

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON, DC 20549**

FORM 10-Q

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

For the quarterly period ended September 30, 2019

OR

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

For the transition period from

Commission File Number: 001-38952

CAMBIUM NETWORKS CORPORATION

(Exact Name of Registrant as Specified in its Charter)

Cayman Islands

(State or other jurisdiction of
incorporation or organization)

3800 Golf Road, Suite 360

Rolling Meadows, Illinois 60008

(Address of principal executive offices, including zip code)

Not Applicable

(I.R.S. Employer
Identification No.)

(345) 943-3100

(Registrant's telephone number, including area code)

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

Title of each class	Trading Symbol(s)	Name of each exchange on which registered
Ordinary shares, \$0.0001 par value	CMBM	Nasdaq Global Market

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, smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

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

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

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

As of November 8, 2019 the registrant had 25,634,417 shares of ordinary shares, \$0.0001 par value per share, outstanding.

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Note regarding forward-looking statements

This Quarterly Report on Form 10-Q contains forward-looking statements within the meaning of the federal securities laws. All statements other than statements of historical fact contained in this Quarterly Report on Form 10-Q, including statements regarding our future results of operations and financial position, business strategy and plans and objectives of management for future operations, are forward-looking statements. These statements involve known and unknown risks, uncertainties and other important factors that may cause our actual results, performance or achievements to be materially different from any future results, performance or achievements expressed or implied by the forward-looking statements.

In some cases, you can identify forward-looking statements by terms such as “may,” “should,” “expects,” “plans,” “anticipates,” “could,” “intends,” “target,” “projects,” “contemplates,” “believes,” “estimates,” “predicts,” “potential” or “continue” or the negative of these terms or other similar expressions. The forward-looking statements in this Quarterly Report on Form 10-Q are only predictions. We have based these forward-looking statements largely on our current expectations and projections about future events and financial trends that we believe may affect our business, financial condition and results of operations. These forward-looking statements speak only as of the date of this prospectus and are subject to a number of risks, uncertainties and assumptions described in the “Risk factors” section and elsewhere in this Quarterly Report on Form 10-Q. Because forward-looking statements are inherently subject to risks and uncertainties, some of which cannot be predicted or quantified, you should not rely on these forward-looking statements as predictions of future events. The events and circumstances reflected in our forward-looking statements may not be achieved or occur and actual results could differ materially from those projected in the forward-looking statements. Some of the key factors that could cause actual results to differ from our expectations include:

- the unpredictability of our operating results;
- our inability to predict and respond to emerging technological trends and network operators’ changing needs;
- our reliance on third-party manufacturers, which subjects us to risks of product delivery delays and reduced control over product costs and quality;
- our reliance on distributors and value-added resellers for the substantial majority of our sales;
- the inability of our third-party logistics and warehousing providers to deliver products to our channel partners and network operators in a timely manner;
- the quality of our support and services offerings;
- our expectations regarding outstanding litigation;
- our or our distributors’ and channel partners’ inability to attract new network operators or sell additional products to network operators that currently use our products;
- the difficulty of comparing or forecasting our financial results on a quarter-by-quarter basis due to the seasonality of our business;
- our limited or sole source suppliers’ inability to produce third-party components to build our products;
- the technological complexity of our products, which may contain undetected hardware defects or software bugs;
- our channel partners’ inability to effectively manage inventory of our products, timely resell our products or estimate expected future demand;
- credit risk of our channel partners, which could adversely affect their ability to purchase or pay for our products;
- our inability to manage our growth and expand our operations;
- unpredictability of sales and revenues due to lengthy sales cycles;
- our inability to maintain an effective system of internal controls, remediate our material weakness, produce timely and accurate financial statements or comply with applicable regulations;
- our reliance on the availability of third-party licenses;
- risks associated with international sales and operations;
- current or future unfavorable economic conditions, both domestically and in foreign markets; and
- our inability to obtain intellectual property protections for our products

We caution you that the foregoing list may not contain all of the forward-looking statements made in this Quarterly Report on Form 10-Q.

Except as required by applicable law, we do not plan to publicly update or revise any forward-looking statements contained herein, whether as a result of any new information, future events or otherwise.

Item 1. Financial Statements

Cambium Networks Corporation
Consolidated Balance Sheets
(in thousands, except for share and per share data)

	December 31, 2018	September 30, 2019
ASSETS		(unaudited)
Current assets		
Cash	\$ 4,441	\$ 18,950
Receivables, net of allowances	60,389	59,824
Inventories, net	30,710	41,933
Recoverable income taxes	679	527
Prepaid expenses	3,465	6,301
Other current assets	5,889	4,516
Total current assets	<u>105,573</u>	<u>132,051</u>
Noncurrent assets		
Property and equipment, net	7,965	8,257
Software, net	3,944	4,084
Operating lease assets	—	6,957
Intangible assets, net	8,493	15,693
Goodwill	8,060	8,963
Deferred tax assets, net	8,022	496
TOTAL ASSETS	<u>\$ 142,057</u>	<u>\$ 176,501</u>
LIABILITIES AND (DEFICIT) EQUITY		
Current liabilities		
Accounts payable	\$ 23,710	\$ 20,894
Accrued liabilities	18,263	20,425
Employee compensation	4,377	4,961
Current portion of long-term external debt	8,836	9,329
Payable to Sponsor	5,582	—
Deferred revenues	2,770	7,557
Other current liabilities	2,761	5,870
Total current liabilities	<u>66,299</u>	<u>69,036</u>
Noncurrent liabilities		
Long-term external debt	94,183	56,522
Deferred revenues	1,541	5,184
Noncurrent operating lease liabilities	—	5,544
Other noncurrent liabilities	605	—
Total liabilities	<u>162,628</u>	<u>136,286</u>
Shareholders' (deficit) equity		
Share capital; \$0.0001 par value; 500,000,000 shares authorized at December 31, 2018 and September 30, 2019; 77,179 shares issued and outstanding at December 31, 2018 and 25,725,542 issued and 25,634,417 outstanding at September 30, 2019	—	3
Additional paid in capital	772	103,992
Capital contribution	24,651	—
Treasury shares, at cost, 0 shares at December 31, 2018 and 91,125 shares at September 30, 2019	—	(1,094)
Accumulated deficit	(45,773)	(62,325)
Accumulated other comprehensive loss	(221)	(361)
Total shareholders' (deficit) equity	<u>(20,571)</u>	<u>40,215</u>
TOTAL LIABILITIES AND (DEFICIT) EQUITY	<u>\$ 142,057</u>	<u>\$ 176,501</u>

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

Cambium Networks Corporation
Consolidated Statements of Operations
(in thousands, except for share and per share data)
(unaudited)

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2019	2018	2019
Revenues	\$ 58,981	\$ 65,703	\$ 178,453	\$ 202,966
Cost of revenues	31,469	33,871	93,429	105,032
Gross profit	27,512	31,832	85,024	97,934
Operating expenses				
Research and development	9,810	9,895	28,883	35,566
Sales and marketing	10,805	10,363	31,290	34,808
General and administrative	5,520	5,996	14,164	24,189
Depreciation and amortization	2,448	1,449	7,156	3,957
Total operating expenses	28,583	27,703	81,493	98,520
Operating (loss) income	(1,071)	4,129	3,531	(586)
Interest expense	2,033	2,105	5,879	6,674
Other expense	116	61	457	251
(Loss) income before income taxes	(3,220)	1,963	(2,805)	(7,511)
(Benefit) provision for income taxes	(665)	3	(548)	9,041
Net (loss) income	\$ (2,555)	\$ 1,960	\$ (2,257)	\$ (16,552)
(Loss) earnings per share				
Basic and diluted	\$ (0.19)	\$ 0.08	\$ (0.17)	\$ (0.93)
Weighted-average number of shares outstanding to compute net (loss) income per share				
Basic and diluted	13,600,411	25,634,417	13,600,411	17,743,703
Share-based compensation included in costs and expenses:				
Cost of revenues	\$ —	\$ 14	\$ —	\$ 196
Research and development	—	199	—	5,062
Sales and marketing	—	374	—	3,981
General and administrative	—	241	—	7,667

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

Cambium Networks Corporation
Consolidated Statements of Comprehensive (Loss) Income
(in thousands)
(unaudited)

	<u>Three Months Ended September 30,</u>		<u>Nine Months Ended September 30,</u>	
	<u>2018</u>	<u>2019</u>	<u>2018</u>	<u>2019</u>
Net (loss) income	\$ (2,555)	\$ 1,960	\$ (2,257)	\$ (16,552)
Other comprehensive (loss) income				
Foreign currency translation adjustment	(186)	(166)	(494)	(140)
Comprehensive (loss) income	<u>\$ (2,741)</u>	<u>\$ 1,794</u>	<u>\$ (2,751)</u>	<u>\$ (16,692)</u>

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

Cambium Networks Corporation
Consolidated Statements of Shareholders' (Deficit) Equity
(in thousands)
(unaudited)

Three Months Ended September 30, 2018

	<u>Share Capital</u>		Additional paid in capital	Capital contribution	Treasury shares	Accumulated deficit	Accumulated other comprehensive income (loss)	Total shareholders' (deficit) equity
	Shares	Amount						
Balance at June 30, 2018	77	\$ —	\$ 772	\$ 24,651	\$ —	\$ (43,962)	\$ (157)	\$ (18,696)
Net loss	—	—	—	—	—	(2,555)	—	(2,555)
Foreign currency translation	—	—	—	—	—	—	(186)	(186)
Balance at September 30, 2018	<u>77</u>	<u>\$ —</u>	<u>\$ 772</u>	<u>\$ 24,651</u>	<u>\$ —</u>	<u>\$ (46,517)</u>	<u>\$ (343)</u>	<u>\$ (21,437)</u>

Nine Months Ended September 30, 2018

	<u>Share Capital</u>		Additional paid in capital	Capital contribution	Treasury shares	Accumulated deficit	Accumulated other comprehensive income (loss)	Total shareholders' (deficit) equity
	Shares	Amount						
Balance at December 31, 2017	77	\$ —	\$ 772	\$ 24,651	\$ —	\$ (43,400)	\$ 151	\$ (17,826)
Adjustment for adoption of ASC 606	—	—	—	—	—	(860)	—	(860)
Net loss	—	—	—	—	—	(2,257)	—	(2,257)
Foreign currency translation	—	—	—	—	—	—	(494)	(494)
Balance at September 30, 2018	<u>77</u>	<u>\$ —</u>	<u>\$ 772</u>	<u>\$ 24,651</u>	<u>\$ —</u>	<u>\$ (46,517)</u>	<u>\$ (343)</u>	<u>\$ (21,437)</u>

Three Months Ended September 30, 2019

	<u>Share Capital</u>		Additional paid in capital	Capital contribution	Treasury shares	Accumulated deficit	Accumulated other comprehensive income (loss)	Total shareholders' (deficit) equity
	Shares	Amount						
Balance at June 30, 2019	25,632	\$ 3	\$ 103,543	\$ —	\$ (1,133)	\$ (64,285)	\$ (195)	\$ 37,933
Net income	—	—	—	—	—	1,960	—	1,960
Share-based compensation	—	—	828	—	—	—	—	828
Additional issuance costs in initial public offering	—	—	(361)	—	—	—	—	(361)
Treasury shares withheld for net settlement in Recapitalization	2	—	(18)	—	39	—	—	21
Foreign currency translation	—	—	—	—	—	—	(166)	(166)
Balance at September 30, 2019	<u>25,634</u>	<u>\$ 3</u>	<u>\$ 103,992</u>	<u>\$ —</u>	<u>\$ (1,094)</u>	<u>\$ (62,325)</u>	<u>\$ (361)</u>	<u>\$ 40,215</u>

Nine Months Ended September 30, 2019

	<u>Share Capital</u>		Additional paid in capital	Capital contribution	Treasury shares	Accumulated deficit	Accumulated other comprehensive income (loss)	Total shareholders' (deficit) equity
	Shares	Amount						
Balance at December 31, 2018	77	\$ —	\$ 772	\$ 24,651	\$ —	\$ (45,773)	\$ (221)	\$ (20,571)
Net loss	—	—	—	—	—	(16,552)	—	(16,552)
Share-based compensation	—	—	16,906	—	—	—	—	16,906
Issuance of shares in Recapitalization and related reclassification	19,848	2	24,651	(24,651)	—	—	—	2
Issuance of shares in initial public offering, net of issuance costs of \$8,226	5,800	1	61,373	—	—	—	—	61,374
Treasury shares withheld for net settlement in Recapitalization	(91)	—	290	—	(1,094)	—	—	(804)
Foreign currency translation	—	—	—	—	—	—	(140)	(140)
Balance at September 30, 2019	<u>25,634</u>	<u>\$ 3</u>	<u>\$ 103,992</u>	<u>\$ —</u>	<u>\$ (1,094)</u>	<u>\$ (62,325)</u>	<u>\$ (361)</u>	<u>\$ 40,215</u>

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

Cambium Networks Corporation
Consolidated Statements of Cash Flows
(in thousands)
(unaudited)

	Nine Months Ended September 30,	
	2018	2019
Cash flows from operating activities:		
Net loss	\$ (2,257)	\$ (16,552)
Adjustments to reconcile net loss to net cash used in operating activities:		
Depreciation	2,075	2,633
Amortization of software and intangible assets	5,255	1,688
Amortization of debt issuance costs	425	1,005
Share-based compensation	—	16,906
Deferred income taxes	(1,064)	7,499
Other	890	406
Change in assets and liabilities:		
Receivables	(3,892)	653
Inventories	(9,453)	(8,662)
Accounts payable	6,066	(1,657)
Accrued employee compensation	(3,947)	343
Accrued liabilities	2,977	164
Accrued Sponsor interest and payables	430	(5,457)
Other assets and liabilities	(2,244)	(1,561)
Net cash used in operating activities	<u>(4,739)</u>	<u>(2,592)</u>
Cash flows from investing activities:		
Purchase of property and equipment	(3,810)	(2,535)
Purchase of software	(1,242)	(872)
Cash paid for acquisitions	—	(2,000)
Net cash used in investing activities	<u>(5,052)</u>	<u>(5,407)</u>
Cash flows from financing activities:		
Proceeds from issuance of revolver debt	9,962	—
Repayment of term loan	(3,375)	(27,837)
Repayment of revolver debt	—	(10,000)
Payment of debt issuance costs	—	(336)
Proceeds from initial public offering, net of underwriters commission and fees	—	65,988
Payment of deferred offering costs	—	(4,435)
Taxes paid related to net share settlement of equity awards	—	(802)
Net cash provided by financing activities	<u>6,587</u>	<u>22,578</u>
Effect of exchange rate on cash	(18)	(70)
Net (decrease) increase in cash	(3,222)	14,509
Cash, beginning of period	7,377	4,441
Cash, end of period	<u>\$ 4,155</u>	<u>\$ 18,950</u>
Supplemental disclosure of cash flow information:		
Income taxes paid	\$ 759	\$ 1,432
Interest paid	\$ 5,107	\$ 5,270
Significant non-cash activities:		
Issuance of shares for unreturned capital and accumulated yield	\$ —	\$ 49,252
Deferred offering costs included in accrued liabilities	\$ —	\$ 179

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

Cambium Networks Corporation
Notes to Unaudited Consolidated Financial Statements

Note 1. Business and significant accounting policies

Business

Cambium Networks Corporation (“Cambium” or the “Company”), incorporated under the laws of the Cayman Islands, is a holding company whose principal operating entities are Cambium Networks, Ltd. (UK), Cambium Networks, Inc. (USA), and Cambium Networks Consulting Private Limited (India). On October 28, 2011, Cambium acquired the point-to-point (“PTP”) and point-to-multi-point (“PMP”) businesses from Motorola Solutions, Inc. The acquisition was funded by investment funds affiliated with Vector Capital (“Sponsor”) and Cambium became the renamed entity subsequent to the acquisition.

Cambium Networks Corporation and its wholly owned subsidiaries provide wireless broadband networking solutions for network operators, including medium-sized wireless internet service providers, enterprises and government agencies.

The Company operates on a calendar year ending December 31. As such, all references to 2018 and 2019 contained within these notes relate to the calendar year, unless otherwise indicated.

Basis of Presentation

The unaudited consolidated financial statements include the accounts of Cambium Networks Corporation and its wholly-owned subsidiaries. All intercompany balances and transactions have been eliminated. The consolidated financial statements as of September 30, 2019, and for the three and nine-month periods ended September 30, 2018 and 2019, are unaudited. The unaudited consolidated financial statements have been prepared on the same basis as the annual consolidated financial statements other than the adoption with effect from January 1, 2019 of Financial Accounting Standards Board (“FASB”) Accounting Standards Codification 842, *Leases*, and, in the opinion of management, reflect all adjustments, which comprise only normal recurring adjustments necessary to state fairly the Company’s financial position as of September 30, 2019 and results of operations for the three and nine-month periods ended September 30, 2018 and 2019 and cash flows for the nine-month period ended September 30, 2018 and 2019. The consolidated balance sheet as of December 31, 2018, was derived from the audited financial statements.

On June 6, 2019, the Company completed a 100:1 share subdivision to its sole shareholder of record. Accordingly, all share and per share amounts for all periods presented in these consolidated financial statements and notes thereto have been adjusted retrospectively to reflect the subdivision.

Certain information and footnote disclosures normally included in financial statements prepared in accordance with accounting principals generally accepted in the United States (“GAAP”) have been condensed or omitted. The consolidated financial statements contained herein should be read in conjunction with the Company’s consolidated financial statements and notes thereto contained in its Prospectus filed pursuant to Rule 424(B)(4), as filed on June 26, 2019. The results of operations for the three and nine-month periods ended September 30, 2019 are not necessarily indicative of the operating results to be expected for the full year. Certain amounts in prior periods have been adjusted to conform with the current year presentation.

Initial public offering

The Company’s registration statement on Form S-1 (the “IPO Registration Statement”) related to its initial public offering (“IPO”) was declared effective on June 25, 2019, and the Company’s ordinary shares began trading on the Nasdaq Global Market on June 26, 2019. On June 28, 2019, the Company completed its IPO, in which the Company sold 5,800,000 shares at a price to the public of \$12.00 per share. The Company received aggregate net proceeds of \$66.0 million after deducting underwriting discounts and commissions of \$3.6 million. As of September 30, 2019, the Company used the proceeds from its IPO to pay offering costs of \$4.4 million, paydown debt of \$30.7 million, pay management fees owed to Vector Capital of \$5.6 million, and pay \$2.0 million for the initial purchase price to acquire select assets and assume select liabilities of the Xirrus Wi-Fi business.

Immediately prior to the completion of the IPO, the Company effected a recapitalization, which comprised (i) an increase in the authorized and outstanding shares held by Vector Cambium Holdings (Cayman), L.P. (“VCH, L.P.”) and (ii) the exchange of the vested share-based compensation awards held by its employees for the Company’s shares and unvested share-based compensation awards for restricted share awards or restricted share units issued by the Company, in each case on a value-for-value basis (the “Recapitalization”).

Immediately prior to the completion of the IPO, the Company filed its Amended and Restated Memorandum and Articles of Association, which authorizes a total of 500,000,000 ordinary shares. Upon the filing of the Amended and Restated Memorandum and Articles of Association, based on the IPO price of \$12.00 per share, and as part of the Recapitalization described above, the Company (i) issued additional shares to VCH, L.P., such that its aggregate shareholding in it is now 17,704,754 shares, (ii) issued 2,129,663 net shares to its employees and service providers and (iii) granted 240,037 restricted share awards or restricted share units in respect of shares that would be subject to vesting based on continued employment with or provision of services to the Company. The Company recorded non-cash share-based compensation expense of \$15.4 million in June 2019 related to the aforementioned issuance of the shares to its employees and service providers. In addition, the Company issued an aggregate 2,172,000 share options and restricted share units to employees and directors, effective upon pricing of the IPO of \$12.00 per share and recorded an additional \$0.7 million of share-based compensation expense related to these awards in June 2019.

Use of Accounting Estimates

The preparation of consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and the disclosure of contingent assets and liabilities at the date of the consolidated financial statements and the reported amounts of revenues and expenses during the reporting period. On an ongoing basis, the Company evaluates these estimates, including those related to the allocation of selling prices in arrangements with multiple performance obligations, provision for excess and obsolete inventory, allowance for doubtful accounts, the carrying amount of estimated inventory returns, the estimated amount expected to be refunded to customers in respect of inventory returns, provision for warranty claims, useful lives of long-lived assets and impairment assessments, fair value of equity awards granted to employees and the associated forfeiture rates, fair value of assets acquired, liabilities assumed, goodwill and identifiable intangible assets in business combinations, leases, provision for income taxes, recoverability of deferred tax assets, and deferred tax liabilities related to property and equipment. The Company bases estimates on historical experience and on various other assumptions that are believed to be reasonable under the circumstances. Actual results could differ from those estimates.

Segments

Management has determined that it operates as one operating segment and one reporting unit as it only reports financial information on an aggregate and consolidated basis to its Chief Executive Officer, who is the Company's chief operating decision maker. Decisions about resource allocation or operating performance assessments are not made below a total company level. Consequently, impairment testing is performed at the consolidated level as one reporting unit. See Note 17 – Segment information and revenues by geography for additional information.

Recognition of revenues

Revenues consist primarily of revenues from the sale of hardware products with essential embedded software. Revenues also include limited amounts for software products and extended warranty on hardware products. Substantially all products are sold through distributors and other channel partners, such as resellers and systems integrators.

The Company adopted Accounting Standards Codification (“ASC”) 606, *Revenue from Contracts with Customers* (“ASC 606”), and all the related amendments on January 1, 2018, applying the modified retrospective method to all contracts not completed as of the date of adoption. The Company assessed the impact of ASC 606 using the prescribed 5-step model and based on this assessments, concluded the recognition of revenue under ASC 606 is generally consistent with how revenue was being recognized prior to the adoption of the new standard. See Note 18 – Revenue from contracts with customers for further details on the impact of adoption.

In accordance with ASC 606, the Company recognizes revenue to reflect the transfer of control of promised products or services to a customer in an amount that reflects the consideration to which the Company expects to be entitled in exchange for products or services.

The Company accounts for a contract when it has approval and commitment from both parties, the rights of the parties are identified, payment terms are identified, the contract has commercial substance and collectability of consideration is probable.

The Company identifies its distinct performance obligations under each contract. A performance obligation is a promise in a contract to transfer a distinct product or service to the customer. Hardware products with essential embedded software, software products, and extended warranty on hardware products have been identified as separate and distinct performance obligations.

The transaction price is the amount of consideration to which the Company expects to be entitled in exchange for transferring products or services to a customer. Exchanges made as part of the Company's stock rotation program meet the definition of a right of return under ASC 606. An adjustment to revenue is made to adjust the transaction price to exclude the consideration related to products expected to be returned. The Company records an asset at the carrying amount of the estimated stock returns and a liability for the estimated amount expected to be refunded to the customer. The transaction price also excludes other forms of consideration provided to the customer, such as volume-based rebates and cooperative marketing allowances.

The Company recognizes revenue when, or as, it satisfies a performance obligation by transferring control of a promised product or service to a customer. Revenue from hardware products with embedded software transferred at a point in time is recognized when obligations under the terms of the contract are satisfied. Generally, this occurs when control of the asset is transferred, which is at the time of shipment. Software revenue is from perpetual license software and is recognized at the point in time that the customer is able to use or benefit from the software. Extended warranty on hardware products is a performance obligation that is satisfied over time, beginning on the effective date of the warranty period and ending on the expiration of the warranty period. The Company recognizes revenue on extended warranties on a straight-line basis over the warranty period.

The Company enters into revenue arrangements that may consist of multiple performance obligations, such as hardware with embedded essential software and extended warranty. The Company allocates the transaction price to each performance obligation on a relative standalone selling price basis for each distinct product or service in the contract. The best evidence of standalone selling price is the observable price of a product or service when the Company sells that product or service separately in similar circumstances and to similar customers. If a standalone selling price is not directly observable, the Company estimates the transaction price allocated to each performance obligation using the expected costs plus a margin approach.

Cash

The Company deposits cash with financial institutions that management believes are of high credit quality. The Company's cash consists primarily of U.S. dollar denominated demand accounts.

Receivables and concentration of credit risk

Trade accounts receivable are recorded at invoiced amounts, net of the allowance for doubtful accounts. The Company considers the credit risk of all customers and regularly monitors credit risk exposure in its trade receivables. The Company's standard credit terms with their customers are generally net 30 to 60 days. The Company had one customer representing more than 10% of trade receivables at September 30, 2019 and one customer at December 31, 2018. The Company had two customers representing more than 10% of revenues for the three-month period ended September 30, 2019 and one customer for the three-month period ended September 30, 2018. The Company had two customers representing more than 10% of revenues for the nine-month period ended September 30, 2019 and two customers for the nine-month period ended September 30, 2018.

The Company records an allowance for doubtful accounts for estimated probable losses on uncollectible accounts receivable. In estimating the allowance, management considers the aging of the accounts receivable, the Company's historical write offs, the credit worthiness of each distributor based on payment history, and general economic conditions, among other factors.

Inventory

The Company's inventories are primarily finished goods for resale and, to a lesser extent, raw materials, which have been either consigned to the Company's third-party manufacturers or are held by the Company. Inventories are stated at the lower of cost or net realizable value. In determining the cost of raw materials, consumables and goods purchased for resale, the weighted average purchase price is used. For finished goods, cost is computed as production cost including capitalized inbound freight costs.

The valuation of inventory also requires the Company to estimate excess or obsolete inventory. The determination of excess or obsolete inventory is estimated based on a comparison of the quantity and cost of inventory on hand to the Company's forecast of customer demand and in consideration of historical usage. Any adjustments to the valuation of inventory are included in cost of revenues.

Deferred offering costs

Deferred offering costs, consisting of legal, accounting and other fees and costs related to the IPO are capitalized and reflected in other current assets on the Company's consolidated balance sheets. There was \$2.0 million of deferred offering costs capitalized at December 31, 2018. The Company deferred an additional \$2.6 million of costs in 2019. The \$4.6 million has been offset against IPO proceeds as a reduction of additional paid in capital.

Property and equipment

Per ASC 360, *Property, Plant, and Equipment*, property and equipment are stated at cost. The Company calculates depreciation expense using the straight-line method over the estimated useful lives of each asset based on its asset class. Leasehold improvements are amortized over the shorter of their useful lives or the lease term. See Note 5 – Property and equipment for the useful lives for each asset class.

Upon retirement or disposition, the asset cost and related accumulated depreciation are removed with any gain or loss recognized in Other expenses in the consolidated statements of operations.

Software

Software may be purchased or developed internally for internal use. Costs related to internal use software are accounted for in accordance with ASC 350-40, *Internal Use Software*, and ASC 350-50, *Website Development Costs*, where the expected life is greater than one year. Costs are expensed as incurred during the preliminary project stage of an internal use software project. Costs are capitalized once the project has been approved by management and is in the application development stage. Post implementation/operation costs, such as maintenance and training costs, are expensed as incurred. Any costs incurred to provide upgrades or enhancements are capitalized only if they provide additional functionality that did not previously exist.

Amortization of internal use software begins when the software is ready for internal use and is amortized over its estimated useful life. The amortization expense for internal use software is computed using the straight-line method over three to seven years.

Costs related to certain software, which is available for sale, are capitalized in accordance with ASC 985-20, *Costs of Software to be Sold, Leased, or Marketed*, when the resulting product reaches technological feasibility. The Company generally determines technological feasibility when it has a detailed program design that takes product function, feature and technical requirements to their most detailed, logical form and the product is ready for coding. The Company does not typically capitalize costs related to the development of first-generation product offerings as technological feasibility generally coincides with general availability of the software.

Amortization of software costs to be sold or marketed externally begins when the product is available for sale to customers and is amortized using the straight-line method over its estimated useful life of three years.

Goodwill and intangible assets

Goodwill represents the excess purchase price over the estimated fair value of net assets acquired in a business combination. Goodwill is measured at cost and is not amortized. Intangible assets acquired, either individually or with a group of assets, are initially recognized and measured at fair value. The Company uses third-party specialists to assist management to determine fair values and estimated useful lives for intangible assets acquired in business combinations. Intangible assets with finite useful lives are amortized on a straight-line basis over their estimated useful lives of between 3 and 18 years. The Company has no intangible assets with indefinite lives.

In accordance with ASC 350, *Goodwill and Other*, the Company assesses goodwill for impairment at least annually and whenever events or circumstances that would more likely than not, reduce the fair value below its carrying value. For 2018, the Company tested goodwill for impairment at December 31.

Annual impairment testing is completed at the reporting unit level. Management has concluded the Company operates as one reporting unit and one operating segment for annual impairment testing. Refer to Note 17 – Segment information and revenues by geography for more information.

