

PTC INC.
Form 10-Q
August 08, 2017

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

FORM 10-Q

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

For the quarterly period ended July 1, 2017

Commission File Number: 0-18059

PTC Inc.
(Exact name of registrant as specified in its charter)

Massachusetts 04-2866152
(State or other jurisdiction of (I.R.S. Employer
incorporation or organization) Identification Number)
140 Kendrick Street, Needham, MA 02494
(Address of principal executive offices, including zip code)
(781) 370-5000
(Registrant's telephone number, including area code)

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 and posted on its corporate Web site, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T during the preceding 12 months (or for such shorter period that the registrant was required to submit and post 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 Accelerated filer Non-accelerated filer Smaller reporting company
(Do not check if a smaller reporting company)

Emerging growth company

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

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

There were 115,607,536 shares of our common stock outstanding on August 4, 2017.

PTC Inc.
 INDEX TO FORM 10-Q
 For the Quarter Ended July 1, 2017

	Page Number
Part I—FINANCIAL INFORMATION	
Item 1. <u>Unaudited Condensed Financial Statements:</u>	
<u>Consolidated Balance Sheets as of July 1, 2017 and September 30, 2016</u>	<u>1</u>
<u>Consolidated Statements of Operations for the three and nine months ended July 1, 2017 and July 2, 2016</u>	<u>2</u>
<u>Consolidated Statements of Comprehensive Income (Loss) for the three and nine months ended July 1, 2017 and July 2, 2016</u>	<u>3</u>
<u>Consolidated Statements of Cash Flows for the nine months ended July 1, 2017 and July 2, 2016</u>	<u>4</u>
<u>Notes to Condensed Consolidated Financial Statements</u>	<u>5</u>
Item 2. <u>Management’s Discussion and Analysis of Financial Condition and Results of Operations</u>	<u>23</u>
Item 3. <u>Quantitative and Qualitative Disclosures about Market Risk</u>	<u>42</u>
Item 4. <u>Controls and Procedures</u>	<u>42</u>
Part II—OTHER INFORMATION	
Item 1. <u>Legal Proceedings</u>	<u>43</u>
Item 1A. <u>Risk Factors</u>	<u>43</u>
Item 2. <u>Unregistered Sales of Equity Securities and Use of Proceeds</u>	<u>43</u>
Item 6. <u>Exhibits</u>	<u>44</u>
<u>Signature</u>	<u>45</u>

PART I—FINANCIAL INFORMATION

ITEM 1. UNAUDITED CONDENSED FINANCIAL STATEMENTS

PTC Inc.
CONSOLIDATED BALANCE SHEETS
(in thousands, except per share data)
(unaudited)

	July 1, 2017	September 30, 2016
ASSETS		
Current assets:		
Cash and cash equivalents	\$260,695	\$ 277,935
Short term marketable securities	19,277	18,695
Accounts receivable, net of allowance for doubtful accounts of \$1,419 and \$1,012 at July 1, 2017 and September 30, 2016, respectively	128,561	161,357
Prepaid expenses	60,507	52,819
Other current assets	140,419	131,783
Total current assets	609,459	642,589
Property and equipment, net	63,443	67,113
Goodwill	1,175,628	1,169,813
Acquired intangible assets, net	269,825	310,305
Long term marketable securities	30,912	30,921
Deferred tax assets	110,172	89,692
Other assets	32,322	35,296
Total assets	\$2,291,761	\$ 2,345,729
LIABILITIES AND STOCKHOLDERS' EQUITY		
Current liabilities:		
Accounts payable	\$24,569	\$ 18,022
Accrued expenses and other current liabilities	69,574	84,141
Accrued compensation and benefits	94,575	145,633
Accrued income taxes	6,900	6,303
Deferred revenue	455,322	400,420
Total current liabilities	650,940	654,519
Long term debt	712,191	751,601
Deferred tax liabilities	22,203	13,754
Deferred revenue	9,994	13,237
Other liabilities	61,053	69,952
Total liabilities	1,456,381	1,503,063
Commitments and contingencies (Note 14)		
Stockholders' equity:		
Preferred stock, \$0.01 par value; 5,000 shares authorized; none issued	—	—
Common stock, \$0.01 par value; 500,000 shares authorized; 115,454 and 114,968 shares issued and outstanding at July 1, 2017 and September 30, 2016, respectively	1,154	1,150
Additional paid-in capital	1,597,820	1,598,548
Accumulated deficit	(668,275)	(657,079)
Accumulated other comprehensive loss	(95,319)	(99,953)
Total stockholders' equity	835,380	842,666
Total liabilities and stockholders' equity	\$2,291,761	\$ 2,345,729

