272,920	$ 6.75	5.8	$ 47,623
Granted	—	—		
Exercised	(347,234)	7.37		
Forfeitures	—	—		
Outstanding, March 31, 2023	2,925,686	$ 6.68	5.2	$ 37,287
Options exercisable at March 31, 2023	2,925,686	$ 6.68	5.2	$ 37,287
Vested or expected to vest at March 31, 2023	2,925,686	$ 6.68	5.2	$ 37,287

The aggregate intrinsic value in the table above represents the total intrinsic value that would have been received by the optionholders had all optionholders exercised their options on the last day of the period. The return target options outstanding on June 27, 2022 were modified such that these options were deemed fully vested as of June 30, 2022. During the three months ended June 30, 2022, with the filing of a Form S-3 “shelf” registration statement, the market condition and the implied performance obligation were deemed to be satisfied and the Company recognized $33.0 million of stock-based compensation expense. There is no remaining unrecognized compensation expense related to these return target options as of March 31, 2023. The aggregate intrinsic value of the options exercised, which represents the difference between the fair market value of the Company’s common stock on the date of exercise and the exercise price of each option, was $4.7 million for the three months ended March 31, 2023. The Company issues new shares when return target options are exercised.

Service-Based Options

The table below summarizes the service-based option activity for the three months ended March 31, 2023:

	Options	Weighted-Average Exercise Price	Weighted-Average Remaining Contractual Term (Years)	Aggregate Intrinsic Value (in thousands)
Outstanding, December 31, 2022	1,215,822	$ 5.70	5.1	$ 18,968
Granted	—	—		
Exercised	(19,937)	8.21		
Forfeitures	—	—		
Outstanding, March 31, 2023	1,195,885	$ 5.66	4.0	$ 16,459
Options exercisable at March 31, 2023	1,156,009	$ 5.57	3.9	$ 16,012
Vested or expected to vest at March 31, 2023	1,195,885	$ 5.66	4.0	$ 16,459

The aggregate intrinsic value in the table above represents the total intrinsic value that would have been received by the optionholders had all optionholders exercised their options on the last date of the period. Service-based options vest over four years with 25% vesting one year after grant and the remainder vesting ratably on a quarterly basis thereafter. The Company issues new shares when service-based options are exercised. All service-based options outstanding under the Company’s option plans have exercise prices equal to the fair value of the Company’s stock on the grant date. All awards expire after 10 years.

The aggregate intrinsic value of the options exercised, which represents the difference between the fair market value of the Company’s common stock on the date of exercise and the exercise price of each option, was $0.2 million for the three months ended March 31, 2023. The total fair value of service-based options vested during the three months ended March 31, 2023 was $0.1 million. There was $0.2 million of unrecognized compensation expense related to service-based options that is expected to be recognized over a weighted-average period of 0.6 years as of March 31, 2023.

Restricted Stock Units

RSU activity for the three months ended March 31, 2023 was as follows:

	Units	Weighted-Average Grant Date Fair Value (per share)
Outstanding, December 31, 2022	8,417,357	$ 29.61
Granted	4,593,134	20.02
Vested	(370,146)	31.75
Forfeited	(353,645)	29.95
Outstanding, March 31, 2023	12,286,700	$ 25.99

RSUs under the 2020 Plan generally vest ratably on an annual basis over four years. There was $279.0 million of unrecognized compensation expense related to unvested RSUs that is expected to be recognized over a weighted-average period of 3.1 years as of March 31, 2023. The total fair value of RSUs vested during the three months ended March 31, 2023 was $11.8 million.

Employee Stock Purchase Plan

As of March 31, 2023 and December 31, 2022, the Company withheld, at the employees' request, $2.7 million and $1.1 million, respectively, of eligible employee compensation, which is included in accrued liabilities in the condensed consolidated balance sheets, for purchases of common stock under the 2021 ESPP.

As of March 31, 2023, 5,130,772 shares of common stock were reserved for future issuance under the 2021 ESPP. No shares of common stock were issued under the 2021 ESPP during the three months ended March 31, 2023. There was $0.3 million of unrecognized compensation expense related to the 2021 ESPP that is expected to be recognized over a period of one month as of March 31, 2023.

Note 10. Net loss per share

The following table sets forth the computation of basic and diluted net loss per share:

	Three Months Ended March 31,	
	2023	2022
	(in thousands, except share and per share amounts)	
Numerator:		
Net loss	$ (24,200)	$ (25,629)
Denominator:		
Weighted-average shares used to compute net loss per share, basic and diluted	123,422,066	119,594,341
Basic and diluted net loss per share	$ (0.20)	$ (0.21)

Basic net loss per share is computed by dividing the net loss by the weighted-average number of common shares outstanding for the period. Because we have reported a net loss for the three months ended March 31, 2023 and 2022, the number of shares used to calculate diluted net loss per common share is the same as the number of shares used to calculate basic net loss per common share given that the potentially dilutive shares would have been antidilutive if included in this calculation.

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

	As of March 31,	
	2023	2022
Stock options outstanding	4,121,571	5,119,730
Unvested restricted stock units	12,286,700	8,219,810
Shares related to the 2026 Notes	7,475,897	7,475,897
Shares committed under the 2021 ESPP	208,013	117,705
Total potentially dilutive securities	24,092,181	20,933,142

Note 11. Income taxes

The Company calculated the year-to-date income tax provision by applying the estimated annual effective tax rate to the year-to-date pre-tax income for each applicable jurisdiction and adjusted for discrete tax items in the period. For the three months ended March 31, 2023 and 2022, the Company had tax provisions of $0.6 million and $0.3 million on pretax losses of $23.6 million and $25.4 million, respectively. The effective tax rates for the three months ended March 31, 2023 and 2022 were approximately (2.5)% and (1.0)%, respectively.

For the periods presented, the difference between the statutory rate and the Company's effective tax rate was primarily due to the valuation allowances on its U.S. and UK tax assets. The effective tax rate is also impacted by earnings realized in foreign jurisdictions.

The Tax Cuts and Jobs Act enacted on December 22, 2017 amended Internal Revenue Code Section 174 to require that specific R&E expenditures be capitalized and amortized over five years (U.S. R&E) or fifteen years (non-U.S. R&E) beginning in 2022. Although Congress has considered legislation that would defer, modify, or repeal the capitalization and amortization requirement, there is no assurance that the provision will be deferred, repealed, or otherwise modified. If the requirement is not modified, the Company may be required to utilize some of its federal and state tax attributes.

Note 12. Related party transactions

As of March 31, 2023 and December 31, 2022, the Company accrued $1.5 million and $1.3 million, respectively, related to JNGF pledges, which are included in accrued liabilities in the condensed consolidated balance sheets. The Company may engage in transactions in the ordinary course of business with significant shareholders or other companies whose directors or officers may also serve as directors or officers for the Company. The Company carries out these transactions on customary terms.

Vista is a U.S.-based investment firm that controls the funds which previously owned a majority of the Company. In 2021, Vista sold a portion of its investment in the Company such that its funds no longer owned a majority of the Company as of March 31, 2023. However, Vista is deemed a related party in accordance with ASC 850 as it continues to be a principal owner of the Company. There were no material transactions with Vista or its affiliates during the three months ended March 31, 2023 and 2022.

Note 13. Subsequent events

On May 4, 2023, the Company announced that Dean Hager has decided to retire from his position as Chief Executive Officer (Principal Executive Officer) of the Company, effective September 1, 2023. In connection with Mr. Hager's resignation, on May 2, 2023, the Company's Board of Directors approved the leadership transition plan and appointed John Strosahl, the Company's Chief Operating Officer and President, to succeed Mr. Hager. Mr. Hager will remain a member of the Company's Board of Directors following his retirement as Chief Executive Officer. Mr. Strosahl will also join the Company's Board of Directors concurrently with his appointment to Chief Executive Officer.