The Company early adopted Accounting Standard Update (“ASU”) 2017-04, *Intangibles – Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment*. In completing its impairment evaluations, the Company first assesses qualitative factors to determine whether it is more likely than not that the fair value of a reporting unit is less than its carrying amount, including goodwill. In performing this qualitative assessment, the Company assesses relevant events and changes in circumstances, including industry and market conditions, observable earnings before interest, taxes, depreciation and amortization (“EBITDA”) multiples for peer companies, operating results, business plans, and entity-specific events that would affect the fair value or the carrying amount of a reporting unit. If it is more likely than not that the fair value of a reporting unit is less than its carrying value, the Company determines the fair value of the reporting unit and compares the fair value to its carrying value. If the fair value of the reporting unit exceeds its carrying amount, goodwill of the reporting unit is not considered impaired and no further steps are required.

Impairment of long-lived assets

The Company evaluates its long-lived assets, including property and equipment, software and intangible assets, for impairment whenever events or changes in circumstances indicate that the carrying value of these assets may not be recoverable. An impairment loss is recognized when the net book value of such assets exceeds the estimated future undiscounted cash flows attributable to the assets or asset group. If impairment is indicated, the asset is written down to its estimated fair value. The Company did not recognize any impairment losses for the three or nine-month periods ended September 30, 2018 and 2019.

Leases

The Company has both cancelable and noncancelable operating leases for office space, vehicles, and office equipment. The Company adopted ASC 842, *Leases*, and all the related amendments on January 1, 2019, using the optional transition method to not apply the lease standard in the comparative periods presented. The Company elected the “practical expedient package” which permitted the Company to not reassess prior conclusions about lease identification, lease classification, and initial direct costs. The Company also elected the short-term lease recognition for all leases that qualify and to combine the lease and non-lease components into a single lease component for all of its leases.

In accordance with ASC 842, the Company recorded a right-of-use asset and lease liability on its consolidated balance sheet for all leases that qualified. The operating lease liability represents the present value of the future minimum lease payments over the lease term using the Company’s incremental borrowing rate at the lease commencement date. The right-of-use asset reflects adjustments for the derecognition of deferred rent and prepaid rent. Leases with an initial term of 12 months or less are not recorded on the Company’s consolidated balance sheet, and are expensed on a straight-line basis over the lease term. The Company does not include any renewal periods in the lease term for its leases as sufficient economic factors do not exist that would compel it to continue to use the underlying asset beyond the initial non-cancelable term. See Note 19 – Leases for further details.

Through December 31, 2018, the Company classified leases in accordance with guidance in ASC 840, *Leases*. For any leases that contained lease escalation or rent concession provisions, the Company recorded the total rent expense during the lease term on a straight-line basis over the term of the lease. The Company recorded the difference between the rent paid and the straight-line rent as an increase or decrease to the deferred rent liability included in accrued liabilities in its consolidated balance sheet.

Product warranties

The Company offers a standard one-year warranty on most of its products, and records a liability within current liabilities for the estimated future costs associated with potential warranty claims. Provisions for warranty claims are recorded at the time products are sold based on historical experience factors including product failure rates, material usage, and service delivery cost incurred in correcting product failures. These provisions are reviewed and adjusted by management periodically to reflect actual and anticipated experience. The warranty costs are reflected in the Company’s consolidated statements of operations within cost of revenues. In certain circumstances, the Company may have recourse from its contract manufacturers for replacement cost of defective products, which it also factors into its warranty liability assessment.

Income taxes

The Company accounts for income taxes under the asset and liability method, which requires the recognition of deferred tax assets and liabilities for the expected future tax consequences of events that have been included in its financial statements. Under this method, deferred tax assets and liabilities are determined on the basis of the differences between the financial statement carrying amount and the tax basis of assets and liabilities using enacted income tax rates in effect for the year in which the differences are expected to be recovered or settled. The effect of a change in income tax rates on deferred tax assets and liabilities is recognized in the income tax provision in the period that includes the enactment date.

In assessing the realizability of deferred tax assets, the Company considers whether it is more likely than not that some portion or all of the deferred tax assets will not be realized and adjusts the valuation allowances accordingly. In making such a determination, the Company considers all available positive and negative evidence, including future reversals of existing taxable temporary differences, projected future taxable income, tax-planning strategies, and results of recent operations.

In general, it is the practice and intention of the Company to reinvest the earnings of its subsidiaries in those operations. As of September 30, 2018 and 2019, the Company had not made a provision for withholding taxes on approximately \$4.9 million and \$8.2 million, respectively, of undistributed earnings that are indefinitely reinvested. Generally, such amounts become subject to taxation upon the remittance of dividends and under certain other circumstances. It is not practicable to estimate the amount of deferred tax liability to the undistributed earnings in these subsidiaries.

The Company may be subject to income tax audits in all of the jurisdictions in which it operates and, as a result, must also assess exposures to any potential issues arising from current or future audits of current and prior years' tax returns. Accordingly, the Company must assess such potential exposures and, where necessary, provide for any expected loss. The Company recognizes the benefit of a tax position if it is more likely than not to be sustained. Recognized tax positions are measured at the largest amount more likely than not to be realized upon settlement. To the extent that the Company establishes a liability, its income tax expense would be increased. If the Company ultimately determines that payment of these amounts is unnecessary, it reverses the liability and recognizes an income tax benefit during the period in which new information becomes available indicating that the liability is no longer necessary. The Company records an additional income tax expense in the period in which new information becomes available indicating that the income tax liability is greater than its original estimate. The Company did not record an adjustment for the year ended December 31, 2018 or the nine-month period ended September 30, 2019.

Share-based compensation

The Company accounts for share-based compensation in accordance with the guidance in ASC 718, *Share-based Payments*, by measuring and recognizing compensation expense for all share-based payments based on estimated grant date fair values for equity settled awards and period-end fair values for cash settled awards. Employees were granted both equity settled and cash settled awards under the Vector Holdings Limited Partnership Agreement (VCH LPA) that included both time-based and performance-based equity awards and were subject to the achievement of varying participation thresholds and contingent conditions prior to being eligible to participate in distributions from Vector Cambium Holdings (Cayman) LP, ("VCH, L.P."). For the year ended December 31, 2018, both equity-settled and cash-settled awards had not met all of the contingent conditions. Accordingly, the Company did not recognize any share-based compensation expense in its financial statements.

Prior to the IPO, the Company effected a Recapitalization, which exchanged the vested share-based compensation awards held by its employees for shares and unvested share-based compensation awards for restricted shares or restricted share units issued by the Company, on a value-for-value basis. After completion of the Recapitalization and the IPO, the Company is no longer party to nor subject to any obligations under the VCH LPA. As a result of the Recapitalization and the completion of the Company's IPO, the contingent conditions had been met on some of the share-based compensation awards and the Company recorded share-based compensation of \$15.4 million related to these awards during the three-month period ended June 30, 2019.

Following the IPO, awards are granted under the 2019 Share Incentive Plan. The 2019 Share Incentive Plan provides for the grant of incentive share options, nonqualified share options, share appreciation rights, restricted share awards, restricted share units, or other share-based awards and performance awards. Effective upon pricing of the IPO at \$12.00 per share, the Company issued an aggregate 2,172,000 share options and restricted share units to employees and directors and recorded an additional \$0.7 million of share-based compensation expense related to these awards in the three-month period ended June 30, 2019. See Note 12 – Share-based compensation for the additional expense recognized for the three-month period ended September 30, 2019 related to these awards.

Contingencies

In accordance with ASC 450, *Contingencies*, the Company periodically evaluates all pending or threatened contingencies and any commitments, if any, that are reasonably likely to have a material adverse effect on its results of operations, financial position or cash flows. Liabilities for loss contingencies arising from claims, assessments, litigation, fines, penalties and other sources are recorded when it is probable that a liability has been incurred and the amount can be reasonably estimated. Legal costs incurred in connection with loss contingencies are expensed as incurred.

Foreign currency translation

The Company records any gain and loss associated with foreign currencies in accordance with ASC 830, *Foreign Currency Matters*. The reporting currency of the Company is the U.S. dollar and the functional currency for each operating subsidiary is the local currency of the operating subsidiary other than for Cambium Networks, Ltd. (UK) for which the functional currency is the U.S. dollar. Local currency denominated monetary assets and liabilities are translated at exchange rates in effect at the balance sheet date, and revenues, cost of revenues and expenses are translated at the average exchange rate in effect during the applicable period. The Company recognizes foreign exchange gains and losses in other expense on its consolidated statements of operations and accumulated other comprehensive income (loss) on its consolidated balance sheets.

Research and development costs

Research and development expenses consists primarily of salary and benefit expenses for employees and contractors engaged in research, design and development activities, and costs for prototypes, facilities and travel costs. For 2019, research and development expenses also include share-based compensation expenses. The Company also incurs research and development costs associated with the development of software for both internal use and to be marketed externally. Research and development costs, other than those associated with the development of software that meet the criteria for capitalization, are expensed as incurred.

For the three-month periods ended September 30, 2018 and 2019, the Company expensed \$9.8 million and \$9.9 million, which included \$0 and \$0.2 million of share-based compensation expense, respectively, of research and development costs. For the nine-month periods ended September 30, 2018 and 2019, the Company expensed \$28.9 million and \$35.6 million, which included \$0 and \$5.1 million of share-based compensation expense, respectively, of research and development costs.

Recently adopted accounting pronouncements

In February 2016, the FASB issued ASU 2016-02, *Leases*, which sets out the principals for the recognition, measurement, presentation and disclosures of leases for both parties to a contract (i.e., lessees and lessors). This was subsequently amended by ASU 2018-01, *Land Easement Practical Expedient for Transition to Topic 842*, ASU 2018-10, *Codification Improvements to Topic 842, Leases*, and ASU 2018-11, *Targeted Improvements*, (collectively codified as “ASC 842”).

ASC 842 requires lessees to recognize right-of-use (“ROU”) assets and lease liabilities on the balance sheet for all leases unless a lessee elects not to apply ASC 842 to short-term leases. In addition, this standard requires both lessees and lessors to disclose certain key information about lease transactions. The Company adopted ASC 842 on January 1, 2019 (the effective date), using the optional transition method to not apply the new lease standard in the comparative periods presented and elected the “practical expedient package”, which permits the Company to not reassess prior conclusions about lease identification, lease classification, and initial direct costs. ASC 842 also provides practical expedients for the Company’s ongoing accounting. The Company elected the short-term lease recognition for all leases that qualify and to combine lease and non-lease components into a single lease component for all of its leases. On January 1, 2019, the Company recognized ROU assets and operating lease liabilities of \$8.2 million and \$8.8 million, respectively. The difference between ROU assets and operating lease liabilities recognized is due to deferred rent recorded under prior lease accounting standards. ASC 842 requires such balances to be reclassified against ROU assets at transition. Refer to Note 19 – Leases for further details.

In February 2018, the FASB issued ASU 2018-02, *Income Statement – Reporting Comprehensive Income: Reclassification of Certain Tax Effects from Accumulated Other Comprehensive Income*. This ASU provides an option to reclassify stranded tax effects within accumulated other comprehensive income (“AOCI”) to retained earnings in the period in which the effect of the change in the U.S. federal corporate income tax rate in the 2018 U.S. Tax Cuts and Job Act, and information about the income tax effects that are reclassified. The Company adopted ASU 2018-02 as of January 1, 2019. The adoption of ASU 2018-02 had no impact on the Company’s consolidated financial statements.

Recently issued accounting pronouncements

In August 2018, the FASB issued ASU 2018-15, *Intangibles – Goodwill and Other Internal-Use Software (Subtopic 350-40): Customer’s Accounting for Implementation Costs incurred in a Cloud Computing Arrangement That is a Service Contract*. The amendments in this update align the requirements for capitalizing implementation costs incurred in a hosting arrangement that is a service contract with the requirements for capitalizing implementation costs incurred to develop or obtain internal-use software (and hosting arrangements that include an internal-use software license). The accounting for the service element of a hosting arrangement that is a service contract is not affected by the amendments in this update. The amendments in this update are effective for interim and annual periods for the Company beginning on January 1, 2020, with early adoption permitted. The amendments in this update should be applied either retrospectively or prospectively to all implementation costs incurred after the date of adoption. The Company is assessing the impact the adoption of ASU 2018-15 will have on its consolidated financial statements.

In June 2016, the FASB issued ASU 2016-13, *Financial Instruments – Credit Losses (Topic 326)*. ASU 2016-13 sets forth an expected credit loss model which requires the measurement of expected credit losses for financial instruments based on historical experience, current conditions and reasonable and supportable forecasts. This replaces the existing incurred loss model and is applicable to the measurement of credit losses on financial assets measured at amortized cost, and certain off-balance sheet credit exposures. ASU 2016-13 is effective for fiscal years, and interim periods within those fiscal years, beginning after December 15, 2019, with early adoption permitted. Adoption will require a modified retrospective transition. This ASU is effective for the Company in the first quarter of fiscal 2020. The Company is assessing the impact of ASU 2016-13 on its consolidated financial statements.

Note 2. Business Combinations

In August 2019, the Company acquired select assets and assumed select liabilities of the Xirrus Wi-Fi products and cloud services business from Riverbed Technology, Inc. Xirrus has a portfolio of high performance enterprise Wi-Fi access points and subscription services. The Company paid \$2 million upon closing and may be required to pay an additional \$3 million subject to Xirrus attaining certain booking targets. This acquisition will enhance and accelerate the Company's existing network service application capabilities.

The Company accounts for business combinations in accordance with ASC 805, *Business Combinations*. The Company recorded the acquisition using the acquisition method of accounting and recognized assets and liabilities at their fair value as of the date of acquisition. The Company based the preliminary allocation of the purchase price on estimates and assumptions that are subject to change within the purchase price allocation period, which is generally one year from the acquisition date. The purchase accounting is not yet complete and as such the final allocation may be subject to change. The Company determined the estimated fair value of identifiable intangible assets acquired primarily using an income approach.

The following table summarizes the preliminary allocation of the purchase price for Xirrus:

Goodwill	\$	903
Customer relationships		7,670
Unpatented technology		540
Deferred revenue		(7,460)
Net assets acquired		3,347
Total purchase price	\$	<u>5,000</u>

The results from this acquisition have been included in the Company's consolidated financial statements since the closing of the acquisition.

Note 3. Fair value

ASC 820, *Fair Value Measurements and Disclosures* ("ASC 820") defines fair value as the price that would be received to sell an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. ASC 820 establishes a fair value hierarchy for valuation inputs that gives the highest priority to quoted prices in active markets for identical assets or liabilities and the lowest priority to unobservable inputs. ASC 820 requires the Company to use observable market data, when available, and to minimize the use of unobservable inputs when determining fair value. The fair value hierarchy prioritizes the inputs into three levels that may be used in measuring fair value as follows:

Level 1 – observable inputs which include quoted prices in active markets for identical assets or liabilities.

Level 2 – inputs which include observable inputs other than Level 1, such as quoted prices for similar assets or liabilities, quoted prices for identical or similar assets or liabilities in markets that are not active, or other inputs that are observable or can be corroborated by observable market data for substantially the full term of the asset or liability.

Level 3 – inputs which include unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the underlying assets or liability. Level 3 assets and liabilities include those whose fair value measurements are determined using pricing models, discounted cash flow methodologies or similar valuation techniques, as well as significant management judgment or estimation.

Financial assets and liabilities are classified, in their entirety, based on the lowest level of input that is significant to the fair value measurement. Our assessment of the significance of a particular input, to the fair value measurement requires judgment, and may affect the valuation of assets and liabilities and their placement within the fair value hierarchy levels.

Cash

The fair values of cash approximate their carrying values.

Net Debt

The fair value of the external debt approximates its carrying value because the terms and conditions approximate the terms and conditions of current market debt available to the Company. The external debt was estimated based on the current rates offered to the Company for debt with the same remaining maturities.

As of December 31, 2018 and September 30, 2019, the fair value hierarchy for the Company's financial assets and liabilities was as follows (in thousands):

	December 31, 2018				September 30, 2019			
	Fair Value	Level I	Level II	Level III	Fair Value	Level I	Level II	Level III
(unaudited)								
Assets:								
Cash	\$ 4,441	\$ 4,441	\$ —	\$ —	\$ 18,950	\$ 18,950	\$ —	\$ —
Liabilities:								
External debt	\$ 105,462	\$ —	\$ 105,462	\$ —	\$ 67,625	\$ —	\$ 67,625	\$ —
Payable to Sponsor	\$ 5,582	\$ 5,582	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —
Contingent consideration	\$ —	\$ —	\$ —	\$ —	\$ 3,000	\$ —	\$ —	\$ 3,000

The Company added a level 3 liability for contingent consideration of \$3.0 million during the three-month period ended September 30, 2019. The Company utilized a Monte Carlo Simulation to determine the fair value of the contingent consideration due to Riverbed Technology, Inc. associated with the acquisition of the Xirrus Wi-Fi assets and liabilities as of the acquisition date. The \$3.0 million represents management's best estimate of the liability and is based on Riverbed obtaining the required booking targets to be eligible for the additional consideration. Based on bookings through September 30, 2019, management estimates the entire \$3.0 million of contingent consideration will be earned, with payments expected to be made in both the fourth quarter of 2019 and the first quarter of 2020. As of September 30, 2019, the \$3.0 million of contingent consideration is included in Accrued liabilities on the Consolidated Balance Sheets.

Note 4. Balance sheet components

Accounts Receivable, net

Receivables are recorded at invoiced amounts, net of the allowance for doubtful accounts. The receivables activity was as follows (in thousands):

	December 31, 2018	September 30, 2019 (unaudited)
Trade accounts receivable	\$ 60,235	\$ 60,078
Other receivables	657	301
Total receivables	60,892	60,379
Less: Allowance for doubtful accounts	(503)	(555)
Receivables, net	\$ 60,389	\$ 59,824

The allowance for doubtful accounts activity was as follows (in thousands):

	Year ended December 31, 2018	Nine months ended September 30, 2019 (unaudited)
Beginning balance	\$ 823	\$ 503
Increase, charged to expense	332	281
Recoveries	(213)	(177)
Reclassification to non-current	(180)	—
Amounts written-off	(259)	(52)
Ending balance	\$ 503	\$ 555

Inventories

Inventories consisted of the following (in thousands):

	December 31, 2018	September 30, 2019 (unaudited)
Finished goods	\$ 32,702	\$ 42,607
Raw materials	1,958	3,601
Gross inventory	34,660	46,208
Less: Excess and obsolete provision	(3,950)	(4,275)
Inventories, net	<u>\$ 30,710</u>	<u>\$ 41,933</u>

The following table reflects the activity in the Company's inventory excess and obsolete provision (in thousands):

	Year ended December 31, 2018	Nine months ended September 30, 2019 (unaudited)
Beginning balance	\$ 2,766	\$ 3,950
Inventory written off	(528)	(187)
Increase in excess and obsolete provision	1,712	512
Ending balance	<u>\$ 3,950</u>	<u>\$ 4,275</u>

Note 5. Property and equipment

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

	Useful Life	December 31, 2018	September 30, 2019 (unaudited)
Equipment and tooling	3 to 5 years	\$ 18,552	\$ 21,096
Computer equipment	3 to 5 years	2,644	2,904
Furniture and fixtures	10 years	666	766
Total cost		21,862	24,766
Less: Accumulated depreciation		(13,897)	(16,509)
Property and equipment, net		<u>\$ 7,965</u>	<u>\$ 8,257</u>

Total depreciation expense was \$0.9 million and \$0.9 million for the three-month periods ended September 30, 2018 and 2019, respectively, and \$2.1 million and \$2.6 million for the nine-month periods ended September 30, 2018 and 2019, respectively.

Note 6. Software

Software consisted of the following (in thousands):

	Useful Life	December 31, 2018			September 30, 2019 (unaudited)		
		Gross Carrying Amount	Accumulated Amortization	Net Balance	Gross Carrying Amount	Accumulated Amortization	Net Balance
Acquired and Software for internal use	3 to 7 years	\$ 15,513	\$ (12,802)	\$ 2,711	\$ 16,059	\$ (13,114)	\$ 2,945
Software marketed for external sale	3 years	1,534	(301)	1,233	1,803	(664)	1,139
Total		<u>\$ 17,047</u>	<u>\$ (13,103)</u>	<u>\$ 3,944</u>	<u>\$ 17,862</u>	<u>\$ (13,778)</u>	<u>\$ 4,084</u>

Amortization of acquired and internal use software is computed using the straight-line method over an estimated useful life of generally three to seven years. Amortization expense recognized on acquired and internal use software is reflected in depreciation and amortization in the consolidated statements of operations. Amortization expense was \$0.6 million and \$0.1 million for the three-month periods ended September 30, 2018 and 2019, respectively, and \$1.5 million and \$0.3 million for the nine-month periods ended September 30, 2018 and 2019, respectively.

The Company began capitalizing costs associated with software marketed for external sale in 2017. Amortization expense recognized on software to be sold or marketed externally was \$0.1 million and \$0.2 million for the three-month periods ended September 30, 2018 and 2019, respectively, and \$0.2 million and \$0.4 million for the nine-month periods ended September 30, 2018 and 2019, respectively, and is included in cost of revenues on the consolidated statements of operations.

Based on capitalized software assets at September 30, 2019, estimated amortization expense in future fiscal years is as follows (unaudited and in thousands):

Year ending December 31,	Acquired and internal use software	Software marketed for external use	Total
Remainder of 2019	\$ 265	\$ 115	\$ 380
2020	714	582	1,296
2021	651	289	940
2022	509	130	639
2023	435	23	458
2024 & Thereafter	371	—	371
Total amortization	\$ 2,945	\$ 1,139	\$ 4,084

Note 7. Goodwill and Intangible Assets

When the Company acquired the trade assets of Motorola Solutions, Inc.'s wireless point-to-point and point-to-multipoint businesses, the transaction generated goodwill and certain intangible assets. The goodwill associated with this transaction was recorded by Cambium Networks Corporation and allocated to Cambium Networks, Ltd. and Cambium Networks, Inc. using a revenue and asset allocation method. Although goodwill has been allocated to two operating subsidiaries, as noted in Note 17 – Segment information and revenues by geography, the Company operates as one operating segment and one reporting unit and therefore, goodwill is reported, and impairment testing performed, at the Cambium Networks Corporation consolidated level.

See Note 2 – Business combinations for further information regarding the acquisition completed during the nine-month period ended September 30, 2019.

The change in the carrying amount of goodwill for the year ended and nine-month period ended was as follows (in thousands):

	December 31, 2018	September 30, 2019 (unaudited)
Beginning balance	\$ 8,060	\$ 8,060
Impairment or other changes	—	—
Additions attributable to current period acquisition	—	903
Ending balance	<u>\$ 8,060</u>	<u>\$ 8,963</u>

The Company completed a qualitative assessment of goodwill for 2018. In completing the qualitative assessment, the Company assessed relevant events and changes in circumstances, including industry and market conditions, observable EBITDA multiples for peer companies, operating results, business plans and entity-specific events.

Based on the results of the 2018 qualitative impairment tests, it was more likely than not that there was no impairment of the Company's goodwill for the period. In conjunction with its assessment for impairment, the Company determined the carrying value of its one reporting unit at December 31, 2018 was negative. Since the carrying value of the reporting unit was negative, the Company is not required to perform a qualitative assessment. Therefore, there were no adjustments to the carrying value of goodwill at December 31, 2018, which was \$8.1 million. In addition, there were no triggering events or changes in circumstances during 2018 and as of September 30, 2019 (unaudited) that would have required a review other than at the annual test date.

The useful life, gross carrying value, accumulated amortization, and net balance for each major class of definite-lived intangible assets at each balance sheet date were as follows (in thousands):

	Useful Life	December 31, 2018			September 30, 2019 (unaudited)		
		Gross carrying amount	Accumulated amortization	Net balance	Gross carrying amount	Accumulated amortization	Net balance
Unpatented technology	3 - 7 years	\$ 14,120	\$ (14,120)	\$ —	\$ 14,660	\$ (14,152)	\$ 508
Customer relationships	5 - 18 years	11,630	(4,630)	7,000	19,300	(5,213)	14,087
Patents	7 years	11,300	(11,300)	—	11,300	(11,300)	—
Trademarks	10 years	5,270	(3,777)	1,493	5,270	(4,172)	1,098
Total		\$ 42,320	\$ (33,827)	\$ 8,493	\$ 50,530	\$ (34,837)	\$ 15,693

The increase in unpatented technology and customer relationships is related to the acquisition of Xirrus as discussed in Note 2 – Business combinations. Intangible assets are amortized over their expected useful life and none are expected to have a significant residual value at the end of their useful life. Intangible assets amortization expense was \$1.2 million and \$0.4 million for the three-month periods ended September 30, 2018 and 2019, respectively, and \$3.6 million and \$1.0 million for the nine-month periods ended September 30, 2018 and 2019, respectively (unaudited).

Based on capitalized intangible assets as of September 30, 2019, estimated amortization expense amounts in future fiscal years are as follows (unaudited and in thousands):

Year ending December 31,	Amortization
Remainder of 2019	\$ 542
2020	2,205
2021	2,118
2022	1,603
2023	1,498
2024 & Thereafter	7,727
Total amortization	\$ 15,693

Note 8. Debt

As of September 30, 2019, the Company had \$67.6 million outstanding under its current term loan facility and \$0.0 million in borrowings under its revolving credit facility (unaudited).

As of December 31, 2018, the Company had \$95.5 million outstanding under its current term loan facility and \$10.0 million in borrowings under its revolving credit facility.

The following table reflects the current and noncurrent portions of the external debt facilities at December 31, 2018 and September 30, 2019 (in thousands):

	December 31, 2018	September 30, 2019 (unaudited)
Term loan facility	\$ —	\$ 67,625
Tranche A	72,735	—
Tranche B	22,727	—
Revolving credit facility	10,000	—
Less debt issuance costs	(2,443)	(1,774)
Total debt	103,019	65,851
Less current portion of term facility	(9,500)	(9,875)
Current portion of debt issuance costs	664	546
Total long-term external debt	\$ 94,183	\$ 56,522

Secured credit agreements

On March 22, 2017, the Company entered into the second amended and restated credit agreement (“second Amended and Restated Credit Agreement”) extending the Company’s existing credit facility from October 28, 2018 to March 22, 2022. The second Amended and Restated Credit Agreement provided an aggregate borrowing amount not to exceed \$45.0 million consisting of a term loan facility in the aggregate principal amount of \$35.0 million and a revolving loan facility in an aggregate principal amount of \$10.0 million, including a letter of credit sub-facility in the aggregate availability amount of \$10.0 million. The Company initially borrowed \$30.0 million under the term facility provisions of the second Amended and Restated Credit Agreement.

On December 21, 2017, the Company entered into the third amended and restated credit agreement (as amended and restated, the “Credit Agreement”) to refinance the obligations under the Company’s existing credit facility, to an aggregate amount of \$100.0 million, consisting of a term loan facility in the aggregate principal amount of \$90.0 million and a revolving loan facility in an aggregate principal amount of \$10.0 million, including a letter of credit sub-facility in the aggregate availability amount of \$5.0 million. The Company may request borrowings under the revolving credit facility until December 21, 2022, which is the date it becomes due. The term loan matures and also becomes due on December 21, 2022.

The proceeds were used to: (i) pay fees and expenses incurred in connection with the refinancing; (ii) pay off the existing senior indebtedness under the second Amended and Restated Credit Agreement; (iii) finance the return of capital to the Company’s Sponsor; and (iv) provide ongoing working capital and other general corporate purposes. The Credit Agreement includes an accordion feature, permitting the Company on not more than five occasions prior to the fourth anniversary of the date of the Credit Agreement to increase the aggregate amount of the term loan by up to \$40.0 million, the proceeds of which may be used for permitted acquisitions.

In November 2018, the Company entered into a Waiver and First Amendment to Amended and Restated Credit Agreement (“Amendment”). The Amendment waives certain events of default, resets the debt covenants, and modified and amended certain terms of the Credit Agreement. Any terms not amended or modified by the Amendment are governed under the existing Credit Agreement. The Events of Default (as defined in the Credit Agreement) occurred as a result of the Company’s failure to maintain certain financial covenants. The Events of Default occurred for the months ended May 31, 2018, July 31, 2018, and August 31, 2018 with the Minimum Adjusted Quick Ratio and for the quarter ended September 30, 2018 with the Maximum Consolidated Leverage Ratio and the Minimum Consolidated Fixed Charge Coverage Ratio (together known as the “Existing Events of Default”).