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

1

PTC Inc.
CONSOLIDATED STATEMENTS OF OPERATIONS
(in thousands, except per share data)
(unaudited)

	Three months ended		Nine months ended	
	July 1, 2017	July 2, 2016	July 1, 2017	July 2, 2016
Revenue:				
Subscription	\$74,859	\$31,822	\$195,001	\$77,657
Support	140,428	161,881	433,624	494,262
Total recurring revenue	215,287	193,703	628,625	571,919
Perpetual license	32,348	44,648	94,099	132,100
Total subscription, support and license revenue	247,635	238,351	722,724	704,019
Professional services	43,658	50,301	134,936	148,277
Total revenue	291,293	288,652	857,660	852,296
Cost of revenue:				
Cost of license and subscription revenue	21,648	17,809	62,333	50,621
Cost of support revenue	23,635	21,055	69,028	63,670
Total cost of software revenue	45,283	38,864	131,361	114,291
Cost of professional services revenue	36,985	43,606	114,852	128,518
Total cost of revenue	82,268	82,470	246,213	242,809
Gross margin	209,025	206,182	611,447	609,487
Operating expenses:				
Sales and marketing	93,101	94,874	271,568	264,480
Research and development	59,850	57,118	175,474	171,397
General and administrative	35,294	35,485	108,789	107,968
Amortization of acquired intangible assets	7,973	8,294	23,986	25,040
Restructuring charges	1,551	2,815	8,300	44,541
Total operating expenses	197,769	198,586	588,117	613,426
Operating income (loss)	11,256	7,596	23,330	(3,939)
Interest expense	(10,200)	(8,164)	(32,239)	(19,511)
Interest income and other expense, net	(357)	(136)	2,049	(369)
Income (loss) before income taxes	699	(704)	(6,860)	(23,819)
Provision (benefit) for income taxes	1,650	(3,777)	4,336	2,173
Net income (loss)	\$(951)	\$3,073	\$(11,196)	\$(25,992)
Earnings (loss) per share—Basic	\$(0.01)	\$0.03	\$(0.10)	\$(0.23)
Earnings (loss) per share—Diluted	\$(0.01)	\$0.03	\$(0.10)	\$(0.23)
Weighted average shares outstanding—Basic	115,615	114,795	115,511	114,499
Weighted average shares outstanding—Diluted	115,615	115,698	115,511	114,499

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

PTC Inc.

CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)

(in thousands)

(unaudited)

	Three months ended		Nine months ended	
	July 1, 2017	July 2, 2016	July 1, 2017	July 2, 2016
Net income (loss)	\$ (951)	\$ 3,073	\$ (11,196)	\$ (25,992)
Other comprehensive income (loss), net of tax:				
Unrealized hedge gain (loss) arising during the period, net of tax of \$0.3 million and \$0 million in the third quarter of 2017 and 2016, respectively, and \$0 million in the first nine months of 2017 and 2016, respectively	(2,298)	361	224	(3,633)
Net hedge (gain) loss reclassified into earnings, net of tax of \$0 in the third quarter of 2017 and 2016, respectively, and \$0.1 million and \$0 million in the first nine months of 2017 and 2016, respectively	75	1,560	(777)	727
Change in unrealized gain (loss) on hedging instruments	(2,223)	1,921	(553)	(2,906)
Foreign currency translation adjustment, net of tax of \$0 for each period	17,553	(5,961)	3,893	(1,219)
Unrealized gain (loss) on marketable securities	21	7	(50)	7
Amortization of net actuarial pension loss included in net income, net of tax of \$0.2 million and \$0.2 million in the third quarter of 2017 and 2016, respectively, and \$0.7 million and \$0.5 million in the first nine months of 2017 and 2016, respectively	597	417	1,687	1,220
Change in unamortized pension income (loss) during the period related to changes in foreign currency	(1,721)	413	(343)	82
Total other comprehensive income (loss)	14,227	(3,203)	4,634	(2,816)
Comprehensive income (loss)	\$ 13,276	\$ (130)	\$ (6,562)	\$ (28,808)