Forward-Looking Statements

This Quarterly Report on Form 10-Q contains forward-looking statements that are subject to risks and uncertainties. All statements other than statements of historical fact included in this Quarterly Report on Form 10-Q are forward-looking statements. Forward-looking statements give our current expectations and projections relating to our financial condition, results of operations, plans, objectives, future performance, and business. You can identify forward-looking statements by the fact that they do not relate strictly to historical or current facts. These statements may include words such as "anticipate," "estimate," "expect," "project," "plan," "intend," "believe," "may," "will," "should," "can have," "likely," and other words and terms of similar meaning in connection with any discussion of the timing or nature of future operating or financial performance or other events. For example, all statements we make relating to our estimated and projected costs, expenditures, cash flows, growth rates, and financial results or our plans and objectives for future operations, growth initiatives, or strategies are forward-looking statements. All forward-looking statements are subject to risks and uncertainties that may cause actual results to differ materially from those that we expected, including:

- the impact of adverse general and industry-specific economic and market conditions and reductions in IT spending;
- the potential impact of customer dissatisfaction with Apple or other negative events affecting Apple services and devices, and failure of enterprises to adopt Apple products;
- the potentially adverse impact of changes in features and functionality by Apple and other third parties on our engineering focus or product development efforts;
- changes in our continued relationship with Apple;
- the fact that we are not party to any exclusive agreements or arrangements with Apple;
- our reliance, in part, on channel partners for the sale and distribution of our products;
- our ability to successfully develop new products or materially enhance current products through our research and development efforts;
- our ability to continue to attract new customers and maintain and expand our relationships with our current customers;
- our ability to correctly estimate market opportunity and forecast market growth;
- our ability to effectively manage our future growth;
- our dependence on one of our products for a substantial portion of our revenue;
- our ability to change our pricing models, if necessary, to compete successfully;
- the impact of delays or outages of our cloud services from any disruptions, capacity limitations, or interferences of third-party data centers that host our cloud services, including AWS;
- our ability to meet service-level commitments under our subscription agreements;
- our ability to maintain, enhance, and protect our brand;
- our ability to maintain our corporate culture;
- the ability of Jamf Nation to thrive and grow as we expand our business;
- the potential impact of inaccurate, incomplete, or misleading content that is posted on Jamf Nation;
- our ability to offer high-quality support;
- risks and uncertainties associated with acquisitions, divestitures, and strategic investments;

- our ability to predict and respond to rapidly evolving technological trends and our customers' changing needs;
- our ability to compete with existing and new companies;
- our ability to attract and retain highly qualified personnel;
- risks associated with competitive challenges faced by our customers;
- the impact of our often long and unpredictable sales cycle;
- our ability to effectively expand and develop our sales and marketing capabilities;
- the risks associated with free trials and other inbound, lead-generation sales strategies;
- the risks associated with indemnity provisions in our contracts;
- risks associated with cybersecurity events;
- the impact of real or perceived errors, failures, or bugs in our products;
- the impact of general disruptions to data transmission;
- risks associated with stringent and changing privacy laws, regulations, and standards, and information security policies and contractual obligations related to data privacy and security;
- the risks associated with intellectual property infringement, misappropriation, or other claims;
- our reliance on third-party software and intellectual property licenses;
- our ability to obtain, protect, enforce, and maintain our intellectual property and proprietary rights;
- the risks associated with our use of open source software in our products;
- risks related to our indebtedness, including our ability to raise the funds necessary to settle conversions of our convertible senior notes, repurchase our convertible senior notes upon a fundamental change, or repay our convertible senior notes in cash at their maturity; and
- other factors disclosed in the section entitled "Risk Factors" and elsewhere in our Annual Report on Form 10-K for the year ended December 31, 2022, as supplemented by our subsequent Quarterly Reports on Form 10-Q.

We derive many of our forward-looking statements from our operating budgets and forecasts, which are based on many detailed assumptions. While we believe that our assumptions are reasonable, we caution that it is very difficult to predict the impact of known factors, and it is impossible for us to anticipate all factors that could affect our actual results. Important factors that could cause actual results to differ materially from our expectations, or cautionary statements, are disclosed under "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" in our Annual Report on Form 10-K and "Risk Factors" and "Management's Discussion and Analysis of Financial Condition and Results of Operations" of our subsequent Quarterly Reports on Form 10-Q. All written and oral forward-looking statements attributable to us, or persons acting on our behalf, are expressly qualified in their entirety by these cautionary statements as well as other cautionary statements that are made from time to time in our other SEC filings and public communications. You should evaluate all forward-looking statements in the context of these risks and uncertainties.

We caution you that the important factors referenced above may not contain all of the factors that are important to you. In addition, we cannot assure you that we will realize the results or developments we expect or anticipate or, even if substantially realized, that they will result in the consequences or affect us or our operations in the way we expect. The forward-looking statements included in this Quarterly Report on Form 10-Q are made only as of the date hereof. We undertake no obligation to update or revise any forward-looking statement as a result of new information, future events, or otherwise, except as otherwise required by law.

Item 2. MANAGEMENT'S DISCUSSION AND ANALYSIS OF FINANCIAL CONDITION AND RESULTS OF OPERATIONS

The following discussion and analysis summarizes the significant factors affecting the consolidated operating results, financial condition, liquidity, and cash flows of our company as of and for the periods presented below. The following discussion and analysis should be read in conjunction with our condensed consolidated financial statements and the related notes included elsewhere in this Quarterly Report on Form 10-Q and our consolidated financial statements and the related notes in our Annual Report on Form 10-K for the year ended December 31, 2022. The discussion contains forward-looking statements that are based on the beliefs of management, as well as assumptions made by, and information currently available to, our management. Actual results could differ materially from those discussed in or implied by forward-looking statements as a result of various factors, including those discussed below, elsewhere in this Quarterly Report on Form 10-Q, in our Annual Report on Form 10-K for the year ended December 31, 2022, and in our subsequent Quarterly Reports on Form 10-Q, particularly in the sections entitled "Risk Factors" and "Forward-Looking Statements."

Overview

We are the standard in managing and securing Apple at work, and we are the only company in the world that provides a complete management and security solution for an Apple-first environment that is designed to be enterprise secure, consumer simple, and protective of personal privacy. We help IT and security teams confidently protect the devices, data, and applications used by their workforce, while providing employees with consumer-simple, privacy-protecting technology. With Jamf's software, devices can be deployed to employees brand new in the shrink-wrapped box, set up automatically and personalized at first power-on and administered continuously throughout the lifecycle of the device.

Jamf was founded in 2002, around the same time that Apple was leading an industry transformation. Apple transformed the way people access and utilize technology through its focus on creating a superior consumer experience. With the release of revolutionary products like the Mac, iPod, iPhone, and iPad, Apple built the world's most valuable brand and became ubiquitous in everyday life.

We have built our company through a primary focus on being the leading solution for Apple in the enterprise because we believe that due to Apple's broad range of devices, combined with the changing demographics of today's workforce and their strong preference for Apple, that Apple will become the number one device ecosystem in the enterprise by the end of this decade. We believe that the enterprise management provider that is best at Apple will one day be the enterprise leader, and that Jamf is best positioned for that leadership. Through our long-standing relationship with Apple, we have accumulated significant Apple technical experience and expertise that give us the ability to fully and quickly leverage and extend the capabilities of Apple products, operating systems, and services. This expertise enables us to fully support new innovations and operating system releases the moment they are made available by Apple. This focus has allowed us to create a best-in-class user experience in the enterprise.

We sell our SaaS solutions via a subscription model, through a direct sales force, online, and indirectly via our channel partners, including Apple. Our multi-dimensional go-to-market model and cloud-deployed offering enable us to reach all organizations around the world, large and small, with our software solutions. As a result, we continue to see rapid growth and expansion of our customer base as Apple continues to gain momentum in the enterprise.

Key Factors Affecting Our Performance

New customer growth. Our ability to attract new customers is dependent upon a number of factors, including the effectiveness of our pricing and solutions, the features and pricing of our competitors' offerings, the effectiveness of our marketing efforts, the effectiveness of our channel partners in selling, marketing, and deploying our software solutions, and the growth of the market for devices and services for SMBs and enterprises. Sustaining our growth requires continued adoption of our platform by new customers. We intend to continue to invest in building brand awareness as we further penetrate our addressable markets. We intend to expand our customer base by continuing to make significant and targeted investments in our direct sales and marketing to attract new customers and to drive broader awareness of our software solutions.