Per the Amendment, the outstanding term loan was continued as two separate tranches of term loans, one tranche in the aggregate principal amount outstanding of \$73.9 million (inclusive of the conversion of the outstanding revolving loan) as of the Amendment effective date (“Tranche A”) and a separate tranche in the aggregate principal amount outstanding of \$22.7 million as of the Amendment effective date (“Tranche B”). The outstanding revolving loan in the amount of \$10.0 million was converted into, aggregated with, and continued as Tranche A as of the Amendment effective date. The Amendment also maintained the \$10.0 million revolving credit facility.

The Amendment also amended the following financial covenants: Consolidated EBITDA to reflect changes to the new definition and minimum requirements for consolidated EBITDA; consolidated fixed charge coverage ratio to reflect the modification to reduce the minimum ratio until June 30, 2020; consolidated leverage ratio to reflect the modifications to increase the maximum ratio until June 30, 2019; and minimum adjusted quick ratio to reflect the modification to reduce the ratio through the maturity date of the loan. Further, the repayment schedule for the principal repayment of the term loans was amended to reflect the new installment amounts due on the last day of each fiscal quarter.

In connection with the execution of the Waiver and First Amendment to Amended and Restated Credit Agreement, Vector Capital IV, L.P., an affiliate of the general partner of the Company’s sole shareholder, executed a Limited Guaranty agreement whereby it agreed to guarantee the Tranche B loan up to a maximum of the lesser of: (i) \$25.0 million and (ii) an amount equal to (a) 1.10 multiplied by (b) an amount equal to the then aggregate principal amount of the Tranche B loan.

The Company incurred a \$0.25 million administrative fee and all lenders’ term commitment percentage and revolving commitment percentage remained the same as a result of the Amendment.

The amended term loan is repayable quarterly as follows: (i) \$2.375 million is payable in each quarter for the first four (4) payment dates starting after January 1, 2019; and (ii) \$2.5 million is payable in each quarter of each year thereafter, with the remaining principal on both Tranche A and Tranche B due on maturity on December 21, 2022. Principal payments are applied to Tranche A until the balance is paid in full. In addition, 50% of excess cash, defined as EBITDA less tax, capital expenditures, certain investments, scheduled loan repayments, declared distributions, interest, working capital requirement and other items paid in cash to the extent included as an add back to EBITDA, is payable to the lenders at the end of each year as a repayment of outstanding borrowings.

Interest accrues on the outstanding principal amount of the term loan on a quarterly basis and is equal to the three-month US LIBOR rate plus a base rate of 4.75%, 4.25% or 4.00%. In addition to paying the interest on the outstanding principal under the term loan facility, the Company is required to pay a commitment fee in respect of the unutilized commitments under the revolving credit facility, payable quarterly in arrears. The Company is also required to pay letter of credit fees on the maximum amount available to be drawn under all outstanding letters of credit in an amount equal to the applicable margin on LIBOR based borrowings under the revolving credit facility on a per annum basis, payable in arrears, as well as customer fronting fees for the issuance of letters of credit fees and agency fees.

The Company is permitted to voluntarily reduce the unutilized portion of the commitment amount and repay outstanding loans under the Credit Agreement at any time without premium or penalty, other than customary breakage costs with respect to LIBOR based loans.

Borrowings under the Agreement are secured by a first-priority lien on substantially all of the Company's assets, the equity interests in the Company's subsidiaries, and any intercompany debt. The Credit Agreement also contains certain customary mandatory prepayment provisions. If certain events, as specified in the Credit Agreement, occur, the Company may be required to repay all or a portion of the amounts outstanding under the Credit Agreement.

On April 26, 2019, the Company entered into a Consent, Waiver and Second Amendment to Amended and Restated Credit Agreement ("2nd Amendment"). The 2nd Amendment waived the Company's failure to comply with the quarterly maximum consolidated leverage ratio and minimum consolidated fixed charge coverage ratio at December 31, 2018.

The 2nd Amendment also modified the following financial covenants: Minimum Adjusted Quick Ratio to exclude certain accrued legal expenses associated with the Company's IPO and the current lease liability associated with the adoption of ASC 842 starting in April 2019 and continuing through maturity of the loan; consolidated fixed charge coverage ratio to reflect the change in the time period from a trailing twelve-month to a trailing three-month, trailing six-month and trailing nine-month for the quarters ended March 31, 2019, June 30, 2019 and September 30, 2019, respectively, and increased the minimum ratio just for the quarter ended June 30, 2019; and the consolidated leverage ratio to reflect the increase in the maximum ratio until June 30, 2019. There were no modifications to the interest rate, loan maturity date, principal repayment schedule or total borrowings.

On June 21, 2019, the Company entered into a Waiver Agreement ("Waiver Agreement"). The Waiver Agreement waived the Company's failure to comply with the monthly minimum adjusted quick ratio at May 31, 2019. The Waiver Agreement did not modify any financial covenants, interest rate, loan maturity date, principal repayment schedule, or total borrowings.

On June 28, 2019, the Company entered into a Third Amendment to Amended and Restated Credit Agreement (the "Third Amendment"). The Third Amendment amends the Amended and Restated Credit Agreement, dated December 21, 2017, as amended by that Waiver and First Amendment to Amended and Restated Credit Agreement dated as of November 21, 2018 and as further amended by the Consent, Waiver and Second Amendment to Amended and Restated Credit Agreement dated as of April 26, 2019 (as amended, amended and restated, supplemented, restructured or otherwise modified, renewed or replaced from time to time, the "Credit Agreement").

Pursuant to the Third Amendment, certain actions taken by the Company in connection with its IPO were consented to by Silicon Valley Bank and the lenders, including (i) the exchange of outstanding vested and unvested Class B units and phantom units in VCH L.P. for ordinary shares of the Company (in exchange for vested units) and restricted stock awards (for unvested Class B units) and restricted stock units (for unvested phantom units) and the adoption of the employee share incentive plan and employee share purchase plan and forms of award agreement thereunder by the Company; (ii) the payment of accrued and unpaid management fees owed to an affiliate of VCH, L.P.; and (iii) the entering into of the Shareholder Agreement by and between VCH, L.P. as a guarantor and loan party and terminated the guaranty granted by an affiliate of VCH, L.P. In addition, the Tranche A and Tranche B are dissolved and only one tranche of term loan remains.

On July 1, 2019, the Company paid \$30.7 million out of the net proceeds of its IPO. Following the repayment, the total term loan commitment under the Credit Agreement was reduced to \$70.0 million and all outstanding amounts under the revolving credit facility were repaid, leaving an available revolving commitment of \$10.0 million. The minimum consolidated fixed charge coverage ratio for the trailing twelve-month period ending December 31, 2019 and each trailing twelve-month quarterly period ending thereafter was amended to 1.25:1.00. All other financial covenants remained the same.

The Credit Agreement contains customary affirmative and negative covenants, including covenants that limit or restrict the Company and its subsidiaries' ability to, among other things, incur indebtedness, grant liens, merge or consolidate, dispose of assets, pay dividends or make distributions, make investments, make acquisitions, prepay certain indebtedness, change the nature of its business, enter into certain transactions with affiliates, enter into restrictive agreements, and make capital expenditures, in each case subject to customary exceptions for a credit facility of this size and type.

The Company's current debt covenant requirements reflect the following limits required, based on the time period noted, for compliance with the covenant:

Covenant	Criteria	Quarter ending			
		September 30, 2019	December 31, 2019	March 31, 2020	June 30, 2020
Monthly minimum adjusted quick ratio	Min ratio	Non quarter-end months	1.00:1.00	Quarter-end months	1.15:1.00
Quarterly consolidated fixed charge coverage ratio	Min ratio	1.15:1.00	1.25:1.00	1.25:1.00	1.25:1.00
Quarterly consolidated fixed charge coverage ratio	Time period	Trailing nine-month		Trailing twelve-month	
Quarterly consolidated leverage ratio	Max ratio	3.25:1.00	3.00:1.00	3.00:1.00	2.75:1.00
Quarterly consolidated leverage ratio	Time period	Trailing twelve month			

Based on the modified covenants, the Company believes that all covenants will be met at subsequent testing dates for the next twelve months and has classified the amounts due in excess of twelve months as noncurrent. As of September 30, 2019, the Company was in compliance with all affirmative and negative quarterly covenants as defined in the 3rd Amendment (unaudited).

Interest expense, including bank charges and amortization of debt issuance costs on the external debt, was \$2.0 million and \$2.1 million for the three-months ended September 30, 2018 and 2019, respectively, and \$5.9 million and \$6.7 million for the nine-month period ended September 30, 2018 and 2019, respectively (unaudited). Interest expense for the three-month period ended September 30, 2019 included \$0.5 million of additional amortization of deferred issuance costs for the write-down of deferred issuance costs related to the \$20.7 million prepayment of the term loan (unaudited).

Note 9. Loan from Sponsor and capital contribution

In October 2011, a subsidiary of the Company issued convertible preferred equity certificates ("CPECs") to the Sponsor in connection with the purchase of the PTP and PMP businesses from Motorola Solutions, Inc. Under ASC 815-10, the option to convert the CPECs into ordinary shares does not meet the definition of a derivative. Therefore, the CPECs were classified as debt, as they did not provide for net settlement and there was no active market for the shares. The CPECs had both a fixed and variable yield component, with the fixed yield component of 1% per annum. The variable yield was dependent upon the income obtained from amounts lent to, and equity investment in, certain subsidiaries. The Company had the option to either accrue the interest or cash settle, and since the inception of the CPECs, the Company elected to accrue the interest. The CPECs were redeemable at the earlier of 49 years after issuance or upon the occurrence of specified events, including the realization of certain of the Company's investments.

On July 31, 2017, in connection with the dissolution of the subsidiary, the CPECs and associated accrued interest were redeemed, and simultaneously the Sponsor made a non-cash capital contribution of \$88.4 million. The \$88.4 million non-cash capital contribution represented principal on the CPECs of \$62.5 million and accrued interest of \$25.9 million.

On December 21, 2017, the Company made a cash return of contributed capital to VCH, L.P. in the amount of \$65.7 million.

On June 28, 2019, in connection with the Recapitalization, the unreturned capital and accumulated yield of \$49.2 million payable to holders of Class A Units under the VCH, LPA was settled in the form of additional shares in the Company. The Company issued shares to VCH, L.P. on a value-for-value basis based on the \$12.00 per share offering price. The Recapitalization was recorded as a non-cash transaction which resulted in the transfer of equity ownership from capital contribution to additional paid in capital. After completion of the Recapitalization, the Company is neither party to nor subject to any obligations under the VCH LPA.

Note 10. Employee benefit plans

The Company's employee benefit plans currently consist of a defined contribution plan in the United States and a separate defined contribution plan in the UK. The Company does not offer any other postretirement benefit plans, such as retiree medical and dental benefits or deferred compensation agreements to its employees or officers.

U.S. plan

U.S. regular, full-time employees are eligible to participate in the Cambium Networks, Inc. 401(k) Plan, which is a qualified defined contribution plan under section 401(k) of the Internal Revenue Service Code. Under the Cambium Networks, Inc. 401(k) Plan, the Company contributes a dollar-for-dollar match of the first 4% an employee contributes to the plan. Employees are eligible to participate on the first day of the month following their date of hire and begin receiving company contributions three-months after they become eligible to participate in the plan. Company matching contributions are made each pay period, but the funds do not vest until the employee's second anniversary of employment with the Company. Employees are always fully vested in their own contributions. All contributions, including the Company match, are made in cash and invested in accordance with the participants' investment elections. Contributions made by the Company under the Cambium Networks, Inc. 401(k) Plan were \$0.2 million and \$0.2 million for the three-month periods ended September 30, 2018 and 2019, respectively, and \$0.8 million and \$0.7 million for the nine-month periods ended September 30, 2018 and 2019, respectively (unaudited).

UK plan

Regular, full-time UK employees are eligible to participate in the Cambium Networks Ltd. Stakeholder Pension Scheme, which is a qualified defined contribution plan. Employees are eligible to participate on the first of the month following receipt of their enrollment form, and eligible employees are automatically enrolled in the plan at a default employee contribution rate of 3% and a company contribution rate of 5% of the employee's basic salary. The Company contribution rate increases by 1% for each additional 1% that the employee contributes up to a maximum of 7%. Company matching contributions vest immediately and employees are always vested in their own contributions. All contributions, including the Company match, are made in cash and deposited in the participant's account each pay period. The total contributed by the Company under this plan was \$0.1 million and \$0.1 million for the three-month periods ended September 30, 2018 and 2019, respectively, and \$0.3 million and \$0.3 million for the nine-month periods ended September 30, 2018 and 2019, respectively (unaudited).

Note 11. Other expense

Other expenses were \$0.1 million and \$0.1 million for the three-month periods ended September 30, 2018 and 2019, respectively, and \$0.5 million and \$0.3 million of the nine-month periods ended September 30, 2018 and 2019, respectively, and represents foreign exchange losses (unaudited).

Note 12. Share-based compensation*2011 Management incentive compensation plan*

Prior to its IPO, the Company's management incentive compensation represented management incentive units in its sole shareholder, VCH, L.P.

Just prior to the IPO, the Company effected the Recapitalization, which comprised an increase in the authorized and outstanding shares held by VCH, L.P., and the exchange of the vested share-based compensation awards held by its employees for its ordinary shares and unvested share-based compensation awards for restricted shares or restricted share units issued by the Company, in each case, on a value-for-value basis. After completion of the Recapitalization and the initial public offering, the Company is no longer party to nor subject to any obligations under the VCH LPA. As a result of the Recapitalization, the completion of the Company's IPO, the contingent conditions had been met on some of the equity-settled and cash-settled awards and the Company recorded share-based compensation expense of \$15.4 million related to these awards during the three-month period ended June 30, 2019.

The following table reflects the number of MIUs and phantom units (not including the Class A units) exchanged as part of the Recapitalization (unaudited):

	Number of units (time-based)	Number of units (performance-based)
Balance at December 31, 2017	9,843,098	5,417,093
Granted	2,440,000	—
Forfeitures and cancellations	(139,800)	—
Balance at December 31, 2018	12,143,298	5,417,093
Granted	234,000	—
Forfeitures	(82,100)	—
Recapitalization - cancellations	(2,622,250)	—
Recapitalization - converted to restricted shares	(758,138)	(4,038,643)
Recapitalization - converted to shares	(8,914,810)	(1,378,450)
Balance at September 30, 2019	—	—

The numbers above are on a pre-Recapitalization basis; the outstanding management incentive units and phantom units were not exchanged one-for-one, to reflect the value for value exchange including a reverse split of outstanding units. Following the Recapitalization, management incentive and phantom units were exchanged for an aggregate of 2,220,788 shares, 240,327 restricted share awards and restricted share units, less 91,125 shares held in treasury in payment of amounts due against the outstanding management incentive and phantom units. The restricted share awards and restricted share units were issued under our 2019 Share Incentive Plan, and are included in the tables below.

2019 Share incentive plan

In June 2019, the Company's Board of Directors adopted, and its shareholders approved, the 2019 Share Incentive Plan ("2019 Plan"). The 2019 Plan provides for the grant of incentive share options, nonqualified share options, share appreciation rights, restricted share awards ("RSAs"), restricted share units ("RSUs"), other share-based awards and performance awards. The number of shares that may be issued under the 2019 Plan is 3,400,000, in addition to the 240,037 RSAs and RSUs the Company granted in substitution for unvested Class B Units or phantom units in connection with the Company's IPO based on a price of \$12.00 ("Recapitalization Awards"). The share reserve under the 2019 Plan will be automatically increased on the first day of each fiscal year, beginning with the fiscal year ending December 31, 2020 and continue until, and including, the fiscal year ending December 31, 2029. The number of shares added annually will be equal to the lowest of 1,320,000 shares, 5% of the number of the Company's shares outstanding on the first day of such fiscal year, or an amount determined by the Board of Directors.

The Company's employees, officers, directors, consultants, and advisors are eligible to receive awards under the 2019 Plan. Incentive share options, however, may only be granted to its employees. Participants in the 2019 Plan will also consist of persons to whom restricted share awards and restricted share units are granted in substitution for Class B Units in VCH, L.P. in connection with the Company's IPO. The Company granted an aggregate of 2,172,000 share options and restricted share units under the 2019 Plan effective upon pricing of the offering, with an exercise price of options equal to \$12.00 per share and recorded share-based compensation expense of \$0.7 million during the three-month period ended June 30, 2019. For the three-month period ended September 30, 2019, the Company recorded additional share-based compensation expense of \$0.8 million related to these share options, restricted share units and restricted share awards.

The following table summarizes changes in the number of shares available for grant under the Company's equity incentive plans during the nine-month period ended September 30, 2019:

	Number of shares
Available for grant at December 31, 2018	—
Recapitalization awards authorized	240,037
2019 Share Incentive Plan	3,400,000
RSUs and RSAs granted, including Recapitalization awards	(294,037)
Options granted	(2,118,000)
Forfeitures	44,576
Available for grant at September 30, 2019	1,272,576

Share-based compensation

The following table shows total share-based compensation expense for the three and nine-month periods ended September 30, 2018 and 2019 (unaudited and in thousands):

	Three months ended September 30,		Nine months ended September 30,	
	2018	2019	2018	2019
Cost of revenues	\$ —	\$ 14	\$ —	\$ 196
Research and development	—	199	—	5,062
Sales and marketing	—	374	—	3,981
General and administrative	—	241	—	7,667
Total share-based compensation expense	\$ —	\$ 828	\$ —	\$ 16,906

As of September 30, 2019, the Company estimates the pre-tax unrecognized compensation expense of \$12.3 million related to all unvested share-based awards, including share options, restricted share units and restricted share awards will be recognized through the fourth quarter of 2022. The Company expects to satisfy the exercise of share options and future distributions of shares for restricted share units and restricted share awards by issuing new ordinary shares which have been reserved under the 2019 Plan.

In connection with the Recapitalization, phantom units, which were previously accounted for as liability-settled awards, were modified to equity-settled awards. Due to a performance condition associated with the phantom units, a liability was not recognized in the Company's consolidated financial statements, but was disclosed as liability-settled awards. For the three and nine-month periods ended September 30, 2019, the Company recognized \$0.0 million and \$2.2 million, respectively, in share-based compensation expense associated with the vesting of phantom unit awards upon Recapitalization.

The Company utilized a forfeiture rate of 5% during the nine-month period ended September 30, 2019 for estimating the forfeitures of share options and restricted share units granted.

Share options

The following is a summary of option activity for the Company's share incentive plans for the nine-month periods ended September 30, 2019 (unaudited):

	Options	Weighted average exercise price	Weighted Average remaining contractual term (years)	Aggregate intrinsic value
Outstanding at December 31, 2018	—	\$ —	—	\$ —
Options granted	2,118,000	\$ 12	—	\$ —
Options forfeited	(42,500)	\$ 12	—	\$ —
Outstanding at September 30, 2019	2,075,500	\$ 12	9.7	\$ —
Options exercisable at September 30, 2019	116,250	\$ —	9.7	\$ —
Options vested and expected to vest at September 30, 2019	1,955,644	\$ 12	9.7	\$ —

Share options typically have a contractual term of ten years from grant date.

During the three-month period ended September 30, 2019, the aggregate intrinsic value of options exercisable under the Company's share incentive plans was \$0.00 as determined as of the date of grant. The Company had 0 options exercised during the nine-month period ended September 30, 2019.

At September 30, 2019, there was \$9.2 million in unrecognized pre-tax share-based compensation expense, net of estimated forfeitures, related to unvested share option awards. The unrecognized share-based compensation expense is expected to be recognized through the second quarter of 2023.

The Company estimates the fair value of share options using the Black-Scholes option pricing model. The fair value of share options is being amortized on a straight-line basis over the requisite service period of the awards. The fair value of share options are estimated using the following weighted average assumptions (unaudited):

	For the nine months ended September 30,	
	2018	2019
Expected dividend yield	—	—
Risk-free interest rate	—	1.82%
Weighted-average expected volatility	—	40.8%
Expected term (in years)	—	6.0
Weighted average grant-date fair value per share of options granted	—	\$ 5.00

Restricted shares

The following is a summary of restricted shares activity for the Company's share incentive plans for the nine-month period ended September 30, 2019 (unaudited):

	Units	Weighted average grant date fair value
RSU and RSA balance at December 31, 2018	—	\$ —
RSUs and RSAs granted	294,037	\$ 12
RSUs and RSAs vested	(24,107)	\$ 12
RSUs and RSAs forfeited	(2,076)	\$ 12
RSU and RSA balance at September 30, 2019	<u>267,854</u>	<u>\$ 12</u>
RSUs and RSAs expected to vest at September 30, 2019	<u>267,854</u>	\$ —

Upon completion of the Company's IPO, 240,037 RSAs and RSUs were granted to employees in substitution for unvested Class B Units or phantom units with a grant date fair value of \$12.00, of which 34,111 of the RSAs and RSUs awards granted carry-forward their prior vesting terms and expiration dates and 205,926 RSA equity awards vest based upon the achievement of a total equity return multiple performance condition. In addition, 54,000 RSAs were granted under the Company's 2019 Share Incentive Plan.

At September 30, 2019, there was \$3.1 million in unrecognized pre-tax compensation expense, net of estimated forfeitures, related to unvested share awards. The unrecognized compensation expense is expected to be recognized through the fourth quarter of 2022.

Employee share purchase plan

In June 2019, the Company's Board of Directors adopted, and its shareholders approved, the Employee Share Purchase Plan ("ESPP"). The ESPP was effective on June 25, 2019; however, no offering period or purchase period under the ESPP will begin unless and until determined by the Company's Board of Directors. A total of 550,000 shares will be available under the ESPP. The number of shares that will be available for sale under the ESPP also includes an annual increase on the first day of each fiscal year beginning in 2020, equal to the lesser of: 275,000 shares; 1% of the outstanding shares as of the last day of the immediately preceding fiscal year, or such other amount as the administrator may determine. The purchase price of the shares will be 85% of the lower of the fair market value of our shares on the first trading day of each offering period or on the purchase date.

Note 13. Share capital - shares

The following table reflects the share capital activity:

	Number of shares	Value (in thousands)
Balance at December 31, 2017	77,179	\$ —
Shares issued/cancelled	—	—
Balance at December 31, 2018	77,179	\$ —
Issuance of shares to VCH, L.P. as part of Recapitalization	13,523,232	\$ 1
Issuance of shares to VCH, L.P. for return of capital and accumulated yield	4,104,343	1
Issuance of shares to MIU holders	2,220,788	—
Shares withheld for net settlement of shares issued to MIU holders	(91,125)	—
Issuance of shares in Initial Public Offering	5,800,000	1
Balance at September 30, 2019	25,634,417	\$ 3

On October 28, 2011, 771.79 shares with a par value of \$0.01 per share were issued at an initial subscription price of \$1,000 per share. Holders of these shares are entitled to dividends as declared. As of September 30, 2019, no dividends have been declared or paid.

On April 23, 2019, the Board of Directors approved a share subdivision (“Subdivision”) whereby the authorized share capital of the Company was subdivided from 5,000,000 shares having a par value of \$0.01 per share into 500,000,000 shares with a par value of \$0.0001 per share. The Board resolution was made effective in accordance with Cayman law on June 6, 2019. As a result of the Subdivision, issued and outstanding shares for all periods presented increased from 771.79 to 77,179 shares. Earnings per share as calculated and shown throughout has also been recalculated with the revised issued and outstanding shares.

Just prior to the IPO, the Company effected the Recapitalization, which comprised (i) an increase in the authorized and outstanding shares held by VCH, L.P. and (ii) an exchange of the vested share-based compensation awards held by the Company’s employees for its shares and unvested share-based compensation awards for restricted shares or restricted share units issued by the Company, in each case on a value-for-value basis. As part of the Recapitalization, VCH, L.P. determined that the unreturned capital and accumulated yield payable to holders of Class A Units under the VCH, LPA will be settled in the form of additional shares in the Company. Based on the share-based compensation awards outstanding and unreturned capital and accumulated yield, and based on the IPO price of \$12.00, the Company issued 17,627,575 shares to VCH, L.P. and 2,220,788 shares to its employees and service providers, of which 91,125 shares were withheld in net settlement of amounts due. The impact of the Recapitalization does not result in issued and outstanding shares being restated for any prior period. Refer to Note 14 – Earning per share for information on how the issuance of the shares as part of the Recapitalization are reflected in earnings per share.

In June 2019, the Company issued 5,800,000 shares at a price of \$12.00 per share in its IPO, which included 1,500,000 shares to its majority shareholder, VCH, L.P.

Note 14. Earnings per share

Basic net earnings (loss) per share is computed by dividing net income (loss) by the weighted-average number of shares outstanding during the period. Diluted net earnings per share is computed by giving effect to all potentially dilutive ordinary share equivalents outstanding for the period. For purposes of this calculation, share options, RSUs, and RSAs are considered to be ordinary share equivalents but are excluded from the calculation of diluted earnings (loss) per share when including them would have an anti-dilutive effect. The following table sets forth the computation of basic and diluted net earnings (loss) per share (unaudited and in thousands, except for share and per share data):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2019	2018	2019
Numerator:				
Net income (loss)	\$ (2,555)	\$ 1,960	\$ (2,257)	\$ (16,552)
Denominator:				
Shares outstanding used in computing net income (loss), basic and diluted	13,600,411	25,634,417	13,600,411	17,743,703
Net income (loss) per share, basic and diluted	\$ (0.19)	\$ 0.08	\$ (0.17)	\$ (0.93)

The following outstanding shares of ordinary share equivalents were excluded from the computation of diluted net loss per share for the periods presented because including them would have had an anti-dilutive effect (unaudited and in thousands):

	Three Months Ended September 30,		Nine Months Ended September 30,	
	2018	2019	2018	2019
Share options	—	—	—	2,076
Restricted shares (RSUs and RSAs)	—	—	—	268
Total	—	—	—	2,344

On April 23, 2019, the Board of Directors approved the Subdivision whereby the authorized share capital of the Company was subdivided from 5,000,000 shares having a par value of \$0.01 per share into 500,000,000 shares with a par value of \$0.0001 per share. The Subdivision was effective in accordance with Cayman law on June 6, 2019. As a result of the Subdivision, issued and outstanding shares for all periods presented have been restated from 771.79 shares to 77,179 shares. Earnings per share as calculated and shown has been recalculated with the revised issued and outstanding shares.

Just prior to the IPO, the Company completed a Recapitalization. As part of the Recapitalization, the Company issued an additional 17,627,575 shares to VCH, L.P. which comprised 4,104,343 shares related to the unreturned capital and accumulated yield to the holder of Class A Units of VCH, L.P. and 13,523,232 shares related to the residual share of Cambium's value attributable to VCH, L.P.'s ownership after such return, based on an IPO price of \$12. Using guidance in ASC 260, *Earnings per Share*, for purposes of calculating earnings per share, the 13,523,232 shares are retrospectively adjusted as if the exchange had occurred at the beginning of the first period of earnings per share information presented. The 4,104,343 shares issued related to the unreturned capital and accumulated yield were issued in lieu of payment of cash to VCH, L.P. and therefore, the shares issued are not retrospectively reflected in shares outstanding in the prior periods for purposes of determining earnings per share.

Also as part of the Recapitalization, the Company issued 2,220,788 gross shares to its employees and service providers in exchange for the vested share-based compensation awards in VCH, L.P. held by them. For purposes of calculating earnings per share, the 2,220,788 shares are included in the weighted average number of shares outstanding used in the computation of the basic earnings per share only from the date on which the shares are issued, or June 28, 2019.

Note 15. Income taxes

The Company's quarterly income tax provision for income tax is based upon an estimated annual income tax rate. The Company's quarterly provision for income taxes also includes the tax impact of discrete items, if any, including changes in judgment about valuation allowances and effects of changes in tax laws or rates, in the interim period in which they occur.

The Company recorded income tax benefit of \$(0.7) million and \$0.0 million for the three-month period ended September 30, 2018 and 2019, with an effective tax rate of 20.7% and 0.2%, respectively. The Company's effective tax rate for the three-month period ended September 30, 2018 differed from the U.S. statutory rate primarily due to the application of the Company's annual effective tax rate to pre-tax results and the recording of a discrete tax impact during the quarter. The Company's effective tax rate for the three-month period ended September 30, 2019 differed from the U.S. statutory rate primarily due to the recognition of a valuation allowance against its UK deferred tax assets as well as the taxation of pre-IPO MIU equity awards. The Company established the valuation allowance based on the analysis of cumulative income and loss positions, future income projections, and operating plans. The movement in the UK valuation allowance on deferred tax assets during the period amounted to \$2.6 million for a total change in the valuation allowance of \$2.6 million. The application of the Company's annual effective tax rate for the period (excluding the impacts of the valuation allowance recognized in the current period) is \$(2.6) million, which includes the tax impacts of the pre-IPO MIU equity awards recognized as part of the Company's Recapitalization during the three-month period ended September 30, 2019.