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

PTC Inc.
CONSOLIDATED STATEMENTS OF CASH FLOWS
(in thousands)
(unaudited)

	Nine months ended	
	July 1, 2017	July 2, 2016
Cash flows from operating activities:		
Net loss	\$(11,196)	\$(25,992)
Adjustments to reconcile net loss to net cash provided by operating activities:		
Depreciation and amortization	64,187	64,721
Stock-based compensation	56,139	51,821
Excess tax benefits from stock-based awards	(397)	(94)
Other non-cash items, net	1,536	246
Changes in operating assets and liabilities, excluding the effects of acquisitions:		
Accounts receivable	34,913	58,499
Accounts payable, accrued expenses and other current liabilities	2,594	(17,303)
Accrued compensation and benefits	(50,518)	7,442
Deferred revenue	45,985	44,592
Accrued and deferred income taxes	(17,832)	(17,470)
Other current assets and prepaid expenses	(7,317)	4,249
Other noncurrent assets and liabilities	(16,028)	(1,115)
Net cash provided by operating activities	102,066	169,596
Cash flows from investing activities:		
Additions to property and equipment	(19,333)	(16,632)
Purchases of short- and long-term marketable securities	(14,173)	(44,605)
Proceeds from maturities of short- and long-term marketable securities	13,440	—
Acquisitions of businesses, net of cash acquired	(4,960)	(164,191)
Proceeds from sales of investments	15,218	—
Net cash used in investing activities	(9,808)	(225,428)
Cash flows from financing activities:		
Borrowings	150,000	670,000
Repayments of borrowings under credit facility	(190,000)	(560,000)
Repurchases of common stock	(34,994)	—
Proceeds from issuance of common stock	3,978	19
Excess tax benefits from stock-based awards	397	94
Credit facility origination costs	(184)	(6,759)
Contingent consideration	(11,054)	(10,621)
Payments of withholding taxes in connection with vesting of stock-based awards	(26,244)	(20,636)
Net cash provided by (used in) financing activities	(108,101)	72,097
Effect of exchange rate changes on cash and cash equivalents	(1,397)	4,944
Net increase (decrease) in cash and cash equivalents	(17,240)	21,209
Cash and cash equivalents, beginning of period	277,935	273,417
Cash and cash equivalents, end of period	\$260,695	\$294,626
The accompanying notes are an integral part of the condensed consolidated financial statements.		

PTC Inc.

NOTES TO CONDENSED CONSOLIDATED FINANCIAL STATEMENTS

(unaudited)

1. Basis of Presentation

General

The accompanying unaudited condensed consolidated financial statements include the accounts of PTC Inc. and its wholly owned subsidiaries and have been prepared by management in accordance with accounting principles generally accepted in the United States of America and in accordance with the rules and regulations of the Securities and Exchange Commission regarding interim financial reporting. Accordingly, they do not include all of the information and footnotes required by generally accepted accounting principles for complete financial statements. While we believe that the disclosures presented are adequate in order to make the information not misleading, these unaudited quarterly financial statements should be read in conjunction with our annual consolidated financial statements and related notes included in our Annual Report on Form 10-K for the fiscal year ended September 30, 2016. In the opinion of management, the accompanying unaudited condensed consolidated financial statements contain all adjustments, consisting only of those of a normal recurring nature, necessary for a fair statement of our financial position, results of operations and cash flows at the dates and for the periods indicated. Unless otherwise indicated, all references to a year mean our fiscal year, which ends on September 30. The September 30, 2016 Consolidated Balance Sheet included herein is derived from our audited consolidated financial statements.

Our fiscal year ends on September 30. Our fiscal quarters end on a Saturday following a thirteen week calendar, and may result in different quarter end dates year to year. The third quarter of 2017 ended on July 1, 2017 and the third quarter of 2016 ended on July 2, 2016. The results of operations for the three and nine months ended July 1, 2017 are not necessarily indicative of the results expected for the remainder of the fiscal year.

Income Statement Presentation

In previous quarters, we reported cost of revenue in two categories: 1) cost of subscription, support and license revenue and 2) cost of professional services revenue. Effective with the beginning of the third quarter of 2017, we are reporting cost of license and subscription revenue separately from cost of support revenue and are presenting cost of revenue in three categories: 1) cost of license and subscription revenue, 2) cost of support revenue, and 3) cost of professional services revenue.