Existing customer retention and expansion. Our ability to increase revenue depends in large part on our ability to retain our existing customers and increase revenue from our existing customer base. Customer retention and expansion is dependent upon a number of factors, including their satisfaction with our software solutions and support, the features and pricing of our competitors' offerings, and our ability to effectively enhance our platform by developing new products and features and addressing additional use cases. Often our customers will begin with a small deployment and then later expand their usage more broadly within the enterprise as they realize the benefits of our platform. We believe that our “land and expand” business model allows us to efficiently increase revenue from our existing customer base. We intend to continue to invest in enhancing awareness of our software solutions, creating additional use cases, and developing more products, features, and functionality, which we believe are important factors to expand usage of our software solutions by our existing customer base. We believe our ability to retain and expand usage of our software solutions by our existing customer base is evidenced by our dollar-based net retention rate.

Product innovation and technology leadership. Our success is dependent on our ability to sustain product innovation and technology leadership in order to maintain our competitive advantage. We believe that we have built a highly differentiated platform, and we intend to further extend the adoption of our platform through additional innovation. While sales of subscriptions to our Jamf Pro product account for most of our revenue, we intend to continue to invest in building additional products, features, and functionality that expand our capabilities and facilitate the extension of our platform to new use cases. Our future success is dependent on our ability to successfully develop, market, and sell additional products to both new and existing customers. For example, we announced our BYOD solution in March 2022 to help organizations manage and secure personally owned devices that employees bring to work, while upholding employee personal privacy. We also announced Jamf Executive Threat Protection in April 2023, as an advanced detection and response tool designed for mobile devices that provides organizations with an efficient, remote method to monitor devices and respond to advanced attacks.

Investment in growth. Our ability to effectively invest for growth is dependent upon a number of factors, including our ability to offset anticipated increases in operating expenses with revenue growth, our ability to spend our research and development budget efficiently or effectively on compelling innovation and technologies, our ability to accurately predict costs, and our ability to maintain our corporate culture as our headcount expands. We plan to continue investing in our business so we can capitalize on our market opportunity. We intend to grow our sales team to target expansion within our midmarket and enterprise customers and to attract new customers. We expect to continue to make focused investments in marketing to drive brand awareness and enhance the effectiveness of our customer acquisition model. We also intend to continue to invest in our research and development team to develop new and improved products, features, and functionality. Although these investments may increase our operating expenses and, as a result, adversely affect our operating results in the near term, we believe they will contribute to our long-term growth.

International expansion. Our international growth in any region will depend on our ability to effectively implement our business processes and go-to-market strategy, our ability to adapt to market or cultural differences, the general competitive landscape, our ability to invest in our sales and marketing channels, the maturity and growth trajectory of devices and services by region, and our brand awareness and perception. We plan to continue making investments in our international sales and marketing channels to take advantage of this market opportunity while refining our go-to-market approach based on local market dynamics. While we believe global demand for our platform will increase as international market awareness of Jamf grows, our ability to conduct our operations internationally will require considerable management attention and resources and is subject to the particular challenges of supporting a growing business in an environment of multiple languages, cultures, customs, legal and regulatory systems (including with respect to data transfer and privacy), alternative dispute systems, commercial markets, and geopolitical challenges. In addition, global demand for our platform and the growth of our international operations is dependent upon the rate of market adoption of Apple products in international markets.

Partner network development. Our success is dependent not only on our independent efforts to innovate, scale, and reach more customers directly but also on the success of our partners to continue to gain share in the enterprise. With a focus on the user and being the bridge between critical technologies — with Apple, Microsoft, AWS, Google, and Okta as examples — we feel we can help other market participants deliver more to enterprise users with the power of Jamf. We will continue to invest in the relationships with our existing, critical partners, nurture and develop new relationships and do so globally. We will continue to invest in developing “plus one” solutions and workflows that help tie our software solutions together with those delivered by others.

General and industry-specific economic and market conditions and reductions in IT spending. Our revenue, results of operations, and cash flows depend on the overall demand for our products. Currently, the U.S. and other key international economies are impacted by record levels of inflation, elevated interest rates, supply chain challenges, financial instability and concerns about banking liquidity, volatility in credit, equity, and foreign exchange markets, and overall uncertainty with respect to the economy, including the possibility of a recession. These factors could result in reductions in IT spending by our existing and prospective customers or in requests to renegotiate existing contracts, defaults on payments due on existing contracts, or non-renewals. As result of macroeconomic uncertainty, some of our customers have taken a more moderate outlook when planning their future hiring and device growth needs. We expect these conditions to continue throughout 2023.

Key Business Metrics

In addition to our GAAP financial information, we review several operating and financial metrics, including the following key metrics, to evaluate our business, measure our performance, identify trends affecting our business, formulate business plans, and make strategic decisions.

Number of Devices

We believe our ability to grow the number of devices on our software platform provides a key indicator of the growth of our business and our future business opportunities. We define a device at the end of any particular period as a device owned by a customer, which device has at least one Jamf product pursuant to an active subscription or support and maintenance agreement or that has a reasonable probability of renewal. We define a customer at the end of any particular period as an entity with at least one active subscription or support and maintenance agreement as of the measurement date or that has a reasonable probability of renewal. A single organization with separate subsidiaries, segments, or divisions that use our platform may represent multiple customers as we treat each entity, subsidiary, segment, or division that is invoiced separately as a single customer. In cases where customers subscribe to our platform through our channel partners, each end customer is counted separately. A single customer may have multiple Jamf products on a single device, but we still would only count that as one device.

The number of devices on our software platform was 30.8 million and 26.8 million as of March 31, 2023 and 2022, respectively, representing a 15% year-over-year growth rate. The increase in number of devices reflects our growth across industries, products, and geographies.

Annual Recurring Revenue

ARR represents the annualized value of all subscription and support and maintenance contracts as of the end of the period. ARR mitigates fluctuations due to seasonality, contract term, and the sales mix of subscriptions for term-based licenses and SaaS. ARR is calculated on a constant currency basis using a rate that estimates the exchange rate at the beginning of the year. ARR does not have any standardized meaning and is therefore unlikely to be comparable to similarly titled measures presented by other companies. ARR should be viewed independently of revenue and deferred revenue and is not intended to be combined with or to replace either of those items. ARR is not a forecast and the active contracts at the end of a reporting period used in calculating ARR may or may not be extended or renewed by our customers.

Our ARR was $526.6 million and $436.5 million as of March 31, 2023 and 2022, respectively, which is an increase of 21% year-over-year. The growth in our ARR is primarily driven by device expansion, the addition of new customers, and cross-selling additional solutions to our installed customer base.

Dollar-Based Net Retention Rate

To further illustrate the “land and expand” economics of our customer relationships, we examine the rate at which our customers increase their subscriptions for our software solutions. Our dollar-based net retention rate measures our ability to increase revenue across our existing customer base through expanded use of our software solutions, offset by customers whose subscription contracts with us are not renewed or renew at a lower amount.

We calculate dollar-based net retention rate as of a period end by starting with Prior Period ARR. We then calculate the Current Period ARR. Current Period ARR includes any expansion and is net of contraction or attrition over the last 12 months but excludes ARR from new customers in the current period. We then divide the total Current Period ARR by the total Prior Period ARR to arrive at the dollar-based net retention rate.

Our dollar-based net retention rates were 111% and 120% for the trailing twelve months ended March 31, 2023 and 2022, respectively. Our dollar-based net retention rate for the trailing twelve months ended March 31, 2022 was based on our Jamf legacy business and did not include Wandera since it had not been a part of our business for the full trailing twelve months. Our high dollar-based net retention rates are primarily attributable to an expansion of devices and our ability to cross-sell our new solutions to our installed customer base.

Components of Results of Operations

Revenue

We recognize revenue under ASC 606 when or as performance obligations are satisfied. We derive revenue primarily from sales of SaaS subscriptions and support and maintenance contracts and, to a lesser extent, sales of on-premise term-based subscriptions and perpetual licenses and services.