The Company recorded income tax benefit of \$(0.5) million and income tax expense of \$9.0 million for the nine-month period ended September 30, 2018 and 2019, with an effective tax rate of 19.6% and (120.4)%, respectively. The Company's effective tax rate for the nine-month period ended September 30, 2018 differed from U.S. statutory rates primarily due to the application of the Company's annual effective tax rate to pre-tax results and the recording of discrete tax impacts during the period. The Company's effective tax rate for the nine-month period ended September 30, 2019 differed from the U.S. statutory rate primarily due to the recognition of a valuation allowance against its UK deferred tax assets as well as the taxation of pre-IPO MIU equity awards. The Company established the valuation allowance based on the analysis of cumulative income and loss positions, future income projections, and operating plans as they relate to valuation allowances. The UK deferred tax assets are comprised of NOL carryforwards, research and development tax credit carryforwards, and corporate interest restriction carryforwards that existed at December 31, 2018 amounting to \$7.4 million. The movement in the deferred tax assets during the period amount to \$3.5 million for a total valuation allowance of \$10.9 million. The application of the Company's annual effective tax rate for the period (excluding the impacts of the valuation allowance recognized in the current period) is \$(1.9) million, which includes tax impacts of the pre-IPO MIU equity awards recognized as part of the Company's Recapitalization during the period ended June 30, 2019.

In assessing the realizability of deferred tax assets, the Company considers whether it is more likely than not that some portion or all of the deferred tax assets will not be realized. The ultimate realization of deferred tax assets is dependent upon the generation of future taxable income during the period in which those temporary differences become deductible. The Company considers projected future taxable income, reversing taxable temporary differences, carryback opportunities, and tax-planning strategies in making this assessment. Management assesses the available positive and negative evidence to estimate if sufficient future taxable income will be generated to utilize the existing deferred tax assets before they otherwise expire. A significant piece of objective evidence evaluated is the cumulative income and loss incurred over the three-year period ended September 30, 2019 and whether the Company projects a loss for the current year ending December 31, 2019. Cumulative losses on an interim or annual basis are objective evidence that limits the ability to consider other subjective evidence such as the Company's projections for future growth. The amount of the deferred tax asset considered realizable, however, could be adjusted if estimates of future taxable income during the carryforward period are reduced or increased or if objective negative evidence in the form of cumulative losses is no longer present and additional weight may be given to subjective evidence such as the Company's projections for growth and future operating plans.

Note 16. Commitments and contingencies

In accordance with ASC 460, *Guarantees*, the Company recognizes the fair value for guarantee and indemnification arrangements it issues or modifies, if these arrangements are within the scope of the interpretation. In addition, the Company must continue to monitor the conditions that are subject to the guarantees and indemnifications in order to identify if a loss has incurred. If the Company determines it is probable that a loss has occurred, then any such estimated loss would be recognized under those guarantees and indemnifications and would be recognized in the Company's consolidated statements of operations and corresponding consolidated balance sheets during that period.

Indemnification

The Company generally indemnifies its distributors, value added reseller and network operators against claims brought by a third party to the extent any such claim alleges that the Company's product infringes a patent, copyright or trademark or violates any other proprietary rights of that third party. Although the Company generally tries to limit the maximum amount of potential future liability under its indemnification obligations, in certain agreements this liability may be unlimited. The maximum potential amount of future payments the Company may be required to make under these indemnification agreements is not estimable.

The Company indemnifies its directors and officers and select key employees, including key employees serving as directors or officers of the Company's subsidiaries, for certain events or occurrences, subject to certain limits, while the director or officer is or was serving at the Company's request in such capacity. The term of the indemnification period is for the director's or officer's term of service. The Company may terminate the indemnification agreements with its directors, officers or key employees upon the termination of their services as directors or officers of the Company or its subsidiaries, or the termination of activities for which indemnification has been provided, but termination will not affect claims for indemnification related to events occurring prior to the effective date of termination. The maximum amount of potential future indemnification is unlimited; however, the Company has a director and officer insurance policy that limits its exposure. The Company believes the fair value of these indemnification agreements is minimal.

Warranties

The Company offers a standard one-year warranty on most hardware products and records a liability within current liabilities for the estimated future costs associated with potential warranty claims. The Company's responsibility under its standard warranty is the repair or replacement of in-warranty defective product, or to credit the purchase price of the defective product, at its discretion, without charge to the customer. The Company also offers an extended warranty that extends the standard warranty on most of its products for up to four additional years; a limited lifetime warranty on select hardware products that extends warranty coverage to seven years; and an all risks advance replacement warranty covering additional types of equipment damage not covered by its standard warranty. The warranty costs are reflected in the Company's consolidated statements of operations within cost of revenues. The Company's estimate of future warranty costs is largely based on historical experience factors including product failure rates, material usage, and service delivery cost incurred in correcting product failures.

Legal proceedings

Third parties may from time to time assert legal claims against the Company. Except as set forth below, there is no pending or threatened legal proceedings to which the Company is a party to, and in the Company's opinion, is likely to have a material adverse effect on its financial condition or results of operations.

On August 7, 2018, Ubiquiti Networks, Inc. filed a lawsuit against the Company, two of the Company's employees, one of the Company's distributors and one of the Company's end users in the United States District Court for the Northern District of Illinois. The complaint alleges that the Company's development of and sale and promotion of its Elevate software as downloaded on a Ubiquiti device violates the Computer Fraud and Abuse Act and Illinois Computer Crimes Prevention Law, the Digital Millennium Copyright act and the Copyright Act, and constitutes misrepresentation and false advertising and false designation of origin in violation of the Lanham Act and state competition laws, breach of contract, tortious interference with contract and unfair competition, and trademark infringement and common law misappropriations. The complaint also brings additional claims against all defendants that the development and sales of Elevate violated the Racketeer Influenced and Corrupt Organizations Act. The defendants answered the complaint and filed a motion to dismiss on December 11, 2018. Ubiquiti served requests for production of documents on December 17, 2018. All discovery motions, including these requests for production, have been stayed by the court pending its ruling on the motion to dismiss. On May 22, 2019, the judge issued his order on the motion to dismiss, and dismissed Ubiquiti's complaint without prejudice. On May 24, 2019, Ubiquiti filed a motion for extension of time to file an amended complaint. The Company filed a motion objecting to the proposed extension of time on May 24, 2019. On June 18, 2019, Ubiquiti filed its First Amended Complaint ("FAC"). The FAC makes substantially the same claims against the same parties with the exception that the FAC does not include claims for violation of the Illinois Computer Crime Prevention Law, Infringement of Registered Trademarks, False Designation of Origin, and Common Law Trademark Misappropriation that were included in the initial complaint. The Company filed a motion to dismiss the FAC on July 10, 2019. On July 15, 2019, Ubiquiti filed a motion to lift the stay of discovery previously imposed by the court. The Company's response to Ubiquiti's motion to lift the stay was filed on July 31, 2019. Ubiquiti filed a response to the Company's motion to dismiss on August 13, 2019. The Company filed a reply in support of its motion to dismiss on August 27, 2019. The Court held a hearing on both motions on September 4, 2019 and took the matters under submission.

On September 20, 2019, VenKee Communications, LLC filed a lawsuit against the Company in the United States District Court for the Western District of Texas. The complaint alleges that the Company's cnPilot products violate U.S. Patent 7,916,684 entitled "Wireless Communication Network Providing Communication Between Mobile Devices and Access Points" owned by plaintiff. The Company has obtained an extension of time to respond to the complaint to November 14, 2019. The lawsuit is in its early stages and the Company cannot currently estimate the loss or range of losses, if any, that it may experience in connection with this litigation. The Company plans to vigorously defend itself against these claims; however, there can be no assurance that the Company will prevail in the lawsuit.

Note 17. Segment information and revenues by geography

The Company's chief operating decision maker ("CODM") is its Chief Executive Officer. The Company's CODM reviews financial information presented on a consolidated basis for purposes of allocating resources and evaluating financial performance. Accordingly, the Company determined that it operates as one operating segment and one reporting unit.

Revenues by product category were as follows (unaudited and in thousands, except percentages):

	Three Months Ended September 30,				Nine Months Ended September 30,			
	2018		2019		2018		2019	
Point-to-MultiPoint	\$ 33,024	56%	\$ 38,856	59%	\$ 105,332	59%	\$ 122,913	61%
Point-to-Point	20,566	35%	15,976	24%	54,273	30%	53,440	26%
Wi-Fi	4,370	7%	10,141	16%	15,537	9%	24,157	12%
Other	1,021	2%	730	1%	3,311	2%	2,456	1%
Total Revenues	<u>\$ 58,981</u>	<u>100%</u>	<u>\$ 65,703</u>	<u>100%</u>	<u>\$ 178,453</u>	<u>100%</u>	<u>\$ 202,966</u>	<u>100%</u>

The Company's products are predominately distributed through a third-party logistics provider in the United States, Netherlands and China. The Company has determined the geographical distribution of product revenues based upon the ship-to destinations.

Revenue by geography were as follows (unaudited and in thousands, except percentages):

	Three Months Ended September 30,				Nine Months Ended September 30,			
	2018		2019		2018		2019	
North America	\$ 29,104	49%	\$ 29,032	44%	\$ 80,682	45%	\$ 93,452	46%
Europe, Middle East and Africa	17,082	29%	21,749	33%	53,968	30%	66,713	33%
Caribbean and Latin America	6,624	11%	8,008	12%	23,599	13%	23,527	12%
Asia Pacific	6,171	11%	6,914	11%	20,204	12%	19,274	9%
Total Revenues	<u>\$ 58,981</u>	<u>100%</u>	<u>\$ 65,703</u>	<u>100%</u>	<u>\$ 178,453</u>	<u>100%</u>	<u>\$ 202,966</u>	<u>100%</u>

Note 18. Revenue from contracts with customers

In accordance with ASC 606, *Revenue From Contracts with Customers*, the Company recognizes revenue to reflect the transfer of control of promised products or services to customers in an amount that reflects the consideration to which the Company expects to be entitled in exchange for those products and services. Refer to Note 17 - Segment Information, for further details, including disaggregation of revenue based on product line and geographic location.

Contract Balances

The following table summarizes contract balances as of December 31, 2018 and September 30, 2019:

	<u>December 31, 2018</u>	<u>September 30, 2019</u>
Trade accounts receivable, net of allowance for doubtful accounts	\$ 59,797	\$ 59,583
Deferred revenue - current	2,770	7,557
Deferred revenue - noncurrent	1,541	5,184
Refund Liability	\$ 1,810	\$ 2,835

Trade accounts receivable include amounts billed and currently due from customers. Amounts are billed in accordance with contractual terms and are recorded at face amount less an allowance for doubtful accounts.

Deferred revenue consists of amounts due or received from customers in advance of the Company satisfying performance obligations under contractual arrangements and generally relates to extended warranty on hardware products. Deferred revenue is classified as current or noncurrent based on the timing of when revenue will be recognized. The changes in deferred revenue were due to normal timing differences between the Company's performance and the customers' payment. The increase in both current and noncurrent deferred revenue is due to the \$7.5 million of deferred revenue acquired as part of the Xirrus acquisition completed in August 2019.

The refund liability is the estimated amount expected to be refunded to customers in relation to product exchanges made as part of the Company's stock rotation program and returns that have been authorized, but not yet received by the Company. It is included within other current liabilities in the consolidated balance sheets.

Remaining performance obligations

Remaining performance obligations represent the revenue that is expected to be recognized in future periods related to performance obligations included in a contract that are unsatisfied, or partially satisfied, as of the end of a period. As of December 31, 2018, deferred revenue (current and noncurrent) of \$4.3 million represents the Company's remaining performance obligations, of which \$2.8 million is expected to be recognized within one year, with the remainder to be recognized thereafter. As of September 30, 2019, deferred revenue (current and noncurrent) of \$12.7 million represents the Company's remaining performance obligations, of which \$7.6 million is expected to be recognized within one year, with the remainder to be recognized thereafter.

Revenue recognized during the three and nine-month periods ended September 30, 2019 which was previously included in deferred revenues as of December 31, 2018 was \$0.4 million and \$2.1 million, respectively.

Cost to obtain a contract

Sales commissions are incremental costs of obtaining a contract. The Company has elected to recognize these expenses as incurred due to the amortization period of these costs being one year or less.

Note 19. Leases

The Company adopted ASC 842 on January 1, 2019 using the optional transition method for all leases existing at January 1, 2019, the date of initial application.

The Company has operating leases for offices, vehicles, and office equipment. Leases with a term of 12 months or less are not recorded on the consolidated balance sheets, and are expensed on a straight-line basis over the lease term.

ROU assets and operating lease liabilities are recognized based on the present value of the future minimum lease payments over the lease term at the commencement date. The Company's lease payments are typically fixed or contain fixed escalators. The Company's leases typically include certain lock-in periods and renewal options to extend the leases, but does not consider options to extend the lease if it is not reasonably certain to exercise. The Company elected the practical expedient to not separate the lease and non-lease components of its leases and currently has no leases with options to purchase the leased property.

The components of lease expense were as follows and are included in general and administrative expense (in thousands):

	<u>Three Months Ended September 30, 2019</u>	<u>Nine Months Ended September 30, 2019</u>
Operating lease cost	\$ 596	\$ 1,773
Short-term lease cost	47	137
Variable lease costs	105	304
Total lease expense	<u>\$ 748</u>	<u>\$ 2,214</u>

Supplemental balance sheet information related to leases were as follows (in thousands, except lease term and discount rate):

	<u>Balance Sheet Caption</u>	<u>September 30, 2019</u>
Operating leases:		
Operating lease assets	Operating lease assets	\$ 6,957
Current lease liabilities	Other current liabilities	\$ 1,932
Noncurrent lease liabilities	Noncurrent operating lease liabilities	\$ 5,544
Weighted average remaining lease term (years):		
Operating leases		4.20
Weighted average discount rate:		
Operating leases		8.50%

Supplemental cash flow information related to leases were as follows (in thousands):

	<u>Nine Months Ended September 30, 2019</u>
Supplemental cash flow information:	
Cash paid for amounts included in the measurement of lease liabilities	\$ 1,910

The Company's lease terms range from one to seven years and may include options to extend the lease by one to four years.

Maturities on lease liabilities as of September 30, 2019 were as follows (in thousands):

	<u>Operating leases</u>
2019 (excludes the nine months ended September 30, 2019)	\$ 618
2020	2,512
2021	2,257
2022	1,311
2023	1,269
Thereafter	972
Total lease payments	<u>8,939</u>
Less: interest	1,463
Present value of lease liabilities	<u>\$ 7,476</u>

Future payments under operating lease agreements as of December 31, 2018 were as follows (in thousands):

	<u>2019</u>	<u>2020</u>	<u>2021</u>	<u>2022</u>	<u>2023</u>	<u>Thereafter</u>	<u>Total</u>
Operating leases	\$ 2,409	\$ 2,418	\$ 2,203	\$ 1,307	\$ 1,267	\$ 1,072	\$ 10,676

As of September 30, 2019, the Company does not have any additional leases for new office facilities that have not yet commenced.

Note 20. Related party transactions

The Company follows ASC 850, *Related Party Disclosures*, for the identification of related parties and disclosure of related party transactions. A party is considered to be related to the Company if the party directly or indirectly or through one or more intermediaries, controls, is controlled by, or is under common control with the Company. Related parties also include principal owners of the Company, its management, members of the immediate families of principal owners of the Company and its management and other parties with which the Company may deal.

VCH, L.P., the ultimate controlling party, provided funding to the Company in the form of CPECs, as described in Note 9 – Loan from Sponsor and capital contribution, and contributed capital of \$62.5 million and \$2.0 million, respectively. On July 31, 2017, the Company redeemed the CPECs and VCH, L.P. made a non-cash capital contribution to the Company of \$88.4 million, including principal of \$62.5 million and accrued interest of \$25.9 million. On December 21, 2017, the Company made a cash return of contributed capital to VCH, L.P. in the amount of \$65.7 million.

In connection with the Company's execution of the Waiver and First Amendment to Amended and Restated Credit Agreement dated November 21, 2018 (Refer to Note 8 – Debt), Vector Capital IV, L.P., an affiliate of the general partner of the Company's sole shareholder, executed a Limited Guaranty agreement whereby it has agreed to guarantee the Company's Tranche B loan up to a maximum of the lesser of: (i) \$25.0 million and (ii) an amount equal to (a) 1.10 multiplied by (b) an amount equal to the then aggregate principal amount of the Tranche B loan.

In connection with the Company's execution of the Third Amendment to Amended and Restated Credit Agreement dated June 28, 2019 (Refer to Note 8 – Debt), Vector Capital IV, L.P., an affiliate of the general partner of the Company's sole shareholder was relieved of its Limited Guaranty agreement.

For the three-month periods ended September 30, 2018 and 2019, Vector Capital Management, LP, an entity related to Holdings, charged \$0.1 million and \$0.0 million, respectively, for management and oversight fees. In addition to the management and oversight fees, in 2017, Vector Capital Management, LP charged the Company \$2 million in management fees in connection with the Company's \$90 million debt financing as discussed in Note 8 – Debt. Amounts due to Vector Capital Management, LP at December 31, 2018 and September 30, 2019 were \$5.6 million and \$0.0 million, respectively, and are included as Payable to Sponsor in the Company's consolidated balance sheets. On July 3, 2019, the Company paid \$5.6 million to Vector Capital Management from the net proceeds from the Company's IPO. In connection with the IPO and the payment of these fees, the Vector Capital Management Agreement is terminated.

In connection with the Recapitalization and upon consummation of the Company's IPO, the Company issued shares to VCH, L.P. representing the amount of unreturned capital and accumulated yield payable to holder of Class A Units of VCH, plus the residual shares of the Company's value attributable to VCH's ownership after such return, based on the IPO price of \$12.00 per share. After completion of the Recapitalization and the offering, the Company is neither party to nor subject to any obligations under the VCH LPA.

Note 21. Subsequent events

On November 7, 2019, the Company announced a corporate restructuring to better align Cambium's costs structure with current economic conditions and position the Company to achieve long-term targets and operating growth. The restructuring will only affect personnel, including contract employees, and is expected to be completed by early 2020. The Company will incur between \$0.8 million and \$1.1 million in personnel costs, including salary continuation and other benefits during the fourth quarter of 2019 and the first quarter ended March 31, 2020.

Item 2. Management's Discussion and Analysis of Financial Condition and Results of Operations.

The following discussion and analysis of financial condition and results of operation should be read in conjunction with the consolidated financial statements and related notes thereto of Cambium Networks Corporation ("Cambium", "we", "our", or "us") included elsewhere in this Quarterly Report on Form 10-Q and our final prospectus, dated June 28, 2019 and filed pursuant to Rule 424(b) under the Securities Act of 1933, as amended, or the Securities Act, which we refer to as our Prospectus. Our historical results are not necessarily indicative of the results that may be expected for any period in the future.

Overview

We provide wireless broadband networking infrastructure solutions for network operators, including medium-sized wireless Internet service providers, enterprises, and government agencies. Our scalable, reliable and high-performance solutions create a purpose-built wireless fabric that connects people, places and things across distances ranging from two meters to more than 100 kilometers, indoors and outdoors, using licensed and unlicensed spectrum at attractive economics. Our embedded proprietary RF technology and software enables automated optimization of data flow at the outermost points in the network, which we refer to as the "intelligent edge."

We were formed in 2011 when Cambium Networks acquired the PTP and PMP businesses from Motorola Solutions. Prior to the acquisition by Cambium Networks, Motorola Solutions had invested over a decade in developing the technology and intellectual property assets that formed the foundation for our business, having launched the Canopy PMP business in 1999 and having acquired the Orthogon Systems PTP business in 2006. Following the acquisition, we renamed the business Cambium Networks Corporation and leveraged the technology to continue to develop and offer an extensive portfolio of reliable, scalable and secure enterprise-grade fixed wireless broadband and PTP and PMP platforms, Wi-Fi and IIoT solutions.

We offer our wireless broadband solutions in three categories:

- **PTP:** Our PTP backhaul portfolio is comprised of products operating in unlicensed spectrum below 6 GHz, and those operating in licensed spectrum between 6 and 38 GHz. The mainstay of our backhaul offering is the PTP 670 for commercial applications and PTP 700 for defense and national security applications. In addition, our PTP 820 series offers carrier-grade microwave backhaul in licensed spectrum, and our recently introduced PTP 550 offers price-performance leadership in spectral efficiency in sub-6GHz unlicensed spectrum.
- **PMP:** Our PMP portfolio ranges from our top-of-the-line PMP 450 series to our ePMP solutions for network operators that need to optimize for both price and performance to our cnReach family of narrow-bandwidth connectivity products for industrial communications. The PMP 450 series is optimized for performance in high-density and demanding physical environments, and includes the PMP 450m with integrated cnMedusa massive multi-user multiple input/multiple output, or MU-MIMO, technology. For less demanding environments, ePMP provides a high-quality platform at a more affordable price. The recently released ePMP 3000 supports 4x4 MU-MIMO and is complemented by a broad portfolio of ePMP Force 300 subscriber radios. cnReach products enables IIoT applications, such as supervisory control and data acquisition, or SCADA, processes in the oil and gas, electric utility, water, railroad and other industrial settings.
- **Wi-Fi:** Our Wi-Fi portfolio includes our cnPilot cloud-managed Wi-Fi solutions, our cnMatrix cloud-managed wireless-aware switching solution, and our Xirrus Wi-Fi solutions. cnPilot is for indoor and outdoor enterprise, small business and home applications and offers a range of access points and RF technology that enable network optimization based on desired geographic coverage and user density. cnMatrix provides the intelligent interface between wireless and wired networks. cnMatrix's policy-based configuration accelerates network deployment, mitigates human error, increases security, and improves reliability. Xirrus has a portfolio of high performance enterprise Wi-Fi access points and cloud based subscription services.

We generate a substantial majority of our sales through our global channel distribution network, including, as of September 30, 2019, approximately 160 distributors that we sell to directly, together with over 6,200 value added resellers and system integrators supplied by these distributors. Our channel partners provide lead generation, pre-sales support and product fulfillment, along with professional services for network design, installation, commissioning and on-going field support. Although we fulfill sales almost exclusively through our channel partners, through our global sales team we engage directly with network operators in our key vertical markets including service providers, enterprises, industrials, defense and national security, and state and local governments. Our sales team responds to bids or requests for quotes, typically in collaboration with a channel partner. Our distributors carry inventory of our products for resale, and generally have stock rotation rights only if they simultaneously place an off-setting order for product. As such, we generally recognize revenue from sales to distributors on a sell-in basis, and manager our finished goods inventory efficiently to plan for distributor demand.

We outsource production to third-party manufacturers, which are responsible for purchasing and maintaining inventory of components and raw materials and, in certain cases, we resell third-party products on a white-label basis. We believe that this approach gives us the advantages of relatively low capital investment and significant flexibility in scheduling production, managing inventory levels and providing a comprehensive solution to meet network operator demand. The majority of our products are delivered to us at one of three distribution hubs, where we have outsourced the warehousing and delivery of our products to a third-party logistics provider and from which we manage worldwide fulfillment.

Financial results for the three-month period ended September 30, 2019

- Total revenue was \$65.7 million, an increase of 11.4% year-over-year
- Wi-Fi revenues increased 132% year-over-year
- Gross margin of 48.4%
- Total costs of revenues and operating expenses were \$59.5 million
- Operating income was \$4.1 million

Initial public offering

Our registration statement filed with the Securities and Exchange Commission in connection with our initial public offering, or IPO, was declared effective on June 25, 2019, and our ordinary shares began trading on the Nasdaq Global Market on June 26, 2019. On June 28, 2019, we completed our IPO, in which we sold 5,800,000 shares at a public offering price of \$12.00 per share, of which 1,500,000 shares were purchased by our majority shareholder, VCH, L.P. On June 28, 2019, we received net proceeds of \$66.0 million after deducting underwriting discounts and commissions of \$3.6 million. We also paid \$1.0 million of deferred offering costs. In July 2019, we paid down \$30.7 million of our debt, \$5.6 million to Vector Capital Management, and an additional \$3.4 million of deferred offering expenses. We expect to pay the remaining deferred offering expenses of \$0.2 million in the fourth quarter of 2019.

Our consolidated financial statements for the nine-month period ended September 30, 2019 reflect share-based compensation expense of \$16.1 million associated with the one-time recognition of deferred share-based compensation expense and the one-time issuance of 2,172,000 share options and restricted share units, each upon the completion of our IPO.

Xirrus acquisition

In August 2019, we acquired select assets and assumed select liabilities of the Xirrus Wi-Fi products and cloud services business from Riverbed Technology, Inc. Xirrus has a portfolio of high performance enterprise Wi-Fi access points and subscription services. We paid \$2 million upon closing and may be required to pay an additional \$3 million subject to Xirrus attaining certain booking targets. This acquisition will enhance and accelerate our existing network service application capabilities.

We account for business combinations in accordance with ASC 805, *Business Combinations*. We recorded the acquisition using the acquisition method of accounting and recognized assets and liabilities at their fair value as of the date of acquisition. We based the preliminary allocation of the purchase price on estimates and assumptions that are subject to change within the purchase price allocation period, which is generally one year from the acquisition date. The purchase accounting is not yet complete and as such the final allocation may be subject to change. We determined the estimated fair value of identifiable intangible assets acquired primarily using an income approach.

Basis of presentation

Revenues

Our revenues are generated primarily from the sale of our products, which consists of hardware with essential embedded software. Our revenues also include limited amounts for software products and extended warranty on hardware products. We generally recognize product revenues at the time of shipment, provided that all other revenue recognition criteria have been met. Revenues are recognized net of estimated stock returns, volume-based rebates and cooperative marketing allowances that we provide to distributors. We provide a standard one-year warranty on our hardware products, that includes access to telephone and internet support. In addition, we offer extended warranties on certain hardware products. We recognize revenues on extended warranties on a straight-line basis over the contractual period. We provide our cnMaestro, LINKPlanner and cnArcher applications as supplemental tools to help network operators design, install, and manage their networks, and as a means of driving sales of our hardware products. We presently offer these applications without additional charge to the customer and these applications are not essential to the operation of our products.

Cost of revenues and gross profit

Our cost of revenues is comprised primarily of the costs of procuring finished goods from our third-party manufacturers, third-party logistics and warehousing provider costs, freight costs and warranty costs. We outsource our manufacturing to third-party manufacturers located primarily in Mexico, China and Israel. Cost of revenues also includes costs associated with supply operations, including personnel related costs, provision for excess and obsolete inventory, third-party license costs and third-party costs related to services we provide. Cost of revenues also includes amortization of software costs for externally developed products.

Gross profit has been and will continue to be affected by various factors, including changes in product mix. The margin profile of products within each of our core product categories can vary significantly depending on the operating performance, features and manufacturer of the product. Generally, our gross margins on backhaul and access point products are greater than those on our CPE products. Because the ratio of CPE to PTP and PMP access points typically increases as network operators build out the density of their networks, increases in follow-on sales to network operators as a percentage of our total sales typically have a downward effect on our overall gross margins. Finally, gross margin will also vary as a function of changes in pricing due to competitive pressure, our third-party manufacturing and other production costs, cost of shipping and logistics, provision for excess and obsolete inventory and other factors. We expect our gross margins will fluctuate from period to period depending on the interplay of these various factors.

Operating expenses

We classify our operating expenses as research and development, sales and marketing, and general and administrative expense. Personnel cost are the primary component of each of these operating expense categories, which consist of cash-based personnel costs, such as salaries, sales commissions, benefits and bonuses. Beginning in Q2 2019, operating expenses also include share-based compensation expense. In addition, we separately classify depreciation and amortization expense.

Research and development

In addition to personnel-related costs, research and development expense consists of costs associated with design and development of our products, product certification, travel and recruiting. We generally recognize research and development expense as incurred. For certain of our software projects under development, we capitalize the development costs during the period between determining technological feasibility of the product and commercial release. We amortize the capitalized development cost upon commercial release, generally over three years. We typically do not capitalize costs related to the development of first-generation product offerings as technological feasibility generally coincides with general availability of the software. We expect research and development expense to increase in absolute dollars as we continue to invest in our future products and services.

Sales and marketing

In addition to personnel costs for sales, marketing, service and product line management personnel, sales and marketing expense consists of our training programs, trade shows, marketing programs, promotional materials, demonstration equipment, national and local regulatory approval on our products, travel and entertainment, and recruiting. We expect sales and marketing expense to continue to increase in absolute dollars as we increase the size of our sales, marketing, service, and product line management organization. In support of our investment in our growth opportunities, and, in particular, as we continue to expand our global distribution work.

General and administrative

In addition to personnel costs, general and administrative expense consists of professional fees, such as legal, audit, accounting, information technology and consulting costs, facilities and other supporting overhead costs, as well as management fees paid to Vector Capital. We expect our general and administrative expense to increase in absolute dollars following the completion of our IPO due to additional legal fees and accounting, insurance, investor relations and other costs associated with being a public company, partially offset by the absence of management fees to Vector Capital following the offering.