Costs of revenue for previous periods in the accompanying Consolidated Statements of Operations are presented on a basis consistent with the current period presentation.

Recent Accounting Pronouncements

Goodwill

In January 2017, the Financial Accounting Standards Board (FASB) issued Accounting Standards Update (ASU) 2017-04 to simplify the accounting for goodwill impairment. The guidance removes Step 2 of the goodwill impairment test, which requires a hypothetical purchase price allocation. A goodwill impairment will now be the amount by which a reporting unit's carrying value exceeds its fair value, not to exceed the carrying amount of goodwill. The guidance will be applied prospectively and is effective for annual reporting periods ending December 31, 2020 and thereafter with early adoption permitted.

Income Taxes

In October 2016, the FASB issued ASU 2016-16, Income Taxes (Topic 740): Intra-Entity Transfers of Assets Other Than Inventory ("ASU 2016-16"). The purpose of ASU 2016-16 is to simplify the income tax accounting of an intra-entity transfer of an asset other than inventory and to record its effect when the transfer occurs. The guidance is effective for annual reporting periods beginning after December 15, 2017 (our fiscal 2019) including interim reporting periods within those annual reporting periods and early adoption is permitted. We are currently evaluating the impact of the new guidance on our consolidated financial statements.

Cash Flows

In August 2016, the FASB issued ASU 2016-15 to clarify whether the following items should be categorized as operating, investing or financing in the statement of cash flows: (i) debt prepayments and extinguishment costs, (ii) settlement of zero-coupon debt, (iii) settlement of contingent consideration, (iv) insurance proceeds, (v) settlement of corporate-owned life insurance (COLI) and bank-owned life insurance (BOLI) policies, (vi) distributions from equity

method investees, (vii) beneficial interests in securitization transactions, and (viii) receipts and payments with aspects of more than one class of cash flows. The amendments in this update are effective for public business entities for fiscal years beginning after December 15, 2017 (our fiscal 2019) and interim periods within those fiscal years. Early adoption is permitted, including adoption in an interim period. We are currently evaluating the impact of the new guidance on our consolidated financial statements.

Financial Instruments - Credit Losses

In June 2016, the FASB issued ASU No. 2016-13, Financial Instruments - Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments. This update introduces a current expected credit loss model for measuring expected credit losses for certain types of financial instruments held at the reporting date based on historical experience, current conditions and reasonable supportable forecasts. ASU 2016-13 replaces the current incurred loss model for measuring expected credit losses, requires expected losses on available-for-sale debt securities to be recognized through an allowance for credit losses rather than as reductions in the amortized cost of the securities, and provides for additional disclosure requirements. ASU 2016-13 is effective for interim and annual reporting periods beginning after December 15, 2019 (our fiscal 2021) with early adoption permitted for interim and annual reporting periods beginning after December 15, 2018. We are currently evaluating the impact of the new guidance on our consolidated financial statements.

Stock Compensation

In March 2016, the FASB issued ASU No. 2016-09, Compensation - Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting. The ASU includes multiple provisions intended to simplify various aspects of the accounting for share-based payments, including accounting for income taxes, earnings per share, and forfeitures. The ASU is effective for public companies in annual periods beginning after December 15, 2016 (our fiscal 2018) and interim periods within those years. Early adoption is permitted in any interim period, with all adjustments applied as of the beginning of the fiscal year of adoption. The guidance will be adopted in the first quarter of 2018. We do not expect adoption of the guidance to have a material impact on our consolidated financial statements. Previously unrecognized excess tax benefits will increase deferred tax assets, which will be substantially offset by an increase in the valuation allowance.

Leases

In February 2016, the FASB issued ASU No. 2016-02, Leases (Topic 842), which will replace the existing guidance in ASC 840, Leases. The updated standard aims to increase transparency and comparability among organizations by requiring lessees to recognize lease assets and lease liabilities on the balance sheet and to disclose important information about leasing arrangements. ASU 2016-02 is effective for annual periods beginning after December 15, 2018 (our fiscal 2020) and interim periods within those annual periods. Early adoption is permitted and modified retrospective application is required. We are currently evaluating the impact of the new guidance on our consolidated financial statements.