Subscription. Subscription revenue consists of sales of SaaS subscriptions and on-premise term-based subscription licenses as well as support and maintenance contracts. We sell our software solutions primarily with a one-year contract term. We typically invoice SaaS subscription fees and support and maintenance fees annually in advance and recognize revenue ratably over the term of the applicable agreement, provided that all other revenue recognition criteria have been satisfied. The license portion of on-premise subscription revenue is recognized upfront, assuming all revenue recognition criteria are satisfied. See "Management's Discussion and Analysis of Financial Condition and Results of Operations — Critical Accounting Estimates" in our Annual Report on Form 10-K for the year ended December 31, 2022 for more information. We expect subscription revenue to increase over time as we expand our customer base because sales to new customers are expected to be primarily SaaS subscriptions.

License. License revenue consists of revenue from on-premise perpetual licenses of our Jamf Pro product sold primarily to existing customers. We recognize license revenue upfront, assuming all revenue recognition criteria are satisfied. We expect license revenue to decrease because sales to new customers are primarily cloud-based subscription arrangements and therefore reflected in subscription revenue.

Services. Services revenue consists primarily of professional services provided to our customers to configure and optimize the use of our software solutions, as well as training services related to the operation of our software solutions. Our services are priced on a fixed fee basis and generally invoiced in advance of the service being delivered. Revenue is recognized as the services are performed. We expect services revenue to decrease as a percentage of total revenue as the demand for our services is not expected to grow at the same rate as the demand for our subscription solutions.

Cost of Revenue

Cost of subscription. Cost of subscription revenue consists primarily of employee compensation costs for employees associated with supporting our subscription and support and maintenance arrangements, our customer success function, and third-party hosting fees related to our cloud services. Employee compensation and related costs include cash compensation and benefits to employees and associated overhead costs. We expect cost of subscription revenue to increase in absolute dollars, but to remain relatively consistent as a percentage of subscription revenue, relative to the extent of the growth of our business.

Cost of services. Cost of services revenue consists primarily of employee compensation costs directly associated with delivery of professional services and training, costs of third-party integrators, and other associated overhead costs.

Amortization. Amortization expense consists of amortization of acquired intangible assets.

Gross Profit

Gross profit, or revenue less cost of revenue, has been and will continue to be affected by various factors, including the mix of cloud-based subscription customers, the costs associated with supporting our cloud solution, the extent to which we expand our customer support team, and the extent to which we can increase the efficiency of our technology and infrastructure though technological improvements. We expect our gross profit to increase in absolute dollars.

Operating Expenses

Sales and Marketing. Sales and marketing expenses consist primarily of employee compensation costs, sales commissions, costs of general marketing and promotional activities, travel-related expenses, and allocated overhead. Sales commissions as well as associated payroll taxes and retirement plan contributions (together, contract costs) that are incremental to the acquisition of customer contracts are capitalized and amortized over the period of benefit, which is estimated to be generally five years. We expect our sales and marketing expenses to increase on an absolute dollar basis as we expand our sales personnel and marketing efforts.

Research and development. Research and development expenses consist primarily of personnel costs and allocated overhead. We will continue to invest in innovation so that we can offer our customers new solutions and enhance our existing solutions. See “Business — Research and Development” in our Annual Report on Form 10-K for the year ended December 31, 2022 for more information. We expect such investment to increase on an absolute dollar basis as our business grows.

General and Administrative. General and administrative expenses consist primarily of employee compensation costs for corporate personnel, such as those in our executive, human resource, facilities, accounting and finance, legal and compliance, and IT departments. In addition, general and administrative expenses include acquisition and integration-related expenses which primarily consist of third-party expenses, such as legal and accounting fees, and adjustments to contingent consideration. General and administrative expenses also include system transformation costs, which are associated with the implementation of sales software and software supporting our business including enterprise resource planning, as well as other systems to provide best-in-class processes, governance, and systems. We expect our general and administrative expenses to increase on a dollar basis as our business grows, particularly as we continue to invest in technology infrastructure and expand our operations globally. Also, we incur additional general and administrative expenses as a result of operating as a public company, including costs to comply with the rules and regulations applicable to companies listed on a national securities exchange, costs related to compliance and reporting obligations pursuant to the rules and regulations of the SEC, and increased expenses for insurance, investor relations, and accounting expenses.

Amortization. Amortization expense consists of amortization of acquired intangible assets.

Interest Income (Expense), Net

Interest income (expense), net primarily consists of interest charges and amortization of capitalized issuance costs related to our 2026 Notes, as well as interest income earned on our cash and cash equivalents.

Foreign Currency Transaction Gain (Loss)

Foreign currency transaction gain (loss) includes gains and losses from transactions denominated in a currency other than the Company’s functional currency, the U.S. dollar.

Income Tax (Provision) Benefit

Income tax (provision) benefit consists primarily of income taxes related to U.S. federal and state income taxes and income taxes in foreign jurisdictions in which we conduct business.

Results of Operations

The following table sets forth our condensed consolidated statements of operations data for the periods indicated:

	Three Months Ended March 31,	
	2023	2022
	(in thousands)	
Revenue:		
Subscription	$ 127,230	$ 102,201
Services	4,384	3,944
License	598	2,113
Total revenue	132,212	108,258
Cost of revenue:		
Cost of subscription[(1)(2)(3)(4)] (exclusive of amortization expense shown below)	23,159	19,902
Cost of services[(1)(3)(4)] (exclusive of amortization expense shown below)	3,292	3,107
Amortization expense	3,296	5,218
Total cost of revenue	29,747	28,227
Gross profit	102,465	80,031
Operating expenses:		
Sales and marketing[(1)(2)(3)(4)]	60,208	46,325
Research and development[(1)(2)(3)(4)]	32,072	24,802
General and administrative[(1)(2)(3)(4)(5)]	28,436	25,612
Amortization expense	7,241	7,029
Total operating expenses	127,957	103,768
Loss from operations	(25,492)	(23,737)
Interest income (expense), net	1,285	(859)
Foreign currency transaction gain (loss)	604	(781)
Loss before income tax provision	(23,603)	(25,377)
Income tax provision	(597)	(252)
Net loss	$ (24,200)	$ (25,629)

(1) Includes stock-based compensation as follows:

	Three Months Ended March 31,	
	2023	2022
	(in thousands)	
Cost of revenue:		
Subscription	$ 2,267	$ 1,955
Services	309	304
Sales and marketing	7,499	5,859
Research and development	5,033	3,859
General and administrative	4,442	4,033
	$ 19,550	$ 16,010

(2) Includes payroll taxes related to stock-based compensation as follows:

	Three Months Ended March 31, 2023	Three Months Ended March 31, 2022
	(in thousands)	
Cost of revenue:		
Subscription	$ 12	$ —
Sales and marketing	104	12
Research and development	71	27
General and administrative	76	97
	$ 263	$ 136

(3) Includes depreciation expense as follows:

	Three Months Ended March 31, 2023	Three Months Ended March 31, 2022
	(in thousands)	
Cost of revenue:		
Subscription	$ 315	$ 320
Services	39	45
Sales and marketing	805	684
Research and development	467	359
General and administrative	261	238
	$ 1,887	$ 1,646

(4) Includes acquisition-related expense as follows:

	Three Months Ended March 31, 2023	Three Months Ended March 31, 2022
	(in thousands)	
Cost of revenue:		
Subscription	$ —	$ 38
Services	1	—
Sales and marketing	—	7
Research and development	51	263
General and administrative	706	793
	$ 758	$ 1,101

(5) Includes system transformation costs as follows:

	Three Months Ended March 31, 2023	Three Months Ended March 31, 2022
	(in thousands)	
General and administrative	$ 441	$ —

General and administrative also includes acquisition-related earnout of $0.1 million for the three months ended March 31, 2022. The acquisition-related earnout was an expense for the three months ended March 31, 2022 reflecting the increase in fair value of the Digita acquisition contingent liability due to growth in sales of our Jamf Protect product.