Depreciation and amortization

Depreciation and amortization expense consist of depreciation related to fixed assets such as computer equipment, furniture and fixtures, and testing equipment, as well as amortization related to acquired and internal use software and definite lived intangibles.

Provision for income taxes

Our provision for income taxes consists primarily of income taxes in the jurisdiction in which we conduct business. As we have expanded our international operations, we have incurred increased foreign income tax expense, and we expect this to continue. We recorded a valuation allowance against our UK deferred tax assets during the three-month period ended June 30, 2019 based on our analysis of cumulative income and loss positions, future income projections, and operating plans.

Results of operations

The following table presents the consolidated statements of operations, as well as the percentage relationship to total revenues for items included in our consolidated statements of operations (in thousands):

(in thousands)	Three months ended September 30,		Nine months ended September 30,	
	2018	2019	2018	2019
Statements of Operations Data:				
Revenues	\$ 58,981	\$ 65,703	\$ 178,453	\$ 202,966
Cost of revenues	31,469	33,871	93,429	105,032
Gross profit	27,512	31,832	85,024	97,934
Operating expenses				
Research and development	9,810	9,895	28,883	35,566
Sales and marketing	10,805	10,363	31,290	34,808
General and administrative	5,520	5,996	14,164	24,189
Depreciation and amortization	2,448	1,449	7,156	3,957
Total operating expenses	28,583	27,703	81,493	98,520
Operating (loss) income	(1,071)	4,129	3,531	(586)
Interest expense	2,033	2,105	5,879	6,674
Other expense	116	61	457	251
(Loss) income before income taxes	(3,220)	1,963	(2,805)	(7,511)
(Benefit) provision for income taxes	(665)	3	(548)	9,041
Net (loss) income	\$ (2,555)	\$ 1,960	\$ (2,257)	\$ (16,552)

	Three months ended September 30,		Nine months ended September 30,	
	2018	2019	2018	2019
Percentage of Revenues:				
Revenues	100.0%	100.0%	100.0%	100.0%
Cost of revenues	53.4%	51.6%	52.4%	51.7%
Gross margin	46.6%	48.4%	47.6%	48.3%
Operating expenses				
Research and development	16.6%	15.1%	16.2%	17.5%
Sales and marketing	18.3%	15.8%	17.5%	17.1%
General and administrative	9.4%	9.1%	7.9%	11.9%
Depreciation and amortization	4.2%	2.2%	4.0%	1.9%
Total operating expenses	48.5%	42.2%	45.6%	48.5%
Operating (loss) income	(1.9)%	6.2%	2.0%	(0.3)%
Interest expense	3.4%	3.2%	3.3%	3.7%
Other expense	0.2%	0.1%	0.3%	0.1%
(Loss) income before income taxes	(5.5)%	2.9%	(1.6)%	(4.1)%
(Benefit) provision for income taxes	(1.1)%	0.1%	(0.3)%	4.5%
Net (loss) income	(4.4)%	2.8%	(1.3)%	(8.6)%

Comparison of three-month period ended September 30, 2018 to the three-month period ended September 30, 2019

Revenues

(dollars in thousands)	Three months ended September 30,		Change	
	2018	2019	\$	%
Revenues	\$ 58,981	\$ 65,703	\$ 6,722	11.4%

Revenues increased \$6.7 million, or 11.4%, to \$65.7 million for the three-month period ended September 30, 2019 from \$59.0 million for the three-month period ended September 30, 2018, which was attributable to growth in our point-to-multipoint and Wi-Fi lines, including newer products, as well as pricing actions taken in February 2019. Complementing increased product demand, as described below, revenue growth in 2019 also benefitted from continued expansion of our distribution channel, bringing the total registered channel partners to over 6,400 as of September 30, 2019.

Revenues by product category

(dollars in thousands)	Three months ended September 30,		Change	
	2018	2019	\$	%
Point-to-MultiPoint	\$ 33,024	\$ 38,856	\$ 5,832	17.7%
Point-to-Point	20,566	15,976	(4,590)	(22.3)%
Wi-Fi	4,370	10,141	5,771	132.1%
Other	1,021	730	(291)	(28.5)%
Total revenues by product category	\$ 58,981	\$ 65,703	\$ 6,722	11.4%

Point-to-MultiPoint

Our PMP product line comprised 59% of total revenues for the three-month period ended September 30, 2019 and 56% of total revenues for the three-month period ended September 30, 2018. PMP revenue growth was attributable to continued growth in core PMP products and new product introduction.

Point-to-Point

PTP revenue decreased due to funding delays in the defense sector and decreased sales in the licensed products segment.

Wi-Fi

Wi-Fi revenue increased primarily as a result of recent new product introductions, including cnMatrix.

Revenues by geography

(dollars in thousands)	Three months ended September 30,		Change	
	2018	2019	\$	%
North America	\$ 29,104	\$ 29,032	\$ (72)	(0.2)%
Europe, Middle East, Africa	17,082	21,749	4,667	27.3%
Caribbean and Latin America	6,624	8,008	1,384	20.9%
Asia Pacific	6,171	6,914	743	12.0%
Total revenues by geography	\$ 58,981	\$ 65,703	\$ 6,722	11.4%

Revenues increased in all but one region with North America and Europe, Middle East, Africa contributing 78% and 77% of total revenues for both the three-month periods ended September 30, 2018 and September 30, 2019, respectively. North America sales benefited from new product introductions of PMP products, but was affected by decreased sales to the defense industry due to funding timing. Europe, Middle East, Africa sales increased due to increased sales to the Enterprise segment as well as increased sales of ePMP and wireless products. Caribbean and Latin America sales increased due to increased sales of wireless products to enterprise customers while Asia Pacific sales benefitted from increased ePMP product sales.

Cost of revenues and gross margin

(dollars in thousands)	Three months ended September 30,		Change	
	2018	2019	\$	%
Cost of revenues	\$ 31,469	\$ 33,871	\$ 2,402	7.6%
Gross margin	46.6%	48.4%		180 bps

Cost of revenues increased \$2.4 million, or 7.6%, to \$33.9 million for the three-month period ended September 30, 2019 from \$31.5 million for the three-month period ended September 30, 2018. The increase in cost of revenues was primarily due to increased product and freight costs as a result of increased sales.

Gross margin increased to 48.4% for the three-month period ended September 30, 2019 from 46.6% for the three-month period ended September 30, 2018. The increase reflected a full quarter of 2019 increases in product prices and initiatives put in place for pricing and supply chain, including supply operations and inventory-related costs.

Operating expenses

(dollars in thousands)	Three months ended September 30,		Change	
	2018	2019	\$	%
Research and development	\$ 9,810	\$ 9,895	\$ 85	0.9%
Sales and marketing	10,805	10,363	(442)	(4.1)%
General and administrative	5,520	5,996	476	8.6%
Depreciation and amortization	2,448	1,449	(999)	(40.8)%
Total operating expenses	\$ 28,583	\$ 27,703	\$ (880)	(3.1)%

Research and development

Research and development expense increased \$0.1 million, or 0.9%, to \$9.9 million for the three-month period ended September 30, 2019 from \$9.8 million for the three-month period ended September 30, 2018. As a percentage of revenues, research and development expenses decreased to 15.1% in 2019 from 16.6% in 2018 over the same periods. In absolute dollars, research and development costs increased due to \$0.2 million of share-based compensation expense as well as a \$1.0 million increase in headcount costs due to our continued investment in product development to grow our business, partially offset by \$1.0 in lower personnel costs from annual incentive plans. As a percentage of revenues, sales growth outpaced headcount investment and share-based compensation increases.

Sales and marketing

Sales and marketing expense decreased \$0.4 million, or (4.1)%, to \$10.8 million for the three-month period ended September 30, 2019 from \$10.8 million for the three-month period ended September 30, 2018. As a percentage of revenues, sales and marketing expense decreased to 15.8% in 2019 from 18.3% in 2018 over the same period. Sales and marketing expense decreased due to \$1.2 million of lower personnel costs from employee incentive plans and contractor spending, partially offset by a \$0.8 million increase from headcount growth due to our continued focus on growing sales as well as from share-based compensation. As a percentage of revenues, the decrease over the same period was largely due to our efforts to control spending in line with revenue growth.

General and administrative

General and administrative expense increased \$0.5 million, or 8.6%, to \$6.0 million for the three-month period ended September 30, 2019 from \$5.5 million for the three-month period ended September 30, 2018. As a percentage of revenues, general and administrative expense decreased to 9.1% in 2019 from 9.4% in 2018 over the same period. General and administrative expense increased in absolute dollars due to \$0.8 million of directors and officers insurance premiums and a \$0.2 million increase from share-based compensation expense, partially offset by lower employee incentive plan and personnel costs of \$0.6 million. As a percentage of revenues, general and administrative expense was lower largely due to our efforts to control spending in line with revenue growth.

Depreciation and amortization

Depreciation and amortization expense decreased \$1.0 million, or (40.8)%, to \$1.4 million for the three-month period ended September 30, 2019 from \$2.4 million for the three-month period ended September 30, 2018. The decrease in depreciation and amortization was driven by decreases in intangible asset amortization, as certain acquired software, technology and patents became fully amortized during the fourth quarter of 2018.

Interest expense

(dollars in thousands)	Three months ended September 30,		Change	
	2018	2019	\$	%
Interest expense	\$ 2,033	\$ 2,105	\$ 72	3.5%

Interest expense increased \$0.1 million, or 3.5%, to \$2.1 million for the three-month period ended September 30, 2019 from \$2.0 million for the three-month period ended September 30, 2018. The increase was primarily due to a \$0.5 million write-down of deferred financing fees in July 2019 related to the prepayment on the term loan offset by lower interest expense as a result of the lower debt balance.

Other expense

(dollars in thousands)	Three months ended September 30,		Change	
	2018	2019	\$	%
Other expense	\$ 116	\$ 61	\$ (55)	(47.4)%

Other expense remained relatively flat for the three-month period ended September 30, 2019 over the three-month period ended September 30, 2018, and was primarily associated with foreign currency fluctuations.

Provision for income taxes

(dollars in thousands)	Three months ended September 30,		Change	
	2018	2019	\$	%
(Benefit) provision for income taxes	\$ (665)	\$ 3	\$ 668	nm
Effective income tax rate	20.7%	0.2%		

Our income tax expense increased \$0.7 million to \$0.0 million for the three-month period ended September 30, 2019 from a benefit of (\$0.7) million for the three-month period ended September 30, 2018. The effective tax rates were 0.2% and 20.7% over the same periods, respectively, and reflect the application of our expected annual tax rate to pre-tax results for each of the periods as well as discrete tax impacts that arise during the periods. Tax expense was higher in the current-year period due an increase in the valuation allowance against our UK deferred tax assets enacted during the three-month period ended September 30, 2019 of \$2.6 million, as well as application of the annual effective tax rate to pre-tax operating income of \$2.0 million earned in the three-month period ended September 30, 2019 versus a pre-tax operating loss of \$(3.2) million recognized in the three-month period ended September 30, 2018.

Comparison of the nine-month period ended September 30, 2018 to the nine-month period ended September 30, 2019

Revenues

(dollars in thousands)	Nine months ended September 30,		Change	
	2018	2019	\$	%
Revenues	\$ 178,453	\$ 202,966	\$ 24,513	13.7%

Revenues increased \$24.5 million, or 13.7%, to \$203.0 million for the nine-month period ended September 30, 2019 from \$178.5 million for the nine-month period ended September 30, 2018, which was attributable to growth in Point-to-Multipoint and Wi-Fi product lines, including newer and acquired products as well as strong sales to key sectors across the geographies. Complementing increased product demand, as described below, revenue growth in 2019 benefitted from continued expansion of our distribution channel, bringing the total registered channel partners to over 6,400 as of September 30, 2019.

Revenue by product category

(dollars in thousands)	Nine months ended September 30,		Change	
	2018	2019	\$	%
Point-to-MultiPoint	\$ 105,332	\$ 122,913	\$ 17,581	16.7%
Point-to-Point	54,273	53,440	(833)	(1.5)%
Wi-Fi	15,537	24,157	8,620	55.5%
Other	3,311	2,456	(855)	(25.8)%
Total revenues by product category	\$ 178,453	\$ 202,966	\$ 24,513	13.7%

Point-to-MultiPoint

Our PMP product line comprised 61% of total revenues for the nine-month period ended September 30, 2019 and 59% of total revenues for the nine-month period ended September 30, 2018. PMP revenue growth was attributable to increased sales to a large customer in the Europe, Middle East, Africa region and continued growth in core PMP products and new product introductions.

Point-to-Point

The decrease in our PTP revenue was driven principally by lower sales in licensed PTP products offset partially by strong sales in the defense sector.

Wi-Fi

Wi-Fi revenue increased primarily from base business growth across North America and Europe, Middle East and Africa geographies, Enterprise sector sales and new product introductions including our new switch product, cnMatrix, in the fourth quarter of 2018.

Revenues by geography

(dollars in thousands)	Nine months ended September 30,		Change	
	2018	2019	\$	%
North America	\$ 80,682	\$ 93,452	\$ 12,770	15.8%
Europe, Middle East, Africa	53,968	66,713	12,745	23.6%
Caribbean and Latin America	23,599	23,527	(72)	(0.3)%
Asia Pacific	20,204	19,274	(930)	(4.6)%
Total revenues by geography	\$ 178,453	\$ 202,966	\$ 24,513	13.7%

Revenues increased in North America and Europe, Middle East, Africa over the period with these regions contributing 79% of total revenues for the nine-month period ended September 30, 2019 and 75% of total revenues for the nine-month period ended September 30, 2018. North America sales benefited from new product introductions of PMP products and increases in sales to the defense and enterprise sectors. Europe, Middle East, Africa sales increased due to increasing momentum of product adoption of indoor Wi-Fi products and increased overall year-to-date sales to a large customer in Italy. Asia Pacific and Caribbean and Latin America sales decreased due to comparisons against prior year results that included one-time infrastructure replacement initiatives as well as delays in government sector spending for the year.

Cost of revenues and gross margin

(dollars in thousands)	Nine months ended September 30,		Change	
	2018	2019	\$	%
Cost of revenues	\$ 93,429	\$ 105,032	\$ 11,603	12.4%
Gross margin	47.6%	48.3%		70 bps

Cost of revenues increased \$11.6 million, or 12.4%, to \$105.0 million for the nine-month period ended September 30, 2019 from \$93.4 million for the nine-month period ended September 30, 2018. The increase in cost of revenues was primarily due to increased product sales and freight costs as well as share-based compensation expense of \$0.2 million recognized in the three-month period ended June 30, 2019.

Gross margin increased slightly to 48.3% for the nine-month period ended September 30, 2019 from 47.6% for the nine-month period ended September 30, 2018 primarily from pricing initiatives enacted in the three-month period ended March 31, 2019 along with gross margin improvement initiatives put in place for supply chain, including supply operations and inventory-related costs.

Operating expenses

(dollars in thousands)	Nine months ended September 30,		Change	
	2018	2019	\$	%
Research and development	\$ 28,883	\$ 35,566	\$ 6,683	23.1%
Sales and marketing	31,290	34,808	3,518	11.2%
General and administrative	14,164	24,189	10,025	70.8%
Depreciation and amortization	7,156	3,957	(3,199)	(44.7)%
Total operating expenses	\$ 81,493	\$ 98,520	\$ 17,027	20.9%

Research and development

Research and development expense increased \$6.7 million, or 23.1%, to \$35.6 million for the nine-month period ended September 30, 2019 from \$28.9 million for the nine-month period ended September 30, 2018. As a percentage of revenues, research and development expenses increased to 17.5% in 2019 from 16.2% in 2018 over the same period. In absolute dollars, the increase in research and development expense was due to the recognition of \$5.1 million of share-based compensation expense and our continued investment in product development to grow our business, including a \$1.6 million increase in overall headcount and personnel costs. As a percentage of revenues, the increase was driven by the aforementioned share-based compensation expense and headcount costs. Share-based compensation expense includes certain one-time charges recorded in connection with our Recapitalization and IPO, and is a non-cash item. Excluding share-based compensation expense, as a percentage of revenues, research and development expenses were 15.0% for the nine-month period ended September 30, 2019 compared to 16.2% for the same period in 2018 as sales growth outpaced headcount and personnel growth cost.

Sales and marketing

Sales and marketing expense increased \$3.5 million, or 11.2%, to \$34.8 million for the nine-month period ended September 30, 2019 from \$31.3 million for the nine-month period ended September 30, 2018. As a percentage of revenues, sales and marketing expense decreased to 17.1% in 2019 from 17.5% in 2018 over the same period. In absolute dollars, sales and marketing expense increased due to \$4.0 million of share-based compensation expense as well as a \$0.5 million increase in headcount and personnel costs due to our continued focus on growing sales, partially offset by \$1.0 million in lower employee incentive compensation cost. As a percentage of revenues, the increase was driven by the aforementioned share-based compensation expense and headcount costs. Share-based compensation expense includes certain one-time charges recorded in connection with our Recapitalization and IPO, and is a non-cash item. Excluding share-based compensation, as a percentage of sales, sales and marketing expenses were 15.2% for the nine-month period ended September 30, 2019 compared to 17.5% for the same period in 2018 as sales growth outpaced headcount and personnel growth.

General and administrative

General and administrative expense increased \$10.0 million, or 70.8%, to \$24.2 million for the nine-month period ended September 30, 2019 from \$14.2 million for the nine-month period ended September 30, 2018. As a percentage of revenues, general and administrative expenses increased to 11.9% in 2019 from 7.9% in 2018 over the same period. General and administrative expenses increased due to \$7.7 million of share-based compensation expense recognized in June 2019, \$1.2 million in higher legal fees, and \$0.8 million of directors and officers insurance premiums recognized since our IPO in June 2019. Share-based compensation expense includes certain one-time charges recorded in connection with our Recapitalization and IPO, and is a non-cash item. Excluding share-based compensation expense, as a percentage of revenues, general and administrative expenses were 8.1% for the nine-month period ended September 30, 2019 compared to 7.9% in the same period in 2018, driven by higher litigation costs incurred during the year and directors and officers insurance costs as a result of our recent IPO.

Depreciation and amortization

Depreciation and amortization expense decreased \$3.2 million, or (44.7)%, to \$4.0 million for the nine-month period ended September 30, 2019 from \$7.2 million for the nine-month period ended September 30, 2018. The decrease in depreciation and amortization was driven by decreases in our intangible asset amortization as certain acquired software, technology and patents became fully amortized during the fourth quarter of 2018.

Interest expense

(dollars in thousands)	Nine months ended September 30,		Change	
	2018	2019	\$	%
Interest expense	\$ 5,879	\$ 6,674	\$ 795	13.5%

Interest expense increased \$0.8 million, or 13.5%, to \$6.7 million for the nine-month period ended September 30, 2019 from \$5.9 million for the nine-month period ended September 30, 2018. The increase was primarily due to higher debt levels from refinancing activity in November 2018 and a \$0.5 million write-down of deferred financing fees related to the prepayment of the debt in July 2019.

Other expense

(dollars in thousands)	Nine months ended September 30,		Change	
	2018	2019	\$	%
Other expense	\$ 457	\$ 251	\$ (206)	(45.1)%

Other expense decreased (\$0.2), or (45.1)%, to \$0.3 million for the nine-month period ended September 30, 2019 from \$0.5 million for the nine-month period ended September 30, 2018, and was primarily associated with foreign currency fluctuations.

Provision for income taxes

(dollars in thousands)	Nine months ended September 30,		Change	
	2018	2019	\$	%
(Benefit) provision for income taxes	\$ (548)	\$ 9,041	\$ 9,589	nm
Effective income tax rate	19.5%	(120.4)%		

Our income tax expense increased \$9.6 million to an expense of \$9.0 million for the nine-month period ended September 30, 2019 from a benefit of \$(0.5) million for the period ended September 30, 2018. The effective tax rates were (120.4)% and 19.5% over the same periods, respectively, and reflect the application of our expected annual tax rate to pre-tax results for each of the periods as well as discrete tax impacts recognized during the year. Tax expense was higher in the nine-month period ended September 30, 2019 due to our recognition of a valuation allowance against our UK deferred tax assets in the three-month period ended June 30, 2019 and a subsequent increase to the valuation allowance against our UK deferred tax asset in the three-month period ended September 30, 2019, as well as application of our annual effective tax rate over the periods.

Liquidity and Capital Resources

As of September 30, 2019, we had a cash balance of \$19.0 million. Our primary liquidity needs are: (i) to fund normal operating expenses; (ii) to meet interest and principal requirements of our outstanding indebtedness; and (iii) to fund capital expenditures. We believe these needs will be satisfied over at least the next 12 months using cash flow generated by our operations, our cash, proceeds from our IPO, and our available borrowings under our revolving credit facility. Our future capital requirements may vary materially from those currently planned and will depend on many factors, including our rate of revenue growth, the timing and extent of spending to support development efforts, the timing of new product introductions, market acceptance of our products and overall economic conditions. We expect to regularly assess market conditions and may raise additional equity or incur additional debt if and when our board of directors determines that doing so is in our best interest.

On June 28, 2019, we received net proceeds of \$66.0 million upon the completion of our IPO, after deducting underwriting commission and fees. We also paid \$4.4 million of deferred offering costs in conjunction with the offering during fiscal 2019. In July, we used \$30.7 million of the net proceeds to pay down our external debt and \$5.6 million to pay management fees owed to Vector Capital.

Cash Flows

The following table sets forth summarized cash flow data for the periods indicated (in thousands):

	Nine months ended September 30,	
	2018	2019
Cash used in operating activities	\$ (4,739)	\$ (2,592)
Cash used in investing activities	\$ (5,052)	\$ (5,407)
Cash provided by financing activities	\$ 6,587	\$ 22,578

Cash flows from operating activities

Net cash used in operating activities for the nine-month period ended September 30, 2019 of \$2.6 million consisted primarily of a net loss of \$16.5 million, adjustments for non-cash share-based compensation expense of \$16.9 million, depreciation and amortization and other impacts of \$5.3 million, partially offset by impacts resulting in cash inflows including deferred tax impacts of \$7.4 million and outflows from operating assets and liabilities of \$15.4 million. The changes in operating assets and liabilities consisted primarily of a \$8.7 million increase in inventories as we procured additional inventory of new products, \$5.5 million reduction in management fees owed to Vector that were previously accrued and became payable upon completion of our IPO in June 2019, as well as reductions in our accounts payable of \$1.7 million, and other miscellaneous offsetting impacts totaling \$0.5 million.

Net cash used in operating activities for the nine-month period ended September 30, 2018 of \$4.7 million consisted primarily of net loss of \$2.3 million, adjustments for depreciation and amortization and changes in deferred tax assets of \$7.5 million and changes in operating assets and liabilities that resulted in net cash outflows of \$10.1 million. The changes in operating assets and liabilities consisted primarily of a \$9.5 million increase in inventories as we procured additional inventory of new products in anticipation of increased sales, reduced accrued employee compensation of \$3.9 million as we paid the 2017 bonus in 2018 and increased accounts receivable of \$3.9 million partially offset by an increase in net accounts payable and assets and liabilities of \$7.2 million.

Cash flows from investing activities

Our investing activities for all periods presented consisted of capital expenditures for property, equipment and software in support of the growth of our business. For the three-month period ended September 30, 2019, our investing activities also included \$2.0 million of cash paid for the acquisition of select assets and assumption of select liabilities of the Xirrus Wi-Fi business.

Cash flows from financing activities

During the nine-month period ended September 30, 2019, net cash provided of \$22.6 million was primarily due to \$66.0 million in proceeds received from the issuance of shares in our IPO, net of underwriters commissions, repayment of \$37.8 million in principal under our term loan and revolving loan facilities, and payment of \$4.4 million of deferred issuance costs related to the IPO.

During the nine-month period ended September 30, 2018, net cash provided of \$6.6 million was primarily due to \$10.0 million in proceeds received from borrowing under our revolving credit facility, partially offset by \$3.4 million to repay principal due under our term loan facility.

Debt

We had outstanding external debt of \$103.0 million and \$65.9 million, including the current portions of \$8.8 million and \$9.3 million at December 31, 2018 and September 30, 2019, respectively.

On June 28, 2019, we entered into a Third Amendment to Amended and Restated Credit Agreement (the "Third Amendment"). The Third Amendment amends the Amended and Restated Credit Agreement, dated December 21, 2017, as amended by that Waiver and First Amendment to Amended and Restated Credit Agreement dated as of November 21, 2018 and as further amended by the Consent, Waiver and Second Amendment to Amended and Restated Credit Agreement dated as of April 26, 2019 (as amended, amended and restated, supplemented, restructured or otherwise modified, renewed or replaced from time to time, the "Credit Agreement").

Pursuant to the Third Amendment, certain actions taken by us in connection with our IPO of ordinary shares that closed on June 28, 2019 were consented to by Silicon Valley Bank and the Lenders, including (i) the exchange of outstanding vested and unvested Class B units and phantom units in VCH L.P. for ordinary shares in us (in exchange for vested units) and restricted stock awards (for unvested Class B units) and restricted stock units (for unvested phantom units) and the adoption of the employee share incentive plan and employee share purchase plan and forms of award agreement thereunder by us; (ii) the payment of accrued and unpaid management fees owed to an affiliate of VCH, L.P.; and (iii) the entering into of the Shareholder Agreement by and between VCH, L.P. as a guarantor and loan party and terminated the guaranty granted by an affiliate of VCH, L.P. In addition, the Tranche A and Tranche B were dissolved and only one tranche of term loan remained. The minimum consolidated fixed charge coverage ratio for the trailing twelve-month period ending December 31, 2019 and each trailing twelve-month quarterly period ending thereafter was amended to 1.25:1.00. All other financial covenants remained the same.

On July 1, 2019, we paid \$30.7 million to the Lenders out of the net proceeds of our IPO, comprised of \$20.7 million repayment of the term loan and all outstanding amounts under the revolving credit facility were repaid, leaving an available revolving commitment of \$10.0 million.

The Credit Agreement contains customary representations, warranties and affirmative and negative covenants. We are required to maintain quarterly minimum consolidated fixed charge coverage ratio and minimum consolidated leverage ratio, and a monthly minimum adjusted quick ratio. As of December 31, 2018, we were in compliance with all affirmative covenants and our monthly negative covenant, but were in default of both the quarterly maximum consolidated leverage ratio and the minimum consolidated fixed charge coverage ratio. On April 26, 2019, we entered into a Consent, Waiver and Second Amendment to Amended and Restated Credit Agreement, under which the lenders waived the December 31, 2018 default, as well as reset certain of the debt covenants. We failed to comply with the minimum adjusted quick ratio for the month ended May 31, 2019. As a result, on June 21, 2019, our lenders provided a Waiver Agreement which waived our failure to meet this financial covenant. As of September 30, 2019, we were in compliance with all financial covenants.

Contractual Obligations and Commercial Commitments

For the three-month period ended September 30, 2019, there have been no material changes to the contractual obligations and commercial commitments previously disclosed in our Prospectus.

Off-balance sheet arrangements

We do not engage in transactions that generate relationships with unconsolidated entities or financial partnerships, such as entities often referred to as variable interest entities, structured finance, or special purpose entities, as part of our ongoing business. Accordingly, our operating results, financial condition and cash flows are not subject to off-balance sheet risks.

Recent accounting pronouncements

We have reviewed all recently issued accounting standards and have disclosed in Note 1 in this Quarterly Report on Form 10-Q the results of our review and assessment of the impact on the standard on our consolidated financial statements.

Significant Accounting Estimates

Our consolidated financial statements and the related notes thereto are prepared in accordance with GAAP. The preparation of the consolidated financial statements also requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues and expenses, and related disclosure of contingent assets and liabilities. We base our estimates on historical experience and other assumptions we believe to be proper and reasonable under the circumstances. We continually evaluate the appropriateness of estimates and assumptions used in the preparation of our consolidated financial statements. Actual results could differ from those estimates.

During the three-month period ended September 30, 2019, there were no significant changes to our critical accounting policies and estimates as described in our Prospectus, except as described below.

Share-based compensation

We recognize all share-based compensation expense as a cost in the consolidated financial statements. Equity classified awards are measured at the grant date fair value of the award and expense is recognized, net of estimated forfeitures, on a straight-line basis over the requisite service period for each separately vesting portion of the award and forfeiture rates are periodically updated for actual experience over the vesting term. For share options, we estimate the grant date fair value using the Black-Scholes option-pricing model.

Item 3. Quantitative and Qualitative Disclosures About Market Risk.