Financial Instruments

In January 2016, the FASB issued ASU No. 2016-01, Financial Instruments-Overall: Recognition and Measurement of Financial Assets and Financial Liabilities, which requires equity investments to be measured at fair value with changes in fair value recognized in net income and simplifies the impairment assessment of equity investments without readily determinable fair values by requiring a qualitative assessment to identify impairment. Entities may choose a practical expedient, to estimate the fair value of certain equity securities that do not have readily determinable fair values. If the practical expedient is elected, these investments would be recorded at cost, less impairment and subsequently adjusted for observable price changes. The guidance also updates certain presentation and disclosure requirements. ASU 2016-01 is effective for financial statements issued for fiscal years beginning after December 15, 2017 (our fiscal 2019) and interim periods within those fiscal years. We are currently evaluating the impact of the new guidance on our consolidated financial statements.

Revenue Recognition

In May 2014, the FASB issued ASU No. 2014-09, Revenue from Contracts with Customers: Topic 606 (ASU 2014-09), to supersede nearly all existing revenue recognition guidance under U.S. GAAP. The core principle of ASU 2014-09 is to recognize revenues when promised goods or services are transferred to customers in an amount that reflects the consideration that is expected to be received for those goods or services. ASU 2014-09 defines a five step process to achieve this core principle and, in doing so, it is possible more judgment and estimates may be required within the revenue recognition process than required under existing U.S. GAAP including identifying performance obligations in the contract, estimating the amount of variable consideration to include in the transaction price and allocating the transaction price to each separate performance obligation. In July 2015, the FASB approved a one-year delay in the effective date. ASU 2014-09 is effective for us in our first quarter of fiscal 2019 using either of two

methods: (i) retrospective to each prior reporting period presented with the option to elect certain practical expedients as defined within ASU 2014-09; or (ii) retrospective with the cumulative effect of initially applying ASU 2014-09 recognized at the date of initial application and providing certain additional disclosures as defined per ASU 2014-09. Subsequently, the FASB has issued the following standards to provide additional clarification and implementation guidance on ASU 2014-09: ASU 2016-08, Revenue from Contracts with Customers (Topic 606): Principal versus Agent Considerations; ASU 2016-10, Revenue from Contracts with Customers (Topic 606): Identifying Performance Obligations and Licensing; and ASU 2016-12, Revenue from Contracts with Customers (Topic 606): Narrow-Scope Improvements and Practical Expedients. We are currently evaluating the impact of these new standards on our consolidated financial statements.

Debt Issuance Costs

In April 2015, the FASB issued ASU No. 2015-03, Interest-Imputation of Interest (Subtopic 835-30), to simplify the required presentation of debt issuance costs. The amended guidance requires that debt issuance costs be presented in the balance sheet as a direct reduction from the carrying amount of the related debt liability rather than as an asset. It is effective for financial statements issued for fiscal years beginning after December 15, 2015 (our fiscal 2017) with early adoption permitted. The new guidance will be applied retrospectively to each prior period presented. We adopted this new guidance in our first quarter ended December 31, 2016 and applied this guidance retrospectively. As a result, the debt issuance costs of \$6.5 million previously included in other long-term assets on the Consolidated Balance Sheet as of September 30, 2016 have been reclassified.

Going Concern

In August 2014, the FASB issued ASU No. 2014-15, "Presentation of Financial Statements - Going Concern: Disclosure of Uncertainties about an Entity's Ability to Continue as a Going Concern," which requires management to evaluate whether there is substantial doubt about the entity's ability to continue as a going concern and, if so, provide certain footnote disclosures. This ASU is effective for annual periods ending after December 15, 2016, including interim reporting periods thereafter. We do not anticipate that adopting this standard will have an impact on the financial statements and are currently evaluating the potential impact to our footnote disclosures.

2. Deferred Revenue and Related Customer Receivables

Deferred Revenue

Deferred revenue primarily relates to software agreements billed to customers for which the subscription and support services have not yet been provided. The liability associated with performing these subscription and support services is included in deferred revenue and, if not yet paid, the related customer receivable is included in prepaid expenses and other current assets. Billed but uncollected support and subscription-related amounts included in other current assets at July 1, 2017 and September 30, 2016 were \$131.1 million and \$126.3 million, respectively.