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

	Three Months Ended March 31,	
	2023	2022
	(as a percentage of total revenue)	
Revenue:		
Subscription	96 %	94 %
Services	3	4
License	1	2
Total revenue	100	100
Cost of revenue:		
Cost of subscription (exclusive of amortization expense shown below)	18	18
Cost of services (exclusive of amortization expense shown below)	2	3
Amortization expense	2	5
Total cost of revenue	22	26
Gross profit	78	74
Operating expenses:		
Sales and marketing	46	43
Research and development	24	23
General and administrative	22	24
Amortization expense	5	6
Total operating expenses	97	96
Loss from operations	(19)	(22)
Interest income (expense), net	1	(1)
Foreign currency transaction gain (loss)	—	(1)
Loss before income tax provision	(18)	(24)
Income tax provision	—	—
Net loss	(18)%	(24)%

Comparison of the Three Months Ended March 31, 2023 and 2022

Revenue

	Three Months Ended March 31,		Change	
	2023	2022	$	%
	(in thousands, except percentages)			
SaaS subscription and support and maintenance	$ 120,762	$ 96,350	$ 24,412	25 %
On-premise subscription	6,468	5,851	617	11
Subscription revenue	127,230	102,201	25,029	24
Professional services	4,384	3,944	440	11
Perpetual licenses	598	2,113	(1,515)	(72)
Non-subscription revenue	4,982	6,057	(1,075)	(18)
Total revenue	$ 132,212	$ 108,258	$ 23,954	22 %

Total revenue increased by $24.0 million, or 22%, for the three months ended March 31, 2023 compared to the three months ended March 31, 2022. Overall revenue increased primarily as a result of higher subscription revenue, partially offset by a decrease in perpetual licenses revenue. Subscription revenue accounted for 96% of total revenue for the three months ended March 31, 2023 compared to 94% for the three months ended March 31, 2022. The increase in subscription revenue was driven by device expansion, the addition of new customers, and cross-selling. The decrease in perpetual licenses revenue primarily reflects customers shifting from perpetual licenses to on-premise subscriptions.

Cost of Revenue and Gross Margin

	Three Months Ended March 31,		Change	
	2023	2022	$	%
	(in thousands, except percentages)			
Cost of revenue:				
Cost of subscription (exclusive of amortization expense shown below)	$ 23,159	$ 19,902	$ 3,257	16 %
Cost of services (exclusive of amortization expense show below)	3,292	3,107	185	6
Amortization expense	3,296	5,218	(1,922)	(37)
Total cost of revenue	$ 29,747	$ 28,227	$ 1,520	5 %
Gross margin	78%	74%		

Cost of revenue increased by $1.5 million, or 5%, for the three months ended March 31, 2023 compared to the three months ended March 31, 2022 driven by an increase in cost of subscription revenue, partially offset by a decrease in amortization expense. Cost of subscription revenue increased $3.3 million, or 16%, primarily due to a $2.3 million increase in employee compensation costs related to higher headcount to support the growth in our subscription customer base and a $0.6 million increase in third party hosting fees as we increased capacity to support our growth. Amortization expense decreased $1.9 million, or 37%, due to certain intangible assets reaching the end of their useful life.

Total gross margin was 78% and 74% for the three months ended March 31, 2023 and 2022, respectively. Total gross margin for the three months ended March 31, 2023 increased compared to the prior year period as our revenue expanded faster than the costs required to deliver the revenue and amortization expense decreased.

Operating Expenses

	Three Months Ended March 31,		Change	
	2023	2022	$	%
	(in thousands, except percentages)			
Operating expenses:				
Sales and marketing	$ 60,208	$ 46,325	$ 13,883	30 %
Research and development	32,072	24,802	7,270	29
General and administrative	28,436	25,612	2,824	11
Amortization expense	7,241	7,029	212	3
Operating expenses	$ 127,957	$ 103,768	$ 24,189	23 %

Sales and Marketing. Sales and marketing expenses increased by $13.9 million, or 30%, for the three months ended March 31, 2023 compared to the three months ended March 31, 2022 primarily due to a $10.1 million increase in employee compensation costs driven by higher headcount due to growth in the business, a $1.7 million increase in stock-based compensation expense and related payroll taxes, a $0.9 million increase in marketing costs, a $0.6 million increase in travel-related expenses, and a $0.3 million increase in computer hardware and software costs to support the growth of the business.

Research and Development. Research and development expenses increased by $7.3 million, or 29%, for the three months ended March 31, 2023 compared to the three months ended March 31, 2022 primarily due to a $5.5 million increase in employee compensation costs driven by higher headcount due to growth in our overall business, a $1.2 million increase in stock-based compensation expense and related payroll taxes, and a $0.3 million increase in computer hardware and software costs to support the growth of the business.

General and Administrative. General and administrative expenses increased by $2.8 million, or 11%, for the three months ended March 31, 2023 compared to the three months ended March 31, 2022 primarily due to a $1.9 million increase in employee compensation costs driven by higher headcount to support our continued growth, a $0.4 million increase in stock-based compensation expense and related payroll taxes, and a $0.4 million increase related to system transformation costs.

Interest Income (Expense), Net

	Three Months Ended March 31,		Change	
	2023	2022	$	%
	(in thousands, except percentages)			
Interest income (expense), net	$ 1,285	$ (859)	$ 2,144	NM

NM Not Meaningful.

Interest income (expense), net increased by $2.1 million for the three months ended March 31, 2023 compared to the three months ended March 31, 2022 primarily reflecting a $2.2 million increase in investment income due to higher earned interest rates and higher average invested balances.

Foreign Currency Transaction Gain (Loss)

	Three Months Ended March 31,		Change	
	2023	2022	$	%
	(in thousands, except percentages)			
Foreign currency transaction gain (loss)	$ 604	$ (781)	$ 1,385	NM

NM Not Meaningful.

Foreign currency transaction gain (loss) increased by $1.4 million for the three months ended March 31, 2023 compared to the three months ended March 31, 2022 primarily due to the impact of changes in foreign currency exchange rates, primarily the GBP and EUR.

Income Tax Provision

	Three Months Ended March 31,		Change	
	2023	2022	$	%
	(in thousands, except percentages)			
Income tax provision	$ 597	$ 252	$ 345	NM

NM Not Meaningful.

Income tax provision was $0.6 million and $0.3 million for the three months ended March 31, 2023 and 2022, respectively. The effective tax rates for the three months ended March 31, 2023 and 2022 were approximately (2.5)% and (1.0)%, respectively. See Note 11 for additional information on income taxes.

Non-GAAP Financial Measures

In addition to our results determined in accordance with GAAP, we believe the following non-GAAP financial measures are useful in evaluating our operating performance. We believe that non-GAAP financial measures, when taken collectively with GAAP financial measures, may be helpful to investors because they provide consistency and comparability with our past financial performance (for example, by eliminating items that fluctuate for reasons unrelated to operating performance or that represent non-recurring, one-time events), provide additional understanding of factors and trends affecting our business, and assist in comparisons with other companies, some of which use similar non-GAAP information to supplement their GAAP results.

Our non-GAAP financial measures are presented for supplemental informational purposes only, and should not be considered a substitute for financial measures presented in accordance with GAAP. The principal limitation of these non-GAAP financial measures is that they exclude certain expenses that are required by GAAP to be recorded in our financial statements, including stock-based compensation expense and amortization of acquired intangible assets. In addition, they are subject to inherent limitations as they reflect the exercise of judgment by our management about which expenses are excluded or included in determining these non-GAAP financial measures. Further, non-GAAP financial measures are not standardized. It may not be possible to compare these financial measures with other companies' non-GAAP financial measures having the same or similar names. While the amortization expense of acquired intangible assets is excluded from certain non-GAAP measures, the revenue related to acquired intangible assets is reflected in such measures as those assets contribute to revenue generation. A reconciliation is provided below for each non-GAAP financial measure to the most directly comparable financial measure stated in accordance with GAAP. Investors are encouraged to review the related GAAP financial measures and the reconciliation of these non-GAAP financial measures to their most directly comparable GAAP financial measures. In addition, investors are encouraged to review our condensed consolidated financial statements and the notes thereto in their entirety and not to rely on any single financial measure.