Excluding the impact of changes in interest rates and the uncertainty in the global financial markets, there have been no material changes to our market risk for the three-month period ended September 30, 2019. We conduct business in all parts of the world and are thereby exposed to market risks related to fluctuations in foreign currency exchange rates. The U.S. dollar is the single largest currency in which our revenue contracts are denominated. Any decline in the value of local foreign currencies against the U.S. dollar results in our products and services being more expensive to a potential foreign customer. In those instances where our goods and services have already been sold, receivables may be more difficult to collect. Additionally, in jurisdictions where the revenue contracts are denominated in U.S. dollars and operating expenses are incurred in the local currency, any decline in the value of the U.S. dollar will have an unfavorable impact to operating margins. We have not entered into any foreign currency hedging transactions. We do not purchase or hold any derivative financial instruments for speculation or arbitrage.

We do not hold any cash in any investment accounts and all cash is deposited with financial institutions that management believes are of high credit quality. The Company's cash consists primarily of U.S. dollar denominated demand accounts.

We had \$67.6 million of debt outstanding as of September 30, 2019 under our Credit Agreement. The Company is exposed to interest rate risk from fluctuations in the three-month US LIBOR rate that is a component of the interest rate used to calculate interest expense on the debt. Interest accrues on the outstanding principal amount of the term loan on a quarterly basis and is equal to the three-month US LIBOR rate plus a base rate of 4.75%, 4.25% or 4.00%. The base rate is affected by our financial performance as measured by the consolidated leverage ratio. The rate on the term loan was 7.08% as of September 30, 2019 and was reduced to 6.85% on October 1, 2019 due to a reduction in the US LIBOR rate. A hypothetical 100-basis point increase in interest rates, and assuming a constant base rate, would result in an additional \$0.7 million in interest expense related to the external debt per year.

Item 4. Controls and Procedures.

Evaluation of disclosure controls and procedures

Under the supervision and with the participation of our senior management, including our Chief Executive Officer and Chief Financial Officer, we conducted an evaluation of the effectiveness of the design and operation of our disclosure controls and procedures (as defined in Rules 13a-15(e) and 15d-15(e) under the Securities and Exchange Act of 1934, as amended, or the Exchange Act), as of the end of the period covered by this Quarterly Report on Form 10-Q. Based on such evaluation, our Chief Executive Officer and Chief Financial Officer have concluded that, as of such date, our disclosure controls and procedures are effective to ensure that information required to be disclosed by us in reports that we file or submit under the Exchange Act is recorded, processed, summarized and reported within the time period specified in Securities and Exchange Commission rules and forms and is accumulated and communicated to our management, including our principal executive officer and principal financial officer, as appropriate to allow timely decisions regarding required disclosure.

Changes in internal control

There were no changes in our internal control over financial reporting identified in management's evaluation pursuant to Rules 13a-15(e) and 15d-15(e) of the Exchange Act during the period covered by this Quarterly Report on Form 10-Q that materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Limitations on effectiveness of controls and procedures

None.

PART II—OTHER INFORMATION

Item 1. Legal Proceedings.

Third parties may from time to time assert legal claims against us. Except as set forth below, there have been no material changes with respect to Legal Proceedings as disclosed in our Prospectus.

On August 7, 2018, Ubiquiti Networks, Inc. filed a lawsuit against us, two of our employees, one of our distributors and one of our end users in the United States District Court for the Northern District of Illinois. The complaint alleges that our development of and sale and promotion of its Elevate software as downloaded on a Ubiquiti device violates the Computer Fraud and Abuse Act and Illinois Computer Crimes Prevention Law, the Digital Millennium Copyright act and the Copyright Act, and constitutes misrepresentation and false advertising and false designation of origin in violation of the Lanham Act and state competition laws, breach of contract, tortious interference with contract and unfair competition, and trademark infringement and common law misappropriations. The complaint also brings additional claims against all defendants that the development and sales of Elevate violated the Racketeer influenced and Corrupt Organizations Act. The defendants answered the complaint and filed a motion to dismiss on December 11, 2018. Ubiquiti served requests for production of documents on December 17, 2018. All discovery motions, including these requests for production, have been stayed by the court pending its ruling on the motion to dismiss. On May 8, 2019, the judge issued his order on the motion for extension of time and Ubiquiti had until June 18, 2019 to file an amended complaint. On May 22, 2019, the judge issued his order on the motion to dismiss, and dismissed Ubiquiti's complaint without prejudice. On May 24, 2019, Ubiquiti filed a motion for extension of time to file an amended complaint. We filed a motion objecting to the proposed extension of time on May 24, 2019. On June 18, 2019, Ubiquiti filed its First Amended Complaint ("FAC"). The FAC makes substantially the same claims against the same parties with the exception that the FAC does not include claims for violation of the Illinois Computer Crime Prevention Law, Infringement of Registered Trademarks, False Designation of Origin, and Common Law Trademark Misappropriation that were included in the initial complaint. We filed a motion to dismiss the FAC on July 10, 2019. On July 15, 2019, Ubiquiti filed a motion to lift the stay of discovery previously imposed by the court. Our response to Ubiquiti's motion to lift the stay was filed on July 31, 2019. Ubiquiti filed a response to our motion to dismiss on August 15, 2019. We filed a reply in support of its motion to dismiss on August 27, 2019. The Court held a hearing on both motions on September 4, 2019 and took the matters under submission. The lawsuit is in its early stages and we cannot currently estimate the loss or range of losses, if any, that we may experience in connection with this litigation. We plan to vigorously defend ourselves against these claims; however, there can be no assurance that we will prevail in the lawsuit.

On September 20, 2019, VenKee Communications, LLC filed a lawsuit against us in the United States District Court for the Western District of Texas. The complaint alleges that our cnPilot products violate U.S. Patent 7,916,684 entitled "Wireless Communication Network Providing Communication Between Mobile Devices and Access Points" owned by plaintiff. We have obtained an extension of time to respond to the complaint to November 14, 2019. The lawsuit is in its early stages and we cannot currently estimate the loss or range of losses, if any, that we may experience in connection with this litigation. We plan to vigorously defend ourselves against these claims; however, there can be no assurance that we will prevail in the lawsuit.

Item 1A. Risk Factors.

An investment in our shares involves significant risks. You should carefully consider the risks and uncertainties described below, together with all of the other information in this Quarterly Report on Form 10-Q, including the section titled "Management's Discussion and Analysis of Financial Condition and Results of Operations" and our unaudited consolidated financial statements and related notes, before making a decision to invest in our shares. Our business, financial condition, results of operations or prospects could also be harmed by risks and uncertainties not currently known to us or that we currently do not believe are material. If any of the risks actually occur, our business, financial condition, results of operations and prospects could be adversely affected. In that event, the market price of our shares could decline, and you could lose part of all of your investment.

Risks related to our business

Our operating results can be difficult to predict and may fluctuate significantly, which could result in a failure to meet investor expectations or our guidance and a decline in the trading price of our shares.

Our quarterly and annual operating results have fluctuated in the past and may fluctuate significantly in the future. In particular, the timing and size of our sales of our products are difficult to predict and can result in significant fluctuations in our revenues from period to period. For instance, we have historically received and fulfilled a substantial portion of sales orders and generated a substantial portion of revenues during the last few weeks of each quarter. In addition, we generally recognize all product revenues in the same period in which the related products are sold. Because our operating results are relatively fixed in the short term, any failure to meet expectations regarding sales could have an immediate and material effect on our earnings. If our revenues or operating results fall below the expectations of investors or securities analysts or below any estimates we may provide to the market, the trading price of our shares would likely decline, which could have a material and adverse impact on investor confidence and employee retention.

Our operating results may fluctuate due to a variety of factors, many of which are outside of our control, and which we may not foresee. In addition to other risks listed in this “Risks Factors” section, factors that may affect our operating results include:

- Fluctuations in demand for our products, including seasonal variations;
- Our failure to timely fulfill orders for our products, which may be due to inability of our third-party manufacturers and suppliers to meet our demand, logistical failures in warehousing and shipping products or other factors;
- Failure of our distributors and channel partners to effectively promote and sell our products or manage their inventory and fulfillment;
- Our ability to control costs, including our manufacturing and component costs and operating expenses;
- Our ability to develop, introduce and ship in a timely manner new products and product enhancements, and to anticipate future market demands;
- Changes in the competitive dynamics of our target markets, including new entrants, consolidation and pricing pressures;
- The inherent complexity, length and associated unpredictability of the sales cycles for our products;
- Announcements made by us or our competitors of new or enhanced products, promotions or other transactions;
- Variation in product costs, prices or mix of products we sell;
- Product quality issues that could result in increases in product warranty costs and harm to our reputation and brand;
- General economic or political conditions in our markets; and
- Increasing uncertainty of international trade relations and tariffs.

The effects of these or other factors individually or in combination could result in fluctuations and unpredictability in our operating results, our ability to forecast those results and the trading price of our shares. As a result, our past results should not be relied upon as an indication of our future performance.

The introduction of new products and technology is key to our success, and if we fail to predict and respond to emerging technological trends and network operators’ changing needs, we may be unable to remain competitive.

The wireless broadband market is generally characterized by rapidly changing technology, changing needs of network operators, evolving regulations and industry standards and frequent introductions of new products and services. Historically, new product introductions have been a key driver of our revenue growth. To succeed, we must effectively anticipate and adapt in a timely manner to network operator requirements and continue to develop or acquire new products and features that meet market demands, technology trends and evolving regulatory requirements and industry standards. Our ability to keep pace with technological developments, such as 5G and LTE, satisfy increasing network operator requirements, and achieve product acceptance depends upon our ability to enhance our current products and develop and introduce or otherwise acquire the rights to new products on a timely basis and at competitive prices. The process of developing new technology is complex and uncertain, and the development of new products and enhancements typically requires significant upfront investment, which may not result in material improvements to existing products or result in marketable new products or cost savings or revenues for an extended period of time, if at all. We are currently investing in the development of products and technology to be appropriate for the 5G standard once it is generally adopted in our target markets. There can be no assurance we will successfully address the new standard in a timely manner or that our products will achieve market acceptance. Network operators have delayed, and may in the future delay, purchases of our products while awaiting release of new products or product enhancements. In addition, the introduction of new or enhanced products requires that we carefully manage the transition from older products to minimize disruption in channel partner ordering practices. If we fail to anticipate industry trends and evolving regulations by developing or acquiring rights to new products or product enhancements and timely and effectively introducing such new products and enhancements, or network operators do not perceive our products to have compelling technological advantages, our business and the price of our shares would be adversely affected.

Competitive pressures may harm our business, revenues, growth rates and market share.

We generate a majority of our revenues from sales to wireless internet service providers. The market for wireless broadband products is rapidly evolving, highly competitive and subject to rapid technological change. We expect competition to persist, intensify and increase.

In all our markets, we compete with a number of wireless equipment providers worldwide that vary in size and in the products and solutions offered. Our competitors for products and solutions for the unlicensed, sub-6 GHz spectrum bands include Ubiquiti, Radwin, MikroTik and Telrad. In the licensed microwave markets, our competitors include SIAE, SAF Tehnica and Aviat. Our Wi-Fi products and solutions compete with Ruckus Wireless (CommScope), Cisco Meraki, HPE (Aruba) and Ubiquiti. Our cnReach IIoT products and solutions compete with GE MDS and Freewave. Our cnMatrix cloud-managed switch platform competes with Ubiquiti, Ruckus, HPE and MikroTik. As our target markets continue to develop and expand, and as the technology for wireless broadband continues to evolve, we expect competition to increase. We also expect consolidation to impact the competitive landscape, such as the acquisition by Arris Group of Ruckus Wireless in 2017, and the subsequent acquisition of Arris Group by CommScope in 2019, as well as the acquisition of Aerohive by Extreme Networks in August 2019.

Demand for our solutions versus those of our competitors is influenced by a variety of factors, including the following:

- Product quality, performance, features and functionality, and reliability;
- Depth and breadth of sales channel;
- Brand awareness and reputation;
- Total cost of ownership and return on investment associated with the products;
- Ease of configuration, installation and use of the products;
- Ability to provide a complete compatible and scalable solution;
- Broad application across a range of use cases;
- Ability to allow centralized management of the products and network to better enable better network planning, including scalable provisioning, configuration, monitoring and complete network visualization; and
- Strength, quality and scale of pre- and post-sales product support.

We expect increased competition from our current competitors, as well as emerging companies and established companies, such as Nokia, Ericsson, Huawei and NEC, that may enter our markets. Further, we have in the past and may again experience price competition from lower cost vendors selling to network operators that have lower budget or less demanding applications than our products have been designed to serve. To address these competitive conditions, we introduced our lower cost ePMP and PTP 550 products that allow us to target certain market segments without compromising our gross margins on our more sophisticated and functionally versatile products. We also expect that even higher cost competitors may engage in price competition to establish greater market share, which may adversely affect our ability to grow our revenues and profitability. Competition could result in loss of market share, increased pricing pressure, reduced profit margins, increased sales and marketing expense, any of which would likely cause serious harm to our business, operating results or financial condition.

A number of our current or potential competitors have longer operating histories, greater name recognition, significantly larger customer bases and sales channels and significantly greater financial, technical, sales, marketing and other resources than we do. Our competitors may be able to anticipate, influence or adapt more quickly to new or emerging technologies and changes in network operator requirements, devote greater resources to the promotion and sale of their products and services, initiate or withstand substantial price competition, bundle similar products to compete, take advantage of acquisitions or other opportunities more readily, and develop and expand their product and service offerings more quickly than we can.

Some of our competitors have been acquired or entered into partnerships or other strategic relationships to offer a more comprehensive solution than they had individually offered. We expect this trend to continue. The companies resulting from such consolidation may create more compelling products and be able to offer greater pricing flexibility, making it more difficult for us to compete effectively. In addition, continued industry consolidation might adversely affect network operators' perceptions of the viability of smaller and even medium-sized wireless broadband equipment providers and, consequently, network operators' willingness to purchase from those companies.

Additionally, the markets for development, distribution and sale of our products are rapidly evolving. New entrants seeking to gain market share by introducing new technology and new products may make it more difficult for us to sell our products, and could create increased pricing pressure, reduced profit margins due to increased expenditure on sales and marketing, or the loss of market share or expected market share, any of which may significantly harm our business, operating results and financial condition. The success of new products depends on several factors, including appropriate new product definition, component costs, timely completion and introduction of products, differentiation of new products from those of our competitors and market acceptance of these products. We may not be able to successfully anticipate or adapt to changing technology on a timely basis, or at all. New technologies could render our existing products less attractive and if such technologies are widely adopted as the industry standard for wireless Internet service providers, our business financial condition, results of operations and prospects could be materially adversely affected.

We rely on third-party manufacturers, which subjects us to risks of product delivery delays and reduced control over product costs and quality.

We outsource the manufacturing of our products to third-party manufacturers such as Flextronics, with whom we entered into an agreement pursuant to which Flextronics manufactures and supplies certain of our products subject to orders from us and our demand forecasts. In certain cases, we rely on third-party manufacturers to design products to our specifications and license those designs back to us. Purchases from these third-party manufacturers account for the most significant portion of our cost of revenues. Our reliance on third-party manufacturers reduces our control over the manufacturing process, including reduced control over quality, product costs and product supply and timing. From time to time, we have experienced and may in the future experience delays in shipments or issues concerning product quality from our third-party manufacturers. For example, in the third quarter of 2018, we experienced a delay in expected bookings for new products that in turn led us to delay procurement of finished goods from our contract manufacturers. The delay resulted in our inability to fulfill orders placed late in the quarter and a delay in recognition for these sales until the fourth quarter of 2018. If any of our third-party manufacturers suffer interruptions, delays or disruptions in supplying our products, including by natural disasters or work stoppages or capacity constraints, our ability to ship products to distributors and network operators would be delayed. Additionally, if any of our third-party manufacturers experience quality control problems in their manufacturing operations and our products do not meet network operators' requirements, we could be required to cover the repair or replacement of any defective products. These delays or product quality issues could have an immediate and material adverse effect on our ability to fulfill orders and could have a negative impact on our operating results. In addition, such delays or issues with product quality could harm our reputation and our relationship with our channel partners.

Our agreements do not typically obligate our third-party manufacturers to supply products to us in specific quantities or for an extended term, which could result in short notice to us of supply shortages and increases in the prices we are charged for manufacturing services. We believe that our orders may not represent a material portion of the total orders of our primary third-party manufacturers, such as Flextronics, and, as a result, fulfilling our orders may not be prioritized in the event they are constrained in their abilities or resources to fulfill all of their customer obligations in a timely manner. Although we provide demand forecasts to some of our third-party manufacturers, such forecasts are not generally binding and if we overestimate our requirements, some of our third-party manufacturers may assess charges, or we may have liabilities for excess inventory, each of which could negatively affect our gross margins. Conversely, because lead times for required materials and components vary significantly and depend on factors such as the specific supplier, contract terms and the demand for each component at a given time, if we underestimate our requirements, our third-party manufacturer may have inadequate materials and components required to produce our products. This could result in an interruption of the manufacturing of our products, delays in shipments and deferral or loss of revenues.

If our third-party manufacturers experience financial, operational, manufacturing capacity or other difficulties, or experience shortages in required components, or if they are otherwise unable or unwilling to continue to manufacture our products in required volumes or at all, our supply may be disrupted, we may be required to seek alternate manufacturers and we may be required to re-design our products. It would be time-consuming and costly, and could be impracticable, to begin to use new manufacturers and designs and such changes could cause significant interruptions in supply and could have an adverse impact on our ability to meet our scheduled product deliveries and may subsequently lead to the loss of sales, delayed revenues or an increase in our costs, which could materially and adversely affect our business and operating results.

We rely on distributors and value-added resellers for the substantial majority of our sales, and the failure of our channel partners to promote and support sales of our products would materially reduce our expected future revenues.

We rely on channel partners for a substantial majority of our sales and our future success is highly dependent upon establishing and maintaining successful relationships with distributors and value-added resellers. Recruiting and retaining qualified channel partners and training them in our technology and products require significant time and resources. Our reliance on channel partners for sales of our products results in limited visibility into demand and channel inventory levels which in turn adversely impacts our ability to accurately forecast our future revenues. By relying on our channel partners, we may have less contact with network operators, thereby making it more difficult for us to establish brand awareness, service ongoing network operator requirements and respond to evolving needs for new product functionality.

Sales through distributors have been highly concentrated in a few distributors, with over 43%, 40%, and 37% of our revenues in 2016, 2017 and 2018, respectively, coming from our three largest distributors. In addition, certain of our distributors may rely disproportionately on sales to a small number of end customers. For example, purchases from Aikom Technology by an end customer accounted for 12% of our revenues in 2016 and 2017. Termination or degradation of a relationship with a major distributor, or of a distributor with its major customer, could result in a temporary or permanent material loss of revenues. We may not be successful in finding other distributors on satisfactory terms, or at all, and our distributors may fail to maintain or replace business with their major customer, either of which could adversely affect our ability to sell in certain geographic markets or to certain network operators, adversely impacting our revenues, cash flow and market share.

We generally do not require minimum purchase commitments from our channel partners, and our agreements do not prohibit our channel partners from offering products or services that compete with ours or from terminating our contract on short notice. Many of our channel partners also sell products from our competitors. Some of our competitors may have stronger relationships with our channel partners than we do and we have limited control, if any, over the sale by our channel partners of our products instead of our competitors' products, or over the extent of the resources devoted to market and support our competitors' products, rather than our products or solutions. Our competitors may be more effective in providing incentives to existing and potential channel partners to favor their products or to prevent or reduce sales of our products. Our failure to establish and maintain successful relationships with our channel partners would materially and adversely affect our business, operating results and financial condition.

Our revenue growth rate in recent periods may not be indicative of our future performance.

Our revenue growth rate in recent periods may not be indicative of our future performance. For example, our revenues grew 11.4% from the third quarter of 2018 to the third quarter of 2019. We may not achieve similar revenue growth rates in future periods. You should not rely on our revenues for any prior quarterly or annual period as any indication of our future revenues or revenue growth. If we are unable to maintain consistent revenues or revenue growth, our operating results and the trading price of our shares could be materially affected.

Our third-party logistics and warehousing provider may fail to deliver products to our channel partners and network operators in a timely manner, which could harm our reputation and operating results.

We rely on our third-party logistics and warehousing provider, with distribution hubs in the United States, the Netherlands and China, to fulfill the majority of our worldwide sales and deliver our products on a timely basis. Any delay in delivery of our products to distributors or network operators could create dissatisfaction, harm our reputation, result in the loss of future sales and, in some cases, subject us to penalties. We rely on our third-party logistics and warehousing provider to accurately segregate and record our inventory for us and to report to us the receipt and shipments of our products. Our third-party logistics and warehousing provider also manage and track the delivery of our products from the warehouse and safeguards our inventory, which accounts for a vast majority of our inventory balance. The failure of our third-party logistics and warehousing provider to perform these key tasks sufficiently could disrupt the shipment of our products to distributors and network operators or cause errors in our recorded inventory, either of which could adversely affect our business and operating results.

Our ability to sell our products is highly dependent on the quality of our support and services offerings, and our failure to offer high-quality support and services could have a material adverse effect on our business, operating results and financial condition.

Network operators rely on our products for critical applications and, as such, high-quality support is critical for the successful marketing and sale of our products. If we or our channel partners do not provide adequate support to network operators in deploying our products or in resolving post-deployment issues quickly, our reputation may be harmed and our ability to sell our products could be materially and adversely affected.

If we or our distributors and channel partners are unable to attract new network operators or sell additional products to network operators that currently use our products, our revenue growth would be adversely affected and our revenues could decrease.

To increase our revenues, we depend on the adoption of our solutions by network operators that purchase our products through our channel partners. Network operators typically need to make substantial investments when deploying network infrastructure, which can delay a purchasing decision. Once a network operator has deployed infrastructure for a particular portion of its network, it is often difficult and costly to switch to another vendor's equipment. Although our ePMP Elevate product enables network operators to use Cambium PMP equipment to leverage an installed base of CPE provided by certain other vendors, if we or our channel partners are unable to demonstrate that our products offer significant performance, functionality or cost advantages to the competitor's product, it would be difficult for us to generate sales to that network operator once a competitor's equipment has been deployed.

Our future success also depends significantly on additional purchases of our products by network operators that have previously purchased our products. Network operators may choose not to purchase additional products because of several factors, including dissatisfaction with our products or pricing relative to competitive offerings, reductions in network operators' spending levels or other causes outside of our control. If we are not able to generate repeat purchases from network operators, our revenues may grow more slowly than expected or may decline, and our business and operating results would be adversely affected.

The seasonality of our business creates significant variance in our quarterly revenues, which makes it difficult to compare or forecast our financial results on a quarter-by-quarter basis.

Our revenues fluctuate on a seasonal basis, which affects the comparability of our results between sequential periods. While generally consistent, in certain periods other business factors have masked this seasonal pattern and the quantifiable effects of these seasonal variations are difficult to predict accurately. For example, in the second quarter of 2019 we achieved record sales level in part driven by sales to a large customer in Europe, Middle East, Africa region, but we also experienced declines in our Asia Pacific region due to delayed spending in the government sector. These factors introduce risk into our business as we rely upon forecasts of demand to build inventory in advance of anticipated sales. If our sales mix changes, or if the geographic mix of our sales changes, the seasonal nature of our revenues may change in unpredictable ways, which could increase the volatility of both our financial results and share price.

We require third-party components, including components from limited or sole source suppliers, to build our products. The unavailability of these components could substantially disrupt our ability to manufacture our products and fulfill sales orders.

We rely on third-party components to build our products, and we rely on our third-party manufacturers to obtain the components necessary for the manufacture of our products. If we underestimate our requirements or our third-party suppliers are not able to timely deliver components, our third-party manufacturers may have inadequate materials and components required to produce our products. This could result in an interruption in the manufacture of our products, delays in shipments and deferral or loss of revenues.

We have in the past and may in the future experience shortages in available supply of required components. Unpredictable price increases for such components may also occur. We and our third-party manufacturers generally rely on purchase orders rather than long-term contracts with suppliers of required components. As a result, our third-party manufacturers may not be able to secure sufficient components at reasonable prices or of acceptable quality to build our products in a timely manner, adversely impacting our ability to meet demand for our products. In addition, if our component suppliers cease manufacturing needed components, we could be required to redesign our products to incorporate components from alternative sources or designs, a process which would cause significant delays in the manufacture and delivery of our products.

We currently depend on a limited number of suppliers for several critical components for our products, including chipsets from Qualcomm Atheros. In some instances, we use sole or single source suppliers for our components to simplify design and fulfillment logistics. Neither we nor our third-party manufacturers carry substantial inventory of our product components. Many of these components are also widely used in other product types. Shortages are possible and our ability to predict the availability of such components may be limited. In the event of a shortage or supply interruption from our component suppliers, we or our third-party manufacturers may not be able to develop alternate or second sources in a timely manner, on commercially reasonable terms or at all, and the development of alternate sources may be time-consuming, difficult and costly. Any resulting failure or delay in shipping products could result in lost revenues and a material and adverse effect on our operating results.

Our gross margin varies from period to period and may decline in the future.

Our gross margin varies from period to period, may be difficult to predict and may decline in future periods. Variations in our gross margin are generally driven by shifts in the mix of products we sell, the timing and related cost of fulfilling orders and other factors. In addition, the market for wireless broadband solutions is characterized by rapid innovation and declining average sale prices as products mature in the marketplace. The sales prices and associated gross margin for our products may decline due to change in sales strategy, competitive pricing pressures, demand, promotional discounts and seasonal changes in demand. Larger competitors with more diverse product and service offerings may reduce the price of products or services that compete with ours or may bundle them with other products and services. If we meet such price reductions but do not similarly reduce our product manufacturing costs, our margins would decline. Any decline in our gross margins could have an adverse impact on the trading price of our shares.

Our products are technologically complex and may contain undetected hardware defects or software bugs, which could result in increased warranty claims, loss of revenues and harm to our reputation.

Our products are technologically complex and, when deployed, are critical to network operations. Our products rely on our proprietary embedded software, and have in the past contained and may in the future contain undetected errors, bugs or security vulnerabilities, or suffer reliability or quality issues. Some defects in our products may only be discovered after a product has been installed and used by network operators. Any errors, bugs, defects, security vulnerabilities or quality or reliability issues discovered in our products after commercial release could result in increased warranty claims, damage to our reputation and brand, loss of market shares or loss of revenues, any of which could adversely affect our business, operating results and financial condition. In addition, our products operate in part in outdoor settings and must withstand environmental effects such as severe weather, lightning or other damage. Our products may also contain latent defects and errors from time to time related to embedded third-party components.

We have in the past and may in the future become subject to warranty claims that may require us to make significant expenditures to repair or replace defective products, or redesign our products to eliminate product vulnerabilities. We may in the future also be the subject of product liability claims. Such claims could require a significant amount of time and expense to resolve and defend against and could harm our reputation by calling into question the quality of our products. We also may incur costs and expenses relating to a recall of one or more of our products. The process of identifying recalled products that have been widely distributed may be lengthy and require significant resources and we may incur significant replacement costs, contract damage claims from network operators and harm to our reputation. Additionally, defects and errors may cause our products to be vulnerable to security attacks, cause them to fail to help secure networks or temporarily interrupt network traffic. Although we disclaim responsibility for certain warranty and product liability claims as well as product recalls or security problems, any substantial costs or payments made in connection with warranty and product liability claims, product recalls or security problems could cause our operating results to decline and harm our brand.

If our channel partners do not effectively manage inventory of our products, fail to timely resell our products or overestimate expected future demand, they may reduce purchases in future periods, causing our revenues and operating results to fluctuate or decline.

Our channel partners purchase and maintain inventories of our products to meet future demand and have only limited rights to return the products they have purchased from us. Our channel partners are not generally committed to volume purchases of our products in any period. Accordingly, if our channel partners purchase more product than is required to meet demand in a particular period, causing their inventory levels to grow, they may delay or reduce additional future purchases, causing our quarterly results to fluctuate and adversely impacting our ability to accurately predict future earnings.

If we are not able to effectively forecast demand or manage our inventory, we may be required to record write-downs for excess or obsolete inventory.

We maintain inventory of finished goods and, to a lesser extent, raw materials that we believe are sufficient to allow timely fulfillment of sales. Growth in our sales and new product launches may require us to build inventory in the future. Higher levels of inventory expose us to a greater risk of carrying excess or obsolete inventory, which may in turn lead to write-downs. We may also record write-downs in connection with the end-of-life for specific products. For example, in 2018 we recorded \$1.7 million in inventory write-downs due to increased provisions on raw materials, product end-of-life and tightening of provisions. Decisions to increase or maintain higher inventory levels are typically based upon uncertain forecasts or other assumptions. Because the markets in which we compete are volatile, competitive and subject to rapid technology and price changes, if the assumptions on which we base these decisions turn out to be incorrect, our financial performance could suffer and we could be required to write-off the value of excess products or components inventory.