Non-GAAP Gross Profit and Non-GAAP Gross Profit Margin

We use non-GAAP gross profit and non-GAAP gross profit margin, and believe it is useful to our investors, to understand and evaluate our operating performance and trends and to prepare and approve our annual budget. We define non-GAAP gross profit as gross profit, adjusted for amortization expense, stock-based compensation expense, acquisition-related expense, and payroll taxes related to stock-based compensation. We define non-GAAP gross profit margin as non-GAAP gross profit as a percentage of total revenue.

A reconciliation of non-GAAP gross profit to gross profit and non-GAAP gross profit margin to gross profit margin, the most directly comparable GAAP measures, are as follows:

	Three Months Ended March 31,	
	2023	2022
	(in thousands)	
Gross profit	$ 102,465	$ 80,031
Amortization expense	3,296	5,218
Stock-based compensation	2,576	2,259
Acquisition-related expense	1	38
Payroll taxes related to stock-based compensation	12	—
Non-GAAP gross profit	$ 108,350	$ 87,546
Gross profit margin	78%	74%
Non-GAAP gross profit margin	82%	81%

Non-GAAP Operating Income and Non-GAAP Operating Income Margin

We use non-GAAP operating income and non-GAAP operating income margin, and believe it is useful for our investors, to understand and evaluate our operating performance and trends, to prepare and approve our annual budget, and to develop short-term and long-term operating plans. We define non-GAAP operating income as operating loss, adjusted for amortization expense, stock-based compensation expense, acquisition-related expense, acquisition-related earnout, payroll taxes related to stock-based compensation, and system transformation costs. System transformation costs are associated with the implementation of sales software and software supporting our business including enterprise resource planning, as well as other systems to provide best-in-class processes, governance, and systems. The transformation includes a comprehensive redesign in the way we go to market, including the quoting, contracting, fulfilling, and invoicing processes, and the systems and tools we use. We define non-GAAP operating income margin as non-GAAP operating income as a percentage of total revenue.

A reconciliation of non-GAAP operating income to operating loss and non-GAAP operating income margin to operating loss margin, the most directly comparable GAAP measures, are as follows:

	Three Months Ended March 31,	
	2023	2022
	(in thousands)	
Operating loss	$ (25,492)	$ (23,737)
Amortization expense	10,537	12,247
Stock-based compensation	19,550	16,010
Acquisition-related expense	758	1,101
Acquisition-related earnout	—	88
Payroll taxes related to stock-based compensation	263	136
System transformation costs	441	—
Non-GAAP operating income	$ 6,057	$ 5,845
Operating loss margin	(19)%	(22)%
Non-GAAP operating income margin	5%	5%

Non-GAAP Net Income

We use non-GAAP net income, and believe it is useful for our investors, to understand and evaluate our operating performance and trends. We define non-GAAP net income as net loss, adjusted for income tax provision, amortization expense, stock-based compensation expense, foreign currency transaction (gain) loss, amortization of debt issuance costs, acquisition-related expense, acquisition-related earnout, payroll taxes related to stock-based compensation, and system transformation costs, and adjustment to income tax expense based on the non-GAAP measure of profitability using our blended U.S. statutory tax rate.

We define non-GAAP income before income taxes as loss before income taxes adjusted for amortization expense, stock-based compensation expense, foreign currency transaction (gain) loss, amortization of debt issuance costs, acquisition-related expense, acquisition-related earnout, payroll taxes related to stock-based compensation, and system transformation costs.

We define non-GAAP provision for income taxes as the current and deferred income tax expense commensurate with the non-GAAP measure of profitability using our blended U.S. statutory tax rate.

A reconciliation of non-GAAP net income to net loss, the most directly comparable GAAP measure, is as follows:

	Three Months Ended March 31,	
	2023	2022
	(in thousands)	
Net loss	$ (24,200)	$ (25,629)
Exclude: income tax provision	(597)	(252)
Loss before income tax provision	(23,603)	(25,377)
Amortization expense	10,537	12,247
Stock-based compensation	19,550	16,010
Foreign currency transaction (gain) loss	(604)	781
Amortization of debt issuance costs	684	679
Acquisition-related expense	758	1,101
Acquisition-related earnout	—	88
Payroll taxes related to stock-based compensation	263	136
System transformation costs	441	—
Non-GAAP income before income taxes	8,026	5,665
Non-GAAP provision for income taxes [1]	(1,926)	(1,360)
Non-GAAP net income	$ 6,100	$ 4,305

[1] In accordance with the SEC's Non-GAAP Financial Measures Compliance and Disclosure Interpretation, the Company's blended U.S. statutory rate of 24% is used as an estimate for the current and deferred income tax expense associated with our non-GAAP income before income taxes.

Adjusted EBITDA

We define adjusted EBITDA as net loss, adjusted for interest (income) expense, net, provision for income taxes, depreciation and amortization expense, stock-based compensation expense, foreign currency transaction (gain) loss, acquisition-related expense, acquisition-related earnout, payroll taxes related to stock-based compensation, and system transformation costs.

A reconciliation of adjusted EBITDA to net loss, the most directly comparable GAAP measure, is as follows:

	Three Months Ended March 31,	
	2023	2022
	(in thousands)	
Net loss	$ (24,200)	$ (25,629)
Interest (income) expense, net	(1,285)	859
Provision for income taxes	597	252
Depreciation expense	1,887	1,646
Amortization expense	10,537	12,247
Stock-based compensation	19,550	16,010
Foreign currency transaction (gain) loss	(604)	781
Acquisition-related expense	758	1,101
Acquisition-related earnout	—	88
Payroll taxes related to stock-based compensation	263	136
System transformation costs	441	—
Adjusted EBITDA	$ 7,944	$ 7,491

Liquidity and Capital Resources

General

As of March 31, 2023, our principal sources of liquidity were cash and cash equivalents totaling $200.3 million, which were held for general corporate purposes, which may include working capital, capital expenditures, and potential acquisitions and strategic transactions, as well as the available balance of the 2020 Revolving Credit Facility, described in Note 8 to the condensed consolidated financial statements included in Part I, Item 1 of this Quarterly Report on Form 10-Q. Our cash and cash equivalents are comprised of cash, money market deposit accounts, and money market funds with original maturities at the time of purchase of three months or less. Our cash and cash equivalents are held at a diversified portfolio of global banks and money market investments, and we do not have material exposure to recent banking-sector events. We expect that our operating cash flows, in addition to our cash and cash equivalents, will enable us to make continued investments in supporting the growth of our business in the future.

A majority of our customers pay in advance for subscriptions and support and maintenance contracts, a portion of which is recorded as deferred revenue. Deferred revenue consists of the unearned portion of billed fees for our subscriptions, which is later recognized as revenue in accordance with our revenue recognition policy. As of March 31, 2023, we had deferred revenue of $340.8 million, of which $278.4 million was recorded as a current liability and is expected to be recorded as revenue in the next 12 months, provided all other revenue recognition criteria have been met.

As of March 31, 2023, there were no amounts outstanding under the 2020 Credit Agreement, other than $1.0 million in outstanding letters of credit. Effective April 7, 2023, we entered into the Credit Agreement Amendment, which amends certain provisions of the 2020 Credit Agreement. The Credit Agreement Amendment updates the benchmark interest rate provisions to replace the LIBO Rate with the Adjusted Term SOFR for purposes of calculating interest for U.S. dollar-denominated borrowings under the terms of the 2020 Credit Agreement. Except as amended by the Credit Agreement Amendment, the remaining terms of the 2020 Credit Agreement remain in full force and effect. See Note 8 for additional information.

On September 17, 2021, we completed a private offering of the 2026 Notes and received net proceeds of approximately $361.4 million after deducting the initial purchasers' discounts and commissions and the offering expenses paid by us. The 2026 Notes bear interest at a rate of 0.125% per year, payable semiannually in arrears on March 1st and September 1st of each year, beginning on March 1, 2022.

Future Liquidity and Capital Resource Requirements

We believe our cash and cash equivalents, the 2020 Revolving Credit Facility, and cash provided by sales of our software solutions and services will be sufficient to meet our working capital and capital expenditure needs, debt service requirements for at least the next 12 months, and other known long-term cash requirements. Our future capital requirements will depend on many factors including our growth rate, the timing and extent of spending to support development efforts, the expansion of sales and marketing activities, the introduction of new and enhanced products and services offerings, and the continuing market acceptance of our products. In the future, we may use cash to acquire or invest in complementary businesses, services, and technologies, including intellectual property rights.

As of March 31, 2023, our principal commitments consist of obligations under our 2026 Notes, contractual agreements for hosting services and other support software, and operating leases for office space. During the three months ended March 31, 2023, there have been no material changes to our commitments under our 2026 Notes and operating leases for office space as disclosed in our Annual Report on Form 10-K for the year ended December 31, 2022. See Note 7 for additional information on commitments under contractual agreements for hosting services and other support software.

Cash Flows

The following table presents a summary of our condensed consolidated cash flows from operating, investing, and financing activities:

	Three Months Ended March 31,	
	2023	2022
	(in thousands)	
Net cash used in operating activities	$ (24,800)	$ (2,990)
Net cash used in investing activities	(1,857)	(5,979)
Net cash provided by (used in) financing activities	2,517	(3,441)
Effect of exchange rate changes on cash, cash equivalents, and restricted cash	42	(145)
Net decrease in cash, cash equivalents, and restricted cash	(24,098)	(12,555)
Cash, cash equivalents, and restricted cash, beginning of period	231,921	177,150
Cash, cash equivalents, and restricted cash, end of period	$ 207,823	$ 164,595
Cash paid for interest	$ 313	$ 293
Cash paid for purchases of equipment and leasehold improvements	1,121	1,964

Operating Activities

Our largest source of operating cash is cash collections from our subscription customers. Our primary use of cash from operating activities is related to employee-related expenditures, marketing expenses, and third-party hosting costs.

For the three months ended March 31, 2023, net cash used in operating activities was $24.8 million reflecting our net loss of $24.2 million, adjusted for non-cash charges of $38.2 million and net cash outflows of $38.8 million from changes in our operating assets and liabilities. Non-cash charges primarily consisted of share-based compensation, depreciation and amortization of property and equipment and intangible assets, amortization of deferred contract costs, non-cash lease expense, and amortization of debt issuance costs. The primary drivers of net cash outflows from changes in operating assets and liabilities included a decrease of $20.3 million in accounts payable and accrued liabilities primarily due to cash paid for employee bonuses and cash paid for the contingent consideration associated with the Digita acquisition, an increase of $8.6 million in prepaid expenses and other assets primarily due to annual prepaid contract renewals, an increase of $8.1 million in deferred contract costs, and a decrease of $5.4 million in deferred revenue. These changes were partially offset by a decrease of $3.9 million in trade accounts receivable.

For the three months ended March 31, 2022, net cash used in operating activities was $3.0 million reflecting our net loss of $25.6 million, adjusted for non-cash charges of $36.1 million and net cash outflows of $13.5 million from changes in our operating assets and liabilities. Non-cash charges primarily consisted of share-based compensation, depreciation and amortization of property and equipment and intangible assets, amortization of deferred contract costs, and non-cash lease expense. The primary drivers of net cash outflows from changes in operating assets and liabilities included a decrease of $11.7 million in accounts payable and accrued liabilities primarily due to cash paid for employee bonuses, an increase of $7.0 million in deferred contract costs, an increase of $3.7 million in prepaid expenses and other assets, and an increase of $2.2 million in trade accounts receivable. These changes were partially offset by an increase of $10.5 million in deferred revenue due to growth in subscription revenues.

Investing Activities

During the three months ended March 31, 2023, net cash used in investing activities was $1.9 million driven by purchases of $1.1 million in equipment and leasehold improvements and purchases of investments of $0.8 million.

During the three months ended March 31, 2022, net cash used in investing activities was $6.0 million driven by cash paid for two acquisitions of $4.0 million and purchases of $2.0 million in equipment and leasehold improvements.

Financing Activities

Net cash provided by financing activities of $2.5 million during the three months ended March 31, 2023 was primarily due to proceeds of $2.7 million from the exercise of stock options.

Net cash used in financing activities of $3.4 million during the three months ended March 31, 2022 was primarily due to $4.6 million paid for contingent consideration associated with the Digita acquisition, partially offset by proceeds of $1.2 million from the exercise of stock options.

Indemnification Agreements

In the ordinary course of business, we enter into agreements of varying scope and terms pursuant to which we agree to indemnify customers, channel partners, vendors, lessors, business partners, and other parties with respect to certain matters, including, but not limited to, losses arising out of the breach of such agreements, services to be provided by us, or from intellectual property infringement, misappropriation, or other violation claims made by third parties. See “Risk Factors — We have indemnity provisions under our contracts with our customers, channel partners, and other third parties, which could have a material adverse effect on our business” in our Annual Report on Form 10-K for the year ended December 31, 2022. In addition, we have entered into indemnification agreements with our directors and certain officers that will require us, among other things, to indemnify them against certain liabilities that may arise by reason of their status or service as directors, officers, or employees. No demands have been made upon us to provide indemnification under such agreements, and there are no claims that we are aware of that could have a material effect on our condensed consolidated balance sheets, condensed consolidated statements of operations and comprehensive loss, or condensed consolidated statements of cash flows.

Critical Accounting Estimates

Our discussion and analysis of financial condition and results of operations are based upon our condensed consolidated financial statements. The preparation of our financial statements in accordance with GAAP requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenue, and expenses. We base our estimates on experience and other assumptions that we believe are reasonable under the circumstances, and we evaluate these estimates on an ongoing basis. Actual results may differ from those estimates, impacting our reported results of operations and financial condition.

There have been no material changes to our critical accounting estimates disclosed in our Annual Report on Form 10-K for the year ended December 31, 2022. For more information, refer to “Note 2 — Summary of significant accounting policies” to the condensed consolidated financial statements included in Part I, Item 1 of this Quarterly Report on Form 10-Q.

Recent Accounting Pronouncements

For a description of our recently adopted accounting pronouncements and recently issued accounting standards not yet adopted, see “Note 2 — Summary of significant accounting policies” to the condensed consolidated financial statements included in Part I, Item 1 of this Quarterly Report on Form 10-Q.

Item 3. Quantitative and Qualitative Disclosures About Market Risk

There were no material changes to our quantitative and qualitative disclosures about market risk during the three months ended March 31, 2023. See Part II, Item 7A, “Quantitative and Qualitative Disclosures About Market Risk” of our Annual Report on Form 10-K for the year ended December 31, 2022 for a detailed discussion of our market risks.

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 provide reasonable assurance that information required to be disclosed by the Company in the reports that we file or submit under the Exchange Act is recorded, processed, summarized, and reported within the time periods specified in the SEC’s rules and forms. Disclosure controls and procedures include, without limitation, controls and procedures designed to provide reasonable assurance that information required to be disclosed by the Company in the reports that we file or submit 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 principal executive officer and principal financial officer, evaluated the effectiveness of our disclosure controls and procedures as of March 31, 2023. Based on this evaluation, our principal executive officer and principal financial officer have concluded that our disclosure controls and procedures were not effective as of March 31, 2023 due to the material weakness described below. Notwithstanding such material weakness in internal control over financial reporting, our principal executive officer and principal financial officer have concluded that our unaudited condensed consolidated financial statements included in this Quarterly Report on Form 10-Q present fairly, in all material respects, our financial position, results of operations, and cash flows for the periods presented in conformity with GAAP.

Material Weakness in Internal Control over Financial Reporting

A material weakness is a deficiency, or combination of deficiencies, in internal control over financial reporting, such that there is a reasonable possibility that a material misstatement of a company's annual or interim financial statements will not be prevented or detected on a timely basis. Because the control deficiency described below could have resulted in a material misstatement of our annual or interim financial statements, we determined that this deficiency constitutes a material weakness.

During the fourth quarter of 2022, we identified that we did not design and maintain effective IT general controls for financial IT applications used for revenue recognition by Wandera, which we acquired in July 2021. Specifically, we did not design and maintain access controls relating to maintaining appropriate segregation of duties and user access as well as controls relating to change management over IT program and data changes. We have concluded that process-level automated and manual controls which were dependent upon IT general controls and data derived from impacted IT systems were ineffective because they could have been adversely impacted. Wandera accounts for less than 5% of our consolidated total revenue, and the material weakness did not result in any misstatements to our interim or annual financial statements.