We are exposed to the credit risk of our channel partners, which could result in material losses.

We generate a substantial majority of our revenues through sales to our distributors. Distributors may not have the resources required to meet payment obligations, or may delay payments if their end customers are late making payments. Our exposure to credit risks of our channel partners and their end customers may increase if such entities are adversely affected by global or regional economic conditions. Given the broad geographic coverage of our distributor relationships, we have in the past and may in the future experience difficulties surrounding the collection of payments. Any significant delay or default in the collection of significant accounts receivable could result in the need for us to obtain working capital from other sources.

If we do not effectively expand and train our direct sales force, we may be unable to increase sales.

Although we rely on channel partners to fulfill the substantial majority of our sales, our direct sales force plays a critical role driving our sales through direct engagement with network operators. We have invested and will continue to invest substantially in our sales organization. Our sales headcount has grown from 87 as of December 31, 2016 to 131 as of September 30, 2019, as we focus on growing our business, entering new markets and increasing our market share, and we expect to incur significant additional expenses as we continue to expand our sales organization in order to achieve revenue growth. There is significant competition for sales personnel with the skills and technical knowledge that we require. Our ability to achieve significant revenue growth will depend, in large part, on our success in recruiting, training, retaining and integrating sufficient numbers of sales personnel to support our growth, particularly in international markets. New hires require significant training and may take significant time before they achieve full productivity. Our recent hires and planned hires may not become productive as quickly as we expect, and we may be unable to hire and retain sufficient numbers of qualified individuals in all locations where we expect to grow our sales organization. If we are unable to hire and train a sufficient number of effective sales personnel, or the sales personnel we hire do not achieve expected levels of productivity, our business, operating results and financial condition could be materially adversely affected.

Our business and prospects depend on the strength of our brand. Failure to maintain and enhance our brand would harm our ability to increase sales by expanding our network of channel partners as well as the number of network operators who purchase our products.

Maintaining and enhancing our brand is critical to expanding our base of channel partners and the number of network operators who purchase our products. Maintaining and enhancing our brand will depend largely on our ability to continue to develop products and solutions that provide the high quality at attractive economics sought by network operators. If we fail to promote, maintain and protect our brand successfully, our ability to sustain and expand our business and enter new markets will suffer. Our brand may be impaired by a number of factors, including product failure and counterfeiting. If we fail to maintain and enhance our brand, or if we need to incur unanticipated expenses to establish the brand in new markets, our operating results would be negatively affected.

If we are unable to manage our growth and expand our operations successfully, our business and operating results will be harmed.

We have expanded our operations significantly since inception and anticipate that further significant geographic and market expansion will be required to achieve our business objectives. The growth and expansion of our geographic sales, expansion of our products and our entry into new industry verticals places a significant strain on our management, operational and financial resources. Any such future growth would also add complexity to and require effective coordination throughout our organization. To manage any future growth effectively, we must continue to improve and expand our information technology and financial infrastructure, our operating and administrative systems and controls, and our ability to manage headcount, capital and processes in an efficient manner. We may not be able to successfully implement improvements to these systems and processes in a timely or efficient manner, which could result in additional operating inefficiencies and could cause our costs to increase more than planned. If we do increase our operating expenses in anticipation of the growth of our business and this growth does not meet our expectations, our operating results may be negatively impacted. If we are unable to manage future expansion, our ability to provide high quality products and services could be harmed, which could damage our reputation and brand and may have a material adverse effect on our business, operating results and financial condition.

Our sales cycles can be long and unpredictable and our sales efforts require considerable time and expense. As a result, our sales and revenues are difficult to predict and may vary substantially from period to period.

Our sales efforts involve educating channel partners and network operators about the technical capabilities, applications and benefits of our products. Network operators typically require long sales cycles to select a product supplier and place sales orders. The sale process usually begins with an evaluation, followed by one or more network trials, followed by vendor selection and finally installation, testing and deployment. Network operator purchasing activity depends upon the stage of completion of expanding network infrastructures and the availability of funding, among other factors. We spend substantial time and resources on our sales efforts without any assurance that our efforts will produce any sales. In addition, purchases of our products are frequently subject to budget constraints, multiple approvals, and unplanned administrative, processing and other delays. Moreover, the evolving nature of the market may lead prospective network operators to postpone their purchasing decisions pending resolution of network standards or adoption of technology by others. Network operators may also postpone a purchase decision pending the release of new or enhanced products by us or others. As a result, it is difficult to predict whether a sale will be completed, the particular period in which a sale will be completed or the period in which revenues from a sale will be recognized. Our operating results may therefore vary significantly from quarter to quarter.

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

We derive a portion of our revenues from contracts with government agencies and we believe the success and growth of our business will in part depend on our continued and increasing sales to U.S. and foreign, federal, state and local governmental end customers in the future. However, demand from government agencies is often unpredictable, and we may be unable to maintain or grow our revenues from this market. Sales to government agencies are subject to substantial risks, including but not limited to the following:

- selling to government agencies can be highly competitive, expensive and time-consuming, often requiring significant upfront time and expense without any assurance that such efforts will generate a sale;
- government entities may have statutory, contractual or other legal rights to terminate contracts with our channel partners or us for convenience or due to a default, and any such termination may adversely impact our future business, financial condition, results of operations and prospects;
- U.S. or other government certification requirements applicable to our goods and services may be difficult to meet, require an additional administrative or compliance burden on us not found in our commercial contracts, and if we are unable to meet these certification requirements, our ability to sell into the government sector may be adversely impacted until we have attained required certifications;
- government demand and payment for our services may be adversely impacted by public sector budgetary cycles and funding constraints;
- selling to government entities may require us to comply with various regulations that are not applicable to sales to non-government entities, including regulations that may relate to pricing, classified material and other matters, or requirements regarding the development and maintenance of programs such as small business subcontracting, or compliance with EEOC requirements. Complying with such regulations may also require us to put in place controls and procedures to monitor compliance with the applicable regulations that may be costly or not possible;
- the U.S. government may require certain products that it purchases to be manufactured in the United States and other relatively high-cost manufacturing locations under Buy American Act or other regulations, and we may not manufacture all products in locations that meet these requirements, which may preclude our ability to sell some products or services; and
- governments may investigate and audit government contractors' administrative and financial processes and compliance with laws and regulations applicable to government contractors, and any unfavorable audit could result in fines, civil or criminal liability, damage to our reputation and suspension or debarment from further government business.

The occurrence of any of the foregoing could cause governments and governmental agencies to delay or refrain from purchasing our products in the future which could materially and adversely affect our operating results.

We generate a significant amount of revenues from sales outside of the United States, and we are therefore subject to a number of risks associated with international sales and operations.

We have extensive international operations and generate a significant amount of revenues from sales to channel partners in Europe, the Middle East and Africa, Asia-Pacific and South America. For example, sales outside of the United States accounted for 58% of our total revenues in 2016 and 2017 and 57% in 2018. We rely on our third-party logistics and warehousing provider, with distribution hubs in the United States, the Netherlands and China, to fulfill the majority of our worldwide sales and to deliver our products to our customers. We have estimated the geographical distribution of our product revenues based on the ship-to destinations specified by our distributors when placing orders with us. Our ability to grow our business and our future success will depend on our ability to continue to expand our global operations and sales worldwide.

As a result of our international reach, we must hire and train experienced personnel to manage our international operations. If we experience difficulties in recruiting, training, managing and retaining an international staff, and specifically staff related to sales management and sales personnel, we may experience difficulties expanding our sales outside of the United States. If we are not able to maintain these relationships internationally or to recruit additional channel partners, our future international sales could be limited. Business practices in the international markets that we serve may differ from those in the United States and may require us in the future to include terms other than our standard terms in contracts. In addition, we face risks to our business based on changes in tariffs, trade barriers, export regulations, political conditions and contractual restrictions. For example, our cost of goods in the Wi-Fi and switch product line, as well as most of our ePMP products, has been adversely affected by U.S. tariffs on goods produced for us in China and later imported into the United States. We also have products manufactured for us in Mexico, and there is increasing uncertainty of trade relations between Mexico and the United States. To date the effect of increased tariffs has not been material to our overall operating results. However, our future operating results could be materially affected to the extent additional tariffs are imposed by the United States or other countries.

Our international sales and operations are subject to a number of risks, including the following:

- fluctuations in currency exchange rates, which could drive fluctuations in our operating expenses;
- required local regulatory certifications in each jurisdiction, which may be delayed for political or other reasons other than product quality or performance;
- requirements or preferences for domestic products, which could reduce demand for our products;
- differing technical standards, existing or future regulatory and certification requirements and required product features and functionality;
- management communication problems related to entering new markets with different languages, cultures and political systems;
- difficulties in enforcing contracts and collecting accounts receivable, and longer payment cycles, especially in emerging markets;
- heightened risks of unfair or corrupt business practices in certain geographies and of improper or fraudulent sales arrangements that may impact financial results and result in restatements of, and irregularities in, financial statements;
- difficulties and costs of staffing and managing foreign operations;
- the uncertainty of protection of intellectual property rights in some countries;
- potentially adverse tax consequences, including regulatory requirements regarding our ability to repatriate profits to the United Kingdom;
- requirements to comply with foreign privacy, information security, and data protection laws and regulations and the risks and costs of non-compliance;
- added legal compliance obligations and complexity;
- the increased cost of terminating employees in some countries; and
- political and economic instability and terrorism.

These and other factors could harm our ability to generate future international revenues. Expanding our existing international operations and entering into additional international markets will require significant management attention and financial commitments. Our failure to successfully manage our international operations and the associated risks effectively could limit our future growth or materially adversely affect our business, operating results and financial condition.

Economic conditions and regulatory changes following the United Kingdom's likely exit from the European Union could adversely impact our operations, operating results and financial condition.

Following the referendum in June 2016 in which voters in the United Kingdom approved an exit from the European Union, the U.K. government initiated the formal process to leave the European Union (often referred to as Brexit) on March 29, 2017. Uncertainty exists as to the timing as well as the provisions governing, the U.K.'s departure from the European Union. The future effects of Brexit will depend on any agreements the United Kingdom makes to retain access to the European Union or other markets either during a transitional period or more permanently. Given the lack of comparable precedent, it is unclear what economic, financial, trade and legal implications the withdrawal of the United Kingdom from the European Union would have generally and how such withdrawal would affect us.

A withdrawal could, among other outcomes, disrupt the free movement of goods, services and people between the United Kingdom and the European Union, undermine bilateral cooperation in key geographic areas, disrupt the markets we serve, and significantly disrupt trade between the United Kingdom and the European Union or other nations as the United Kingdom pursues independent trade relations. Since we derive most of our revenues through our U.K. subsidiary, which owns our intellectual property, the consequences of Brexit, together with the significant uncertainty regarding the terms on which the U.K. will leave the European Union, could adversely change our tax benefits or liabilities in certain jurisdictions and adversely impact our trade operations and our management of our export compliance from our Netherlands distribution hub. Our U.K. operations may be adversely affected as we become subject to new laws and regulations implemented in the U.K. as part of Brexit, including compliance with U.K. labor and other regulations as well as compliance with EU privacy laws. Brexit could also create uncertainty with respect to the legal and regulatory requirements over the operation of our products to which we and our network operators in the U.K. are subject and lead to divergent national laws and regulations as the U.K. government determines which EU laws to replace or replicate.

While we are not experiencing any immediate adverse impact on our financial condition as a direct result of Brexit, the effects of Brexit will depend on any agreements the United Kingdom makes to retain access to the European Union or other markets either during a transitional period or more permanently. Compliance with new laws or regulations regarding trade, delivery and other cross-border activities between the United Kingdom and the European Union could be costly, negatively impacting our business, financial condition, operating results and cash flows.

The loss of key personnel or an inability to attract, retain and motivate qualified personnel may impair our ability to expand our business.

Our success is substantially dependent upon the continued service and performance of our senior management team and key technical, marketing and production personnel. Our employees, including our senior management team, are at-will employees, and therefore may terminate employment with us at any time with no advance notice. The replacement of any members of our senior management team or other key personnel likely would involve significant time and costs and may significantly delay or prevent the achievement of our business objectives.

Our future success also depends, in part, on our ability to continue to attract and retain highly skilled personnel. Competition for highly skilled personnel is frequently intense, particularly for highly skilled research and development personnel. Any failure to successfully attract or retain qualified personnel to fulfill our current or future needs may negatively impact our growth.

If we fail to maintain an effective system of internal controls, our ability to produce timely and accurate financial statements or comply with applicable regulations could be impaired.

As a public company, we are subject to the reporting requirements of the Exchange Act, the Sarbanes-Oxley Act, and the rules and regulations of Nasdaq. The requirements of these rules and regulations has and will increase our legal, accounting and financial compliance costs, make some activities more difficult, time-consuming and costly and place significant strain on our personnel, systems and resources.

The Sarbanes-Oxley Act requires, among other things, that we maintain effective disclosure controls and procedures over financial reporting. We are continuing to develop and refine our disclosure controls, internal control over financial reporting and other procedures that are designed to ensure that information required to be disclosed by us in the reports that we will file with the SEC is recorded, processed, summarized and reported within the time periods specified in SEC rules and forms, and that information required to be disclosed in reports under the Exchange Act is accumulated and communicated to our principal executive and financial officers.

Our current controls and any new controls we develop may become inadequate because of growth in our business. Further, weaknesses in our internal controls have been discovered and additional ones may be discovered in the future. Any failure to develop or maintain effective controls, or any difficulties encountered in their implementation or improvement, could harm our operating results or cause us to fail to meet our reporting obligations and may result in a restatement of our financial statements for prior periods. Any failure to implement and maintain effective internal controls also could adversely affect the results of periodic management evaluations and annual independent registered public accounting firm attestation reports regarding the effectiveness of our internal control over financial reporting that we will be required to include in our periodic reports we will file with the SEC under Section 404 of the Sarbanes-Oxley Act once we cease to be an emerging growth company. Ineffective disclosure controls and procedures and internal control over financial reporting could also cause investors to lose confidence in our reported financial and other information, which would likely have a negative effect on the market price of our shares.

We have expended and anticipate we will continue to expend significant resources, and we expect to provide significant management oversight, to maintain and improve the effectiveness of our disclosure controls and procedures and internal controls over financial reporting. Despite our efforts, at December 31, 2017, we identified two material weaknesses in our internal control over financial reporting. While we have remediated these material weaknesses as of December 31, 2018, any future failure to maintain the adequacy of our internal controls, or consequent inability to produce accurate financial statements on a timely basis, could increase our operating costs and could materially impair our ability to operate our business. If our internal controls are perceived as inadequate or we are unable to produce timely or accurate financial statements, investors may lose confidence in our operating results and our share price could decline. In addition, if we are unable to continue to meet these requirements, we may not be able to remain listed on Nasdaq.

Our independent registered public accounting firm is not required to formally attest to the effectiveness of our internal control over financial reporting until after we are no longer an emerging growth company. At such time, our independent registered public accounting firm may issue a report that is adverse in the event it is not satisfied with the level at which our controls are documented, designed or operating. Any failure to maintain effective disclosure controls and internal control over financial reporting could have a material and adverse effect on our business and operating results and could cause a decline in the price of our shares.

A substantial portion of our product portfolio relies on the availability of unlicensed RF spectrum and if such spectrum were to become unavailable through overuse or licensing, the performance of our products could suffer and our revenues from their sales could decrease.

A substantial portion of our product portfolio operates in unlicensed RF spectrum, which is used by a wide range of consumer devices and is becoming increasingly crowded. If such spectrum usage continues to increase through the proliferation of consumer electronics and products competitive with ours, the resultant higher levels of noise in the bands of operation our products use could decrease the effectiveness of our products, which could adversely affect our ability to sell our products. Our business could be further harmed if currently unlicensed RF spectrum becomes licensed in the United States or elsewhere. Network operators that use our products may be unable to obtain licenses for RF spectrum. Even if the unlicensed spectrum remains unlicensed, existing and new governmental regulations may require we make changes in our products. For example, to provide products for network operators who utilize unlicensed RF spectrum, we may be required to limit their ability to use our products in licensed or otherwise restricted RF spectrum. The operation of our products by network operators in the United States or elsewhere in a manner not in compliance with local law could result in fines, operational disruption, or harm to our reputation.

Our business, operating results and growth rates may be adversely affected by current or future unfavorable economic and market conditions.

Our business depends on the overall demand for wireless network technology and on the economic health and general willingness of our current and prospective end-customers to make those capital commitments necessary to purchase our products. If the conditions in the U.S. and global economies deteriorate, become uncertain or volatile, our business, operating results and financial condition may be materially adversely affected. Economic weakness, end-customer financial difficulties, limited availability of credit and constrained capital spending have resulted, and may in the future result, in challenging and delayed sales cycles, slower adoption of new technologies and increased price competition, and could negatively impact our ability to forecast future periods, which could result in an inability to satisfy demand for our products and a loss of market share.

In particular, we cannot be assured of the level of spending on wireless network technology, the deterioration of which would have a material adverse effect on our results of operations and growth rates. The purchase of our products or willingness to replace existing infrastructure is discretionary and highly dependent on a perception of continued rapid growth in consumer usage of mobile devices and in many cases involves a significant commitment of capital and other resources. Therefore, weak economic conditions or a reduction in capital spending would likely adversely impact our business, operating results and financial condition. A reduction in spending on wireless network technology could occur or persist even if economic conditions improve.

In addition, if interest rates rise or foreign exchange rates weaken for our international customers, overall demand for our products and services could decline and related capital spending may be reduced. Furthermore, any increase in worldwide commodity prices may result in higher component prices for us and increased shipping costs, both of which may negatively impact our financial results.

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

To execute on our business strategy, we may acquire or make investments in complementary companies, products or technologies. We have not made any acquisitions to date, and as a result, our ability as an organization to acquire and integrate other companies, products or technologies in a successful manner is unproven. We may not be able to find suitable acquisition candidates, and we may not be able to complete such acquisitions on favorable terms, if at all. If we do complete acquisitions, we may not ultimately strengthen our competitive position or achieve our goals, and any acquisitions we complete could be viewed negatively by our channel partners, investors and financial analysts. In addition, if we are unsuccessful at integrating such acquisitions, or the technologies associated with such acquisitions, into our company, the revenues and operating results of the combined company could be adversely affected. Any integration process may require significant time and resources, and we may be unable to manage the process successfully. We may not successfully evaluate or utilize the acquired technology or personnel, or accurately forecast the financial impact of an acquisition transaction, including unexpected liability or accounting charges. We may pay cash, incur debt or issue equity securities to pay for any future acquisition, each of which could adversely affect our financial condition or the value of our shares. The sale of equity or issuance of debt to finance any such acquisitions could result in dilution to our shareholders. The incurrence of indebtedness would result in increased fixed obligations and could also include covenants or other restrictions that would impede our ability to manage our operations.

Our credit facility contains restrictive financial covenants that may limit our operating flexibility.

Our credit facility contains certain restrictive covenants that either limit our ability to, or require a mandatory prepayment in the event we, among other things, incur additional indebtedness and liens, merge with other companies or consummate certain changes of control, acquire other companies, engage in new lines of business, change business locations, make certain investments, make any payments on any subordinated debt, transfer or dispose of assets, amend certain material agreements, and enter into various specified transactions. We, therefore, may not be able to engage in any of the foregoing transactions unless we obtain the consent of our lenders or prepay certain amounts under the credit facility. The credit facility also contains certain financial covenants and financial reporting requirements. We have in the past, and may in the future, fail to comply with all of the financial or restrictive covenants of our credit facility, requiring a waiver from our lenders. Our obligations under the credit facility are secured by substantially all of our assets. We may not be able to generate or sustain sufficient cash flow or sales to meet the financial covenants or pay the principal and interest under the credit facility, and we may in the future be unable to meet our financial covenants, requiring additional waivers that our lenders may be unwilling to grant. Furthermore, our future working capital, proceeds of borrowings or proceeds of equity financings could be required to be used to repay or refinance the amounts outstanding under the credit facility and, therefore, may be unavailable for other purposes. In the event of a liquidation, our lenders would be repaid all outstanding principal and interest prior to distribution of assets to unsecured creditors, and the holders of our shares would receive a portion of any liquidation proceeds only if all of our creditors, including our lenders, were first repaid in full.

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

We have substantial operations in Illinois, California, England and India, and our third-party manufacturers are predominantly located in Mexico, China, Taiwan and Israel. Operations in some of these areas are susceptible to disruption due to severe weather, seismic activity, political unrest and other factors. For example, a significant natural disaster, such as an earthquake, a fire or a flood, occurring at the facilities of one of our third-party manufacturers could have a material adverse impact on their ability to manufacture and timely deliver our products. Despite the implementation of network security measures, we also may be vulnerable to computer viruses, break-ins and similar disruptions from unauthorized tampering with our solutions. In addition, natural disasters, acts of terrorism or war could cause disruptions in the businesses of our suppliers, manufacturers, network operators or the economy as a whole. To the extent that any such disruptions result in delays or cancellations of orders or impede our ability to timely deliver our products, or the deployment of our products, our business, operating results and financial condition would be adversely affected.

Risks related to our industry

New regulations or standards or changes in existing regulations or standards in the United States or internationally related to our products may result in unanticipated costs or liabilities, which could have a material adverse effect on our business, results of operations and future sales.

Our products are subject to governmental regulations in a variety of jurisdictions. To achieve and maintain market acceptance, our products must comply with these regulations as well as a significant number of industry standards. In the United States, our products must comply with various regulations defined by the Federal Communications Commission, or FCC, Underwriters Laboratories and others. We must also comply with similar international regulations. In addition, radio emissions, such as our products, are subject to health and safety regulation in the United States and in other countries in which we do business, including by the Center for Devices and Radiological Health of the Food and Drug Administration, the Occupational Safety and Health Administration and various state agencies. Member countries of the European Union have enacted similar standards concerning electrical safety and electromagnetic compatibility and emissions, and chemical substances and use standards. As these regulations and standards evolve, and if new regulations or standards are implemented, we could be required to modify our products or develop and support new versions of our products, and our compliance with these regulations and standards may become more burdensome. The failure of our products to comply, or delays in compliance, with the various existing and evolving industry regulations and standards could prevent or delay introduction of our products, which could harm our business. Foreign regulatory agencies may delay or fail to certify our products for political or other reasons other than product quality or performance. Network operator uncertainty regarding future policies may also affect demand for wireless broadband products, including our products. Our inability to alter our products to address these requirements and any regulatory changes may have a material adverse effect on our business, operating results and financial condition.

We are subject to governmental export and import controls that could impair our ability to compete in international markets and subject us to liability if we are not in compliance with applicable laws.

Our technology and products are subject to export control and import laws and regulations, including the U.S. Export Administration Regulations, U.S. customs regulations, the economic and trade sanctions regulations administered by the U.S. Treasury Department's Office of Foreign Assets Controls, and applicable U.K. export and import laws and regulations. Exports, re-exports and transfers of our products and technology must be made in compliance with these laws and regulations. U.S. and U.K. export control laws and economic sanctions include a prohibition on the shipment of certain products and technology to embargoed or sanctioned countries, governments and persons. We take precautions to prevent our products and technology from being shipped to, downloaded by or otherwise transferred to applicable sanctions targets, but our products could be shipped to those targets by our channel partners despite such precautions. For example, in 2014, our LinkPlanner software was downloaded by persons in sanctioned countries. We self-reported the instance to OFAC and have taken remedial measures to safeguard against re-occurrence. If our products are shipped to or downloaded by sanctioned targets in the future in violation of applicable export laws, we could be subject to government investigations, penalties and reputational harm. Certain of our products incorporate encryption technology and may be exported, re-exported or transferred only with the required applicable export license from the U.S. or the U.K. or through an export license exception.

If we fail to comply with applicable export and import regulations, customs regulations, and economic and sanctions and other laws, we could be subject to substantial civil and criminal penalties, including fines and incarceration for responsible employees and managers, and the possible loss of export or import privileges as well as harm our reputation and indirectly have a material adverse effect on our business, operating results and financial condition. In addition, if our channel partners fail to comply with applicable export and import regulations, customs regulations, and economic and sanctions and other laws in connection with our products and technology, then we may also be adversely affected, through reputational harm and penalties. Obtaining the necessary export license for a particular sale may be time-consuming, may result in the delay or loss of sales opportunities and approval is not guaranteed.

Any change in export or import, customs or trade and economic sanctions laws, and regulations, shift in the enforcement or scope of existing laws and regulations, or change in the countries, governments, persons or technologies targeted by such laws and regulations, could also result in decreased use of our products, or in our decreased ability to export or sell our products to existing or potential network operators with international operations. Any decreased use of our products or limitation on our ability to export or sell our products could affect our business, financial condition and results of operations.

We do business in countries with a history of corruption and transact business with foreign governments, which increases the risks associated with our international activities.

We are subject to the U.S. Foreign Corrupt Practices Act of 1977, as amended, or the FCPA, the U.K. Bribery Act of 2010, and many other laws around the world that prohibit improper payments or offers or authorization of payments to governments and their employees, officials, and agents and political parties for the purpose of obtaining or retaining business, inducing an individual to not act in good faith, direct business to any person, or secure any advantage. We have operations, deal with and make sales to governmental entities in countries known to experience corruption, particularly certain emerging countries in Asia, Eastern Europe, the Middle East and South America. Our activities in these countries create the risk of illegal or unauthorized payments or offers of payments or other things of value by our employees, consultants or channel partners that could be in violation of applicable anti-corruption laws, including the FCPA. In many foreign countries where we operate, particularly in countries with developing economies, it may be a local custom for businesses to engage in practices that are prohibited by the FCPA or other similar laws and regulations. Although we have taken actions to discourage and prevent illegal practices including our anti-corruption compliance policies, procedures, training and monitoring, the actions taken to safeguard against illegal practices, and any future improvements in our anti-corruption compliance practices, may not be effective, and our employees, consultants or channel partners may engage in illegal conduct for which we might be held responsible. Violations of anti-corruption laws may result in severe criminal or civil sanctions, including suspension or debarment from government contracting, and we may be subject to other liabilities and significant costs for investigations, litigation and fees, diversion of resources, negative press coverage, or reputational harm, all of which could negatively affect our business, operating results and financial condition. In addition, the failure to create and maintain accurate books and records or the failure to maintain an adequate system of internal accounting controls may subject us to sanctions.

If we fail to comply with environmental requirements, our business, financial condition, operating results and reputation could be adversely affected.

We are subject to various environmental laws and regulations including laws governing the hazardous material content of our products and laws relating to the recycling of electrical and electronic equipment. The laws and regulations to which we are subject include the European Union's Restriction of Hazardous Substances Directive, or RoHS, and Waste Electrical and Electronic Equipment Directive, or WEEE, as implemented by EU member states. Similar laws and regulations exist or are pending in other regions, including in the United States, and we are, or may in the future be, subject to these laws and regulations.

RoHS restricts the use of certain hazardous materials, including lead, mercury and cadmium, in the manufacture of certain electrical and electronic products, including some of our products. We have incurred, and expect to incur in the future, costs to comply with these laws, including research and development costs, and costs associated with assuring the supply of compliant components. Certain of our products are eligible for an exemption for lead used in network infrastructure equipment. If this exemption is revoked, or if there are other changes to RoHS (or its interpretation) or if similar laws are passed in other jurisdictions, we may be required to reengineer our products to use components compatible with these regulations. This reengineering and component substitution could result in additional costs to us or disrupt our operations or logistics.

WEEE requires producers of electrical and electronic equipment to be responsible for the collection, reuse, recycling and treatment of their products. Currently, our distributors generally take responsibility for this requirement, as they are often the importer of record. However, changes to WEEE and existing or future laws similar to WEEE may require us to incur additional costs in the future.

Any failure to comply with current and future environmental laws could result in the incurrence of fines or penalties and could adversely affect the demand for or sales of our products.

If we were not able to satisfy data protection, security, privacy and other government- and industry-specific requirements or regulations, our business, results of operations and financial condition could be harmed.

Personal privacy, data protection, information security and telecommunications-related laws and regulations have been widely adopted in the United States, Europe and in other jurisdictions where we offer our products. The regulatory frameworks for these matters, including privacy, data protection and information security matters, is rapidly evolving and is likely to remain uncertain for the foreseeable future. We expect that there will continue to be new proposed laws, regulations and industry standards concerning privacy, data protection, information security and telecommunications services in the United States, the European Union and other jurisdictions in which we operate or may operate, and we cannot yet determine the impact such future laws, regulations and standards may have on our business. For example, the European Commission adopted the General Data Protection Regulation, effective in May 2018, that will supersede current EU data protection legislation, impose more stringent EU data protection requirements and impose greater penalties for noncompliance. Additionally, California enacted the California Consumer Privacy Act of 2018, which takes effect on January 1, 2020, and will broadly define personal information, give California residents expanded privacy rights and protections and provide for civil penalties for violations. We expect that existing laws, regulations and standards may be interpreted in new manners in the future. Future laws, regulations, standards and other obligations, and changes in the interpretation of existing laws, regulations, standards and other obligations could require us to modify our products, restrict our business operations, increase our costs and impair our ability to maintain and grow our channel partner base and increase our revenues.

Although we work to comply with applicable privacy and data security laws and regulations, industry standards, contractual obligations and other legal obligations, those laws, regulations, standards and obligations are evolving and may be modified, interpreted and applied in an inconsistent manner from one jurisdiction to another, and may conflict with one another. As such, we cannot assure ongoing compliance with all such laws, regulations, standards and obligations. Any failure or perceived failure by us to comply with applicable laws, regulations, standards or obligations, or any actual or suspected security incident, whether or not resulting in unauthorized access to, or acquisition, release or transfer of personally identifiable information or other data, may result in governmental enforcement actions and prosecutions, private litigation, fines and penalties or adverse publicity, and could cause channel partners to lose trust in us, which could have an adverse effect on our reputation and business.

Risks related to our intellectual property

We rely on the availability of third-party licenses, the loss of which could materially harm our ability to sell our products.

We rely on certain software or other intellectual property licensed from third parties. It may be necessary in the future to seek new licenses or renew existing licenses. There can be no assurance that the necessary licenses would be available on acceptable terms, if at all. If we are unable to maintain these licenses, or obtain licenses to alternative third-party intellectual property, on acceptable terms, we may be precluded from selling our products, may be required to re-design our products to eliminate reliance on such third-party intellectual property or otherwise experience disruption in operating our business. Third parties owning such intellectual property may engage in litigation against us seeking protection of their intellectual property rights, any of which could have a material adverse effect on our business, operating results, and financial condition.

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

We protect our proprietary information and technology through license agreements, nondisclosure agreements, noncompetition covenants, and other contractual provisions and agreements, as well as through patent, trademark, copyright and trade secret laws in the United States and similar laws in other countries. These protections may not be available in all jurisdictions and may be inadequate to prevent our competitors or other third-party manufacturers from copying, reverse engineering or otherwise obtaining and using our technology, proprietary rights or products. For example, the laws of certain countries in which our products are manufactured or licensed do not protect our proprietary rights to the same extent as the laws of the United States. In addition, third parties may seek to challenge, invalidate or circumvent our patents, trademarks, copyrights and trade secrets, or applications for any of the foregoing. We have focused patent, trademark, copyright and trade secret protection primarily in the United States and Europe, although we distribute our products globally. As a result, we may not have sufficient protection of our intellectual property in all countries where infringement may occur. There can be no assurance that our competitors will not independently develop technologies that are substantially equivalent or superior to our technology or design around our proprietary rights. In each case, our ability to compete could be significantly impaired. To prevent substantial unauthorized use of our intellectual property rights, it may be necessary to prosecute actions for infringement and/or misappropriation of our proprietary rights against third parties. Any such action could result in significant costs and diversion of our resources and management's attention, and we may not be successful in such action.

Claims by others that we infringe their intellectual property rights could harm our business.

Our industry is characterized by vigorous protection and pursuit of intellectual property rights. A number of companies hold a large number of patents that may cover technology necessary to our products. We have in the past received and expect to continue to receive claims by third parties that we infringe their intellectual property rights. For example, on August 7, 2018, Ubiquiti Networks, Inc. filed a lawsuit, which we refer to as the Ubiquiti Litigation, in the United States District Court, Northern District of Illinois, against us, two of our employees, one of our distributors and one of our end users. The complaint alleged that our development of and sales and promotion of our Elevate software as downloaded on a Ubiquiti device violates the Computer Fraud and Abuse Act and Illinois Computer Crimes Prevention Law, the Digital Millennium Copyright Act and the Copyright Act and constitutes misrepresentation and false advertising and false designation of origin in violation of the Lanham Act and state competition laws, breach of contract, tortious interference with contract and unfair competition, and trademark infringement and common law misappropriation. The complaint also asserted additional claims against all defendants alleging that the development and sales of Elevate violated the Racketeer Influenced and Corrupt Organizations Act. On May 22, 2019, the Court issued its order dismissing Ubiquiti's complaint without prejudice. On June 18, 2019, Ubiquiti filed its First Amended Complaint (FAC). The FAC makes substantially the same claims against the same parties with the exception that the FAC does not include claims for violation of the Illinois Computer Crime Prevention Law, Infringement of Registered Trademarks, False Designation of Origin, and Common Law Trademark Misappropriation that were included in the initial complaint. We filed a motion to dismiss the FAC on July 10, 2019. ON July 15, 2019, Ubiquiti filed a motion to lift the stay of discovery previously imposed by the court. Our response to Ubiquiti's motion to lift the stay was filed on July 31, 2019. Ubiquiti filed a response to our motion to dismiss on August 13, 2019. We filed a reply in support of our motion to dismiss on August 27, 2019. The Court held a hearing on both matters on September 4, 2019 and took the matters under submission. The Court set a status conference for November 7, 2019. There can be no assurance that we will prevail in the lawsuit.

On September 20, 2019, VenKee Communications, LLC filed a lawsuit against us in the United States District Court for the Western District of Texas. The complaint alleges that our cnPilot products violate U.S. Patent 7,916,684 entitled "Wireless Communication Network Providing Communication Between Mobile Devices and Access Points" owned by plaintiff. We have obtained an extension of time to respond to the complaint to November 14, 2019. The lawsuit is in its early stages and we cannot currently estimate the loss or range of losses, if any, that it may experience in connection with this litigation.

In addition, we have received correspondence from certain patent holding companies who assert that we infringe certain patents related to wireless communication technologies. We cannot assure you that a court adjudicating a claim that we infringe these patents would rule in our favor should these patent holding companies file suit against us. As our business expands, we enter into new technologies, and the number of products and competitors in our market increases, we expect that infringement claims may increase in number and significance. It is not uncommon for suppliers of certain components of our products, such as chipsets, to be involved in intellectual property-related lawsuits by or against third parties. Our key component suppliers are often targets of such assertions, and we may become a target as well. Any claims or proceedings against us, whether meritorious or not, could be time-consuming, result in costly litigation, require significant amounts of management time or result in the diversion of significant operational resources, any of which could materially and adversely affect our business and operating results.

Intellectual property lawsuits are subject to inherent uncertainties due to the complexity of the technical issues involved, and we cannot be certain that we will be successful in defending ourselves against intellectual property claims. In addition, we currently have a limited portfolio of issued patents compared to our larger competitors, and therefore may not be able to effectively utilize our intellectual property portfolio to assert defenses or counterclaims in response to patent infringement claims or litigation brought against us by third parties. Patent holding companies may seek to monetize patents they previously developed, have purchased or otherwise obtained. Many companies, including our competitors, may now, and in the future, have significantly larger and more mature patent portfolios than we have, which they may use to assert claims of infringement, misappropriation and other violations of intellectual property rights against us. In addition, future litigation may involve non-practicing entities or other patent owners who have no relevant products or revenue and against whom our own patents may therefore provide little or no deterrence or protection, and many other potential litigants have the capability to dedicate substantially greater resources than we do to enforce their intellectual property rights and to defend claims that may be brought against them.

A successful claimant could secure a judgment that requires us to pay substantial damages or prevents us from distributing certain products, obtaining the services of certain employees or independent contractors, or performing certain services. In addition, we might be required to seek a license for the use of such intellectual property, which may not be available on commercially acceptable terms or at all. Alternatively, we may be required to develop non-infringing technology, which could require significant effort and expense and may ultimately not be successful. Any claims or proceedings against us, whether meritorious or not, could be time consuming, result in costly litigation, require significant amounts of management time, result in the diversion of significant operational resources, or require us to enter into royalty or licensing agreements.

Although we may be able to seek indemnification from our component suppliers and certain of our third-party manufacturers who have provided us with design and build services, these third-party manufacturers or component suppliers may contest their obligations to indemnify us, or their available assets or indemnity obligation may not be sufficient to cover our losses.

Our obligations to indemnify our channel partners and network operators against intellectual property infringement claims could cause us to incur substantial costs.

We have agreed, and expect to continue to agree, to indemnify our channel partners and network operators for certain intellectual property infringement claims, such as the Ubiquiti Litigation. If intellectual property infringement claims are made against our channel partners or network operators concerning our products, we could be required to indemnify them for losses resulting from such claims or to refund amounts they have paid to us. The maximum potential amount of future payments we could be required to make may be substantial or unlimited and could materially harm our business. We may in the future agree to defend and indemnify our distributors, network operators and other parties, even if we do not believe that we have an obligation to indemnify them or that our services and products infringe the asserted intellectual property rights. Alternatively, we may reject certain of these indemnity demands, which may lead to disputes with a distributor, network operator or other party and may negatively impact our relationships with the party demanding indemnification or result in litigation against us.

If our third-party manufacturers do not respect our intellectual property and trade secrets and produce competitive products using our design, our business would be harmed.

We outsource manufacture, and in some cases hardware design, to third-party manufacturers predominantly in Mexico and China. Prosecution of intellectual property infringement and trade secret theft is more difficult in some of these jurisdictions than in the United States. Although our agreements with our third-party manufacturers generally preclude them from misusing our intellectual property and trade secrets, or using our designs to manufacture product for our competitors, we may be unsuccessful in monitoring and enforcing our intellectual property rights and may find counterfeit goods in the market being sold as our products or products similar to ours produced for our competitors using our intellectual property. Although we take steps to stop counterfeits, we may not be successful and network operators who purchase these counterfeit goods may experience product defects or failures, harming our reputation and brand and causing us to lose future sales.

We use open source software in our products that may subject our firmware to general release or require us to re-engineer our products and the firmware contained therein, which may cause harm to our business.

We incorporate open source software into our products. Use and distribution of open source software may entail greater risks than use of third-party commercial software, as open source licensors generally do not provide warranties or other contractual protections regarding infringement claims or the quality of the software code. Some open source licenses contain requirements that we make available source code for modifications or derivative works we create based upon the open source software and that we license such modifications or derivative works under the terms of a particular open source license or other license granting third parties certain rights of further use. If we combine our proprietary firmware or other software with open source software in a certain manner, we could, under certain of the open source licenses, be required to release our proprietary source code publicly or license such source code on unfavorable terms or at no cost. Open source license terms relating to the disclosure of source code in modifications or derivative works to the open source software are often ambiguous and few if any courts in jurisdictions applicable to us have interpreted such terms. As a result, many of the risks associated with usage of open source software cannot be eliminated, and could, if not properly addressed, negatively affect our business.

If we were found to have inappropriately used open source software, we may be required to release our proprietary source code, re-engineer our firmware or other software, discontinue the sale of our products in the event re-engineering cannot be accomplished on a timely basis or take other remedial action that may divert resources away from our development efforts, any of which could adversely increase our expenses and delay our ability to release our products for sale. We could also be subject to similar conditions or restrictions should there be any changes in the licensing terms of the open source software incorporated into our products.

Risks related to ownership of our ordinary shares

Because Vector Capital holds a controlling interest in us, the influence of our public shareholders over significant corporate actions will be limited.

Affiliates of Vector Capital directly or indirectly own approximately 75% of our outstanding shares through their ownership of VCH, L.P. As a result, Vector Capital has the power to:

- control all matters submitted to our shareholders;
- elect our directors; and
- exercise control over our business, policies and affairs.

Vector Capital is not prohibited from selling its interest in us to third parties. Accordingly, our ability to engage in significant transactions, such as a merger, acquisition or liquidation, is limited without the consent of Vector Capital. Conflicts of interest could arise between us and Vector Capital, and any conflict of interest may be resolved in a manner that does not favor us. Vector Capital may continue to retain control of us for the foreseeable future and may decide not to enter into a transaction in which you would receive consideration for your shares that is much higher than the cost to you or the then-current market price of those shares. In addition, Vector Capital could elect to sell a controlling interest in us and you may receive less than the then-current fair market value or the price you paid for your shares. Any decision regarding their ownership of us that Vector Capital may make at some future time will be in their absolute discretion.

In addition, pursuant to the terms of our Amended and Restated Memorandum and Articles of Association, Vector Capital and its affiliates have the right to, and have no duty to abstain from, exercising its right to engage or invest in the same or similar business as us, and do business with any of our channel partners, distributors, network operators and any other party with which the Company does business. In the event that any of our directors or officers who is also a director, officer or employee of Vector Capital or its affiliates acquires knowledge of a corporate opportunity or is offered a corporate opportunity, then Vector Capital or its affiliates may pursue or acquire such corporate opportunity without presenting the corporate opportunity to us without liability, and to the maximum extent permitted by applicable law, such relevant director will be deemed to have fully satisfied their fiduciary duty if the knowledge of such corporate opportunity was not acquired solely in such person's capacity as our director or officer and such person acted in good faith.

In addition, pursuant to our Amended and Restated Memorandum and Articles of Association, a director who is in any way interested in a contract or transaction with the Company will declare the nature of his interest at a meeting of the board of directors. A director may vote in respect of any such contract or transaction notwithstanding that he may be interested therein and if he does so his vote will be counted and he may be counted in the quorum at any meeting of the board of directors at which any such contract or transaction shall come before the meeting of the board of directors for consideration. We have adopted a written audit committee charter, pursuant to which the audit committee must review all related party transactions required to be disclosed in our financial statements and approve any such related party transaction, unless the transaction is approved by another independent committee of our board.

We are a controlled company within the meaning of Nasdaq rules and, as a result, we qualify for and are relying on exemptions from certain corporate governance requirements.

Vector Capital controls a majority of the voting power of our outstanding shares and as a result, we are a controlled company within the meaning of the corporate governance standards of the Nasdaq. Under Nasdaq rules, a controlled company may elect not to comply with certain corporate governance requirements of the Nasdaq, including the requirements that:

- a majority of the board of directors consist of independent directors;
- the nominating and corporate governance committee be composed entirely of independent directors with a written charter addressing the committee's purpose and responsibilities;
- the compensation committee be composed entirely of independent directors with a written charter addressing the committee's purpose and responsibilities; and
- there be an annual performance evaluation of the nominating and corporate governance and compensation committees.

We are utilizing these exemptions, including the exemption for a board of directors composed of a majority of independent directors. In addition, although we have adopted charters for our audit and compensation committees and intend to conduct annual performance evaluations for these committees, none of these committees are or will be in the foreseeable future be composed entirely of independent directors. We are relying on the phase-in rules of the SEC and Nasdaq with respect to the audit committee. These rules permit us to have an audit committee that is comprised of one independent member at the time of the effectiveness of our registration statement for our IPO which occurred on June 25, 2019, a majority of members that are independent within 90 days thereafter, and all members that are independent within one year thereafter. Accordingly, you may not have the same protections afforded to shareholders of companies that are subject to all of the corporate governance requirements of Nasdaq.

The price of our shares may be volatile, and you could lose all or part of your investment.

The trading price of our shares may fluctuate substantially. The trading price of our shares will depend on a number of factors, including those described in this "Risk factors" section, many of which are beyond our control and may not be related to our operating performance. These fluctuations could cause you to lose all or part of your investment in our shares since you might be unable to sell your shares at or above the price you paid for them. Factors that could cause fluctuations in the trading price of our shares include the following:

- the financial projections we may provide to the public, any changes in those projections or our failure to meet those projections;
- actual or anticipated developments in our business or our competitors' businesses or the competitive landscape generally;
- sales of our shares by us or our shareholders or hedging activities by market participants;
- failure of financial analysts to maintain coverage of us, changes in financial estimates by any analysts who follow our company, or our failure to meet these estimates or the expectations of investors;
- operating performance or stock market valuations of other technology companies generally, or those in our industry in particular;
- announced or completed acquisitions of businesses or technologies by us or our competitors;
- general economic conditions and slow or negative growth of our markets;
- rumors and market speculation involving us or other companies in our industry;
- litigation involving us, our industry or both or investigations by regulators into our operations or those of our competitors;

- developments or disputes concerning our intellectual property or other proprietary rights;
- new laws or regulations or new interpretations of existing laws or regulations applicable to our business;
- changes in accounting standards, policies, guidelines, interpretations or principles;
- any major change in our management; and
- other events or factors, including those resulting from war, incidents of terrorism or responses to these events.

In addition, the stock market in general, and the market for technology companies in particular, have experienced extreme price and volume fluctuations that have often been unrelated or disproportionate to the operating performance of those companies. Broad market and industry factors may seriously affect the market price of our shares, regardless of our actual operating performance. In the past, following periods of volatility in the overall market and the market prices of particular companies' securities, securities class action litigations have often been instituted against these companies. Litigation of this type, if instituted against us, could result in substantial costs and a diversion of our management's attention and resources.

Our memorandum and articles of association contain anti-takeover provisions that could have a material adverse effect on the rights of holders of our shares.

Our Amended and Restated Memorandum and Articles of Association contain provisions to limit the ability of others to acquire control of our company through non-negotiated transactions. These provisions could have the effect of depriving our shareholders of an opportunity to sell their shares at a premium over prevailing market prices by discouraging third parties from seeking to obtain control of our company in a tender offer or similar transaction. For example, our board of directors has the authority to issue undesignated, or "blank-check," preferred shares without shareholder approval. As a result, our board of directors could authorize and issue a series of preferred shares with terms calculated to delay or prevent a change in control of our company or make removal of management more difficult, which may not be in your interest as a holder of our ordinary shares. In addition, our board is staggered and divided into three classes, with each class subject to re-election once every three years on a rotating basis, special meeting of shareholders may only be called by a specified group of directors, executives or shareholders and shareholders must comply with advance notice provisions in order to bring business before or nominate directors for election at shareholder meetings. As a result, shareholders would be prevented from electing an entirely new board of directors at any annual meeting and the ability of shareholders to change the membership of a majority of our board of directors may be delayed.

Because we are incorporated under Cayman Islands law, you may face difficulties in protecting your interests, and your ability to protect your rights through U.S. courts may be limited.

We are an exempted company incorporated under the laws of the Cayman Islands. Our corporate affairs are governed by our Amended and Restated Memorandum and Articles of Association, the Companies Law (2018 Revision) of the Cayman Islands and the common law of the Cayman Islands. The rights of shareholders to take action against the directors, actions by minority shareholders and the fiduciary responsibilities of our directors to us under Cayman Islands law are governed by the common law of the Cayman Islands and we have adopted an exclusive forum by law that requires certain shareholder litigations regarding such matters to be brought in Cayman Courts. These exclusive forum provisions do not apply to claims under U.S. federal securities laws. The common law of the Cayman Islands is derived in part from comparatively limited judicial precedent in the Cayman Islands as well as from the common law of England, the decisions of whose courts are of persuasive authority, but are not binding, on a court in the Cayman Islands. The rights of our shareholders and the fiduciary responsibilities of our directors under Cayman Islands law are not as clearly established as they would be under statutes or judicial precedent in some jurisdictions in the United States. In particular, the Cayman Islands has a less developed body of securities laws than the United States. Some U.S. states, such as Delaware, have more fully developed and judicially interpreted bodies of corporate law than the Cayman Islands.

Shareholders of Cayman Islands exempted companies like us have no general rights under Cayman Islands law to inspect corporate records or to obtain copies of lists of shareholders of these companies. Our directors have discretion under our existing articles of association to determine whether or not, and under what conditions, our corporate records may be inspected by our shareholders, but are not obliged to make them available to our shareholders. This may make it more difficult for you to obtain the information needed to establish any facts necessary for a shareholder motion or to solicit proxies from other shareholders in connection with a proxy contest.

In addition, the Cayman Islands courts are also unlikely (1) to recognize or enforce against us judgments of courts of the United States based on certain civil liability provisions of U.S. securities laws, or (2) to impose liabilities against us, in original actions brought in the Cayman Islands, based on certain civil liability provisions of U.S. securities laws that are penal in nature. There is no statutory recognition in the Cayman Islands of judgments obtained in the United States, although the courts of the Cayman Islands will in certain circumstances recognize and enforce a foreign judgment of a foreign court of competent jurisdiction without any re-examination of the merits at common law.

As a result of all of the above, our public shareholders may have more difficulty in protecting their interests in the face of actions taken by management, members of the board of directors or large shareholders than they would as shareholders of a public company incorporated in the United States. For a discussion of significant differences between the provisions of the Companies Law (2018 Revision) of the Cayman Islands and the laws applicable to companies incorporated in the United States and their shareholders, see “Description of share capital—Differences in corporate law” in our Prospectus filed on June 26, 2019.

We are an emerging growth company, and any decision on our part to comply only with certain reduced disclosure requirements applicable to emerging growth companies could make our shares less attractive to investors.

We are an emerging growth company, as defined in the JOBS Act, and, for as long as we continue to be an emerging growth company, we may choose to take advantage of exemptions from various reporting requirements applicable to other public companies but not to emerging growth companies, including, but not limited to, not being required to comply with the auditor attestation requirements of Section 404 of the Sarbanes-Oxley Act, reduced disclosure obligations regarding executive compensation in our periodic reports and proxy statements, and exemptions from the requirements of holding a nonbinding advisory vote on executive compensation and shareholder approval of any golden parachute payments not previously approved. We could be an emerging growth company for up to five years, although if the market value of our shares that is held by non-affiliates exceeds \$700 million as of any June 30 before that time or if we have total annual gross revenues of \$1.07 billion or more during any fiscal year before that time, we would cease to be an emerging growth company as of the end of that fiscal year, or if we issue more than \$1 billion in non-convertible debt in a three-year period, we would cease to be an emerging growth company immediately. Investors may find our shares less attractive because we choose to rely on these exemptions. If some investors find our shares less attractive as a result of our choice to reduce our disclosures, there may be a less active trading market for our shares and our share price may be more volatile.

Under the JOBS Act, emerging growth companies can delay adopting new or revised accounting standards until such time as those standards apply to private companies. We have irrevocably elected not to avail ourselves of this exemption from new or revised accounting standards and, therefore, we will be subject to the same new or revised accounting standards as other public companies that are not emerging growth companies.

Our directors may have conflicts of interest because of their ownership of equity interests of, and their employment with, our parent company and our affiliates.

Two of our directors hold ownership interests in Vector Capital as well as ownership in and employment positions with its affiliates. Ownership interests in Vector Capital by our directors could create, or appear to create, potential conflicts of interest when our directors are faced with decisions that could have different implications for us and for Vector Capital or its affiliates. We cannot assure you that any conflicts of interest will be resolved in our favor. For a further description of our relationship with Vector Capital, see “Certain relationships and related party transactions—Transactions with VCH, L.P. and its affiliates” in our Prospectus filed on June 26, 2019.

We may face exposure to unknown tax liabilities, which could adversely affect our financial condition, cash flows and results of operations .

We are subject to income and non-income based taxes in the United States and in various non-U.S. jurisdictions. We file U.S. federal income tax returns as well as income tax returns in various U.S. state and local jurisdictions and many non-U.S. jurisdictions. The United States, United Kingdom, India, Mexico, and Brazil are the main taxing jurisdictions in which we operate. Significant judgment is required in dealing with uncertainties in the application of complex tax regulations when calculating our worldwide income tax liabilities and other tax liabilities. We are not aware of any uncertain tax positions as specified by FASB Interpretation No. 48, Accounting for Uncertainty in Income Taxes. We expect to continue to benefit from our implemented tax positions. We believe that our tax positions comply with applicable tax law and intend to vigorously defend our positions. However, as described below, tax authorities could take differing positions on certain issues.

We may be subject to income tax audits in all the jurisdictions in which we operate. The years open for audit vary depending on the tax jurisdiction. In the United States, we are no longer subject to U.S. federal income tax examinations by tax authorities for years before 2015. In the non-U.S. jurisdictions, the tax returns that are open vary by jurisdiction and are generally for tax years between 2012 through 2018. We routinely assess exposures to any potential issues arising from current or future audits of current and prior years' tax returns. When assessing such potential exposures and where necessary, we provide a reserve to cover any expected loss. To the extent that we establish a reserve, we increase our provision for income taxes. If we ultimately determine that payment of these amounts is unnecessary, we reverse the liability and recognize a tax benefit during the period in which we determine that the liability is no longer necessary. We record an additional charge in our provision for taxes in the period in which we determine that tax liability is greater than the original estimate. If the governing tax authorities have a differing interpretation of the applicable law, a successful challenge of any of our tax positions could adversely affect our financial condition, cash flows and/or results of operations.

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

(a) Sales of unregistered securities

Just prior to the IPO, the Company effected the Recapitalization, which comprised (i) an increase in the authorized and outstanding shares held by VCH, L.P. and (ii) an exchange of the vested share-based compensation awards held by the Company's employees for its shares and unvested share-based compensation awards for restricted shares or restricted share units issued by the Company, each on a value-for-value basis. As a result, and based on the IPO price of \$12.00, the Company issued (a) 17,627,575 shares to VCH, L.P. and (b) 2,220,788 shares to its employees and service providers, of which 91,125 shares were withheld from the employees and services providers in net settlement of amounts due.

(b) Use of proceeds

On June 28, 2019, we completed our IPO in which we sold 5,800,000 ordinary shares at a price of \$12.00 per share. The offer and sale of all of the shares in the IPO were registered under the Securities Act pursuant to a registration statement on Form S-1 (File No. 333-21789), which was declared effective by the SEC on June 25, 2019. We raised approximately \$61.4 million in net proceeds after deducting underwriting discounts and commissions of \$3.6 million and \$4.6 million for offering expenses. We used a portion of the proceeds to pay down debt of \$30.7 million on July 1, 2019, to pay \$5.6 million on July 3, 2019 to Vector Capital Management, an affiliate of (i) Vector Cambium Holdings (Cayman), L.P., who owns 75% of our outstanding ordinary shares and (ii) Robert Amen and Alexander Slusky, members of our board of directors. The managing underwriters of our IPO were J.P. Morgan Securities LLC and Goldman Sachs & Co. LLC. In addition, on August 5, 2019, we used \$2.0 million of the net proceeds to pay to Riverbed Technology, Inc. the initial purchase price of the acquisition of assets and liabilities of its Xirrus Wi-Fi business.

Item 3. Defaults Upon Senior Securities.

None.

Item 4. Mine Safety Disclosures.

Not applicable.

Item 5. Other Information.

Not applicable.

Item 6. Exhibits.

We have filed the exhibits listed on the accompanying Exhibit Index, which is incorporated herein by reference.

EXHIBIT INDEX

Exhibit Number	Description
31.1*	<u>Certification of Chief Executive Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.</u>
31.2*	<u>Certification of Chief Financial Officer Pursuant to Rules 13a-14(a) and 15d-14(a) under the Securities Exchange Act of 1934, as Adopted Pursuant to Section 302 of the Sarbanes-Oxley Act of 2002.</u>
32.1*	<u>Certification of Chief Executive Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.</u>
32.2*	<u>Certification of Chief Financial Officer Pursuant to 18 U.S.C. Section 1350, as Adopted Pursuant to Section 906 of the Sarbanes-Oxley Act of 2002.</u>
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document
101.LAB	XBRL Taxonomy Extension Label Linkbase Document
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document

* Filed herewith.

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.

Cambium Networks Corporation

Date: November 8, 2019

By: _____ /s/ ATUL BHATNAGAR
Atul Bhatnagar
President and Chief Executive Officer

Date: November 8, 2019

By: _____ /s/ STEPHEN CUMMING
Stephen Cumming
Chief Financial Officer

**CERTIFICATION PURSUANT TO
RULES 13a-14(a) AND 15d-14(a) UNDER THE SECURITIES EXCHANGE ACT OF 1934,
AS ADOPTED PURSUANT TO SECTION 302 OF THE SARBANES-OXLEY ACT OF 2002**

I, Stephen Cumming, certify that:

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

Date: November 8, 2019

By: _____ /s/ STEPHEN CUMMING

Stephen Cumming
Chief Financial Officer

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Quarterly Report of Cambium Networks Corporation (the "Company") on Form 10-Q for the period ending September 30, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 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; 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: November 8, 2019

By: _____ /s/ ATUL BHATNAGAR
Atul Bhatnagar
Chief Executive Officer

**CERTIFICATION PURSUANT TO
18 U.S.C. SECTION 1350, AS ADOPTED PURSUANT TO
SECTION 906 OF THE SARBANES-OXLEY ACT OF 2002**

In connection with the Quarterly Report of Cambium Networks Corporation (the "Company") on Form 10-Q for the period ending September 30, 2019 as filed with the Securities and Exchange Commission on the date hereof (the "Report"), I certify, pursuant to 18 U.S.C. § 1350, as adopted pursuant to § 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; 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: November 8, 2019

By: _____
/s/ STEPHEN CUMMING
Stephen Cumming
Chief Financial Officer