We are working to remediate this material weakness in our internal control over financial reporting. We are in the process of implementing and testing new controls over the financial IT applications used by Wandera with the intention of remediation later this year. These controls include authorization of changes to financial IT applications and enhanced user access controls to ensure appropriate segregation of duties, as well as process-level controls which are dependent upon data from the impacted IT systems. The material weakness will not be considered remediated until a sustained period of time has passed to allow management to test the design and operational effectiveness of the new controls.

Changes in Internal Control

Except for the remediation measures implemented in connection with the material weakness described above, there have been no changes in internal control over financial reporting during the quarter ended March 31, 2023 that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Inherent Limitations on Effectiveness of Controls

Our management, including our principal executive officer and principal financial officer, does not expect that our disclosure controls and procedures or our internal control over financial reporting will prevent or detect all errors and all fraud. A control system, no matter how well conceived and operated, can provide only reasonable, not absolute, assurance that the objectives of the control system are met. 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. The design of any system of controls is also based in part upon certain assumptions about the likelihood of future events, and there can be no assurance that any design will succeed in achieving its stated goals under all potential future conditions. Over time, controls may become inadequate because of changes in conditions, or the degree of compliance with policies or procedures may deteriorate. Because of the inherent limitations in a cost-effective control system, misstatements due to error or fraud may occur and not be detected.

PART II. OTHER INFORMATION

Item 1. Legal Proceedings

The information set forth in “Note 7 — Commitments and contingencies” to the condensed consolidated financial statements in Part I, Item 1 of this Quarterly Report on Form 10-Q is incorporated herein by reference.

From time to time, we may be subject to legal proceedings and claims that arise in the ordinary course of business, including patent, commercial, product liability, employment, class action, whistleblower, and other litigation and claims, as well as governmental and other regulatory investigations and proceedings. In addition, third parties may from time to time assert claims against us in the form of letters and other communications. Although the results of these proceedings, claims, inquiries, and investigations cannot be predicted with certainty, we do not believe that the final outcome of these matters is reasonably likely to have a material adverse effect on our business, financial condition, or results of operations. Our evaluation of any current matters may change in the future as the legal proceedings and claims and events related thereto unfold. Future litigation may be necessary to defend ourselves, our partners, and our customers by determining the scope, enforceability, and validity of third-party proprietary rights, or to establish our proprietary rights. The results of any current or future litigation cannot be predicted with certainty, and 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

This quarterly report should be read in conjunction with the risk factors included in our Annual Report on Form 10-K for the year ended December 31, 2022. There have been no material changes to the risk factors disclosed in Part 1, Item 1A “Risk Factors” in our Annual Report on Form 10-K for the year ended December 31, 2022.

Item 3. Defaults Upon Senior Securities

None.

Item 2. Unregistered Sales of Equity Securities and Use of Proceeds

As previously reported, of the 711,111 aggregate shares of the Company’s common stock issued on November 16, 2022 as partial consideration for its purchase of ZecOps, 420 shares were issued in a reserve account, subject to the completion of customary shareholder certifications. The reserved shares were subsequently released in January 2023. The offer, sale, and issuance of these shares was deemed to be exempt from registration under the Securities Act in reliance on Rule 506 of Regulation D. The recipient of the reserved shares acquired them for investment only and not with a view to or for sale in connection with any distribution thereof and appropriate legends were affixed to these shares. The recipient of the reserved shares was an accredited investor within the meaning of Rule 501 of Regulation D under the Securities Act and had adequate access to information about us. No underwriters or placement agents were involved in this transaction.

Item 4. Mine Safety Disclosures

Not applicable.

Item 5. Other Information

None.

Item 6. Exhibits

The following is a list of all exhibits filed or furnished as part of this report:

Exhibit Number	Description
3.1	Second Amended and Restated Certificate of Incorporation of Jamf Holding Corp., dated July 24, 2020 (incorporated by reference to Exhibit 3.1 to the Company's Form 8-K filed with the SEC on July 27, 2020).
3.2	Amended and Restated Bylaws of Jamf Holding Corp., dated July 24, 2020 (incorporated by reference to Exhibit 3.2 to the Company's Form 8-K filed with the SEC on July 27, 2020).
10.1	Amendment No. 2, dated March 30, 2023, by and among JAMF Holdings, Inc., as borrower, Juno Intermediate, Inc., as a guarantor, Juno Parent, LLC, as a guarantor, the other loan parties thereto, the lenders party thereto, and JPMorgan Chase Bank, N.A., as administrative agent (incorporated by reference to Exhibit 10.1 to the Company's Form 8-K filed with the SEC on April 11, 2023).
31.1	Certification of the Chief Executive Officer pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002, filed herewith.
31.2	Certification of the Chief Financial Officer pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a), as adopted pursuant to Section 302 of the Sarbanes-Oxley Act of 2002, filed herewith.
32.1*	Certification of the Chief Executive Officer pursuant to 18 U.S.C. Section 1350, furnished herewith.
32.2*	Certification of the Chief Financial Officer pursuant to 18 U.S.C. Section 1350, furnished herewith.
101.INS	Inline XBRL Instance Document
101.SCH	Inline XBRL Taxonomy Extension Schema Document
101.CAL	Inline XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	Inline XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	Inline XBRL Taxonomy Extension Label Linkbase Document
101.PRE	Inline XBRL Taxonomy Extension Presentation Linkbase Document
104	Cover Page Interactive Data File (formatted as inline XBRL and contained in Exhibit 101)

* The certifications furnished in Exhibit 32.1 and Exhibit 32.2 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 that the registrant 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.

JAMF HOLDING CORP. (Registrant)

Date: May 4, 2023	By:	/s/ Ian Goodkind
		Ian Goodkind Chief Financial Officer (Principal Financial and Accounting Officer)

Exhibit 31.1

Certification Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

I, Dean Hager, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Jamf Holding Corp.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant's other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

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

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

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

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

5. The registrant's other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):

    a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and

    b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

Date: May 4, 2023

/s/ Dean Hager

Dean Hager
Director and Chief Executive Officer

Exhibit 31.2

Certification Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002

I, Ian Goodkind, certify that:

1. I have reviewed this Quarterly Report on Form 10-Q of Jamf Holding Corp.;

2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;

3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;

4. The registrant’s other certifying officer and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:

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

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

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

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

5. The registrant’s other certifying officer and I have disclosed, based on our most recent evaluation of internal control over financial reporting, to the registrant’s auditors and the audit committee of the registrant’s board of directors (or persons performing the equivalent functions):

    a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant’s ability to record, process, summarize and report financial information; and

    b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant’s internal control over financial reporting.

Date: May 4, 2023

/s/ Ian Goodkind

Ian Goodkind
Chief Financial Officer

Exhibit 32.1

Certification of the Chief Executive Officer

Pursuant to Rule 18 U.S.C. Section 1350

In connection with the Quarterly Report on Form 10-Q of Jamf Holding Corp. (the "Company") for the period ended March 31, 2023, as filed with the U.S. Securities and Exchange Commission (the "Report"), I, Dean Hager, Chief Executive Officer of the Company, hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge:

1. The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and

2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: May 4, 2023

/s/ Dean Hager

Dean Hager
Director and Chief Executive Officer

Exhibit 32.2

Certification of the Chief Financial Officer

Pursuant to Rule 18 U.S.C. Section 1350

In connection with the Quarterly Report on Form 10-Q of Jamf Holding Corp. (the "Company") for the period ended March 31, 2023, as filed with the U.S. Securities and Exchange Commission (the "Report"), I, Ian Goodkind, Chief Financial Officer of the Company, hereby certify, pursuant to 18 U.S.C. Section 1350, as adopted pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, that, to my knowledge:

1. The Report fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended; and

2. The information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

Date: May 4, 2023

/s/ Ian Goodkind

Ian Goodkind
Chief Financial Officer