3. Restructuring Charges

On October 23, 2015, we initiated a plan to restructure our workforce and consolidate select facilities in order to reduce our cost structure and to realign our investments with what we believe to be our higher growth opportunities. The actions resulted in total restructuring charges of \$85.5 million, primarily associated with termination benefits associated with approximately 800 employees. In the third quarter and first nine months of 2017, we recorded charges of \$1.6 million and \$8.3 million, respectively, of which \$1.8 million and \$5.7 million is related to the closure of excess facilities, respectively. As of July 1, 2017, this restructuring plan was substantially complete. In both the third quarter and first nine months of 2017 restructuring charges include a credit of \$0.2 million related to prior restructuring actions.

The following table summarizes restructuring accrual activity for the nine months ended July 1, 2017:

	Employee severance and related benefits (in thousands)	Facility closures and related costs	Total
October 1, 2016	\$35,177	\$1,431	\$36,608
Charge to operations, net	2,582	5,718	8,300
Cash disbursements	(33,979)	(1,351)	(35,330)
Other non-cash charges	—	(704)	(704)
Foreign exchange impact	(800)	98	(702)
Accrual, July 1, 2017	\$2,980	\$5,192	\$8,172

The following table summarizes restructuring accrual activity for the nine months ended July 2, 2016:

	Employee Facility severance closures and related benefits (in thousands)	and related costs	Total
October 1, 2015	\$14,086	\$1,168	\$15,254
Charges to operations, net	44,010	531	44,541
Cash disbursements	(49,059)	(834)	(49,893)
Foreign exchange impact	103	(11)	92
Accrual, July 2, 2016	\$9,140	\$854	\$9,994

Of the accrual for facility closures and related costs, as of July 1, 2017 \$3.0 million is included in accrued expenses and other current liabilities and \$2.2 million is included in other liabilities in the Consolidated Balance Sheets. The accrual for facility closures is net of assumed sublease income of \$4.4 million. The accrual for employee severance and related benefits is included in accrued compensation and benefits in the Consolidated Balance Sheets.

4. Stock-based Compensation

We measure the cost of employee services received in exchange for restricted stock unit (RSU) awards based on the fair value of RSU awards on the date of grant. That cost is recognized over the period during which an employee is required to provide service in exchange for the award.

Our equity incentive plan provides for grants of nonqualified and incentive stock options, common stock, restricted stock, RSUs and stock appreciation rights to employees, directors, officers and consultants. We award RSUs as the principal equity incentive awards, including certain performance-based awards that are earned based on achievement of performance criteria established by the Compensation Committee of our Board of Directors. Each RSU represents the contingent right to receive one share of our common stock.

Our employee stock purchase plan (ESPP), initiated in the fourth quarter of 2016, allows eligible employees to contribute up to 10% of their base salary, up to a maximum of \$25,000 per year and subject to any other plan limitations, toward the purchase of our common stock at a discounted price. The purchase price of the shares on each purchase date is equal to 85% of the lower of the fair market value of our common stock on the first and last trading days of each offering period. The ESPP is qualified under Section 423 of the Internal Revenue Code. We estimate the fair value of each purchase right under the ESPP on the date of grant using the Black-Scholes option valuation model and use the straight-line attribution approach to record the expense over the six-month offering period.

Restricted stock unit activity for the nine months ended July 1, 2017	Shares	Weighted Average Grant Date Fair Value (Per Share)
	(in thousands)	
Balance of outstanding restricted stock units October 1, 2016	3,776	\$ 37.30
Granted	1,932	\$ 51.24
Vested	(1,564)	\$ 36.02
Forfeited or not earned	(622)	\$ 37.51
Balance of outstanding restricted stock units July 1, 2017	3,522	\$ 45.48

Grant Period	Restricted Stock Units		
	Target TSR Units (1)	Performance-based RSUs (2)	Service-based RSUs (3)
	(Number of Units in thousands)		
First nine months of 2017	358	325	1,249

(1) The TSR units were granted to our executive officers pursuant to the terms described below.

The performance-based RSUs were granted to our executive officers and are eligible to vest based on the
(2) achievement of performance criteria for fiscal 2017 established by the Compensation Committee at the time of grant. Shares not

8

earned will be forfeited. The shares earned will vest in three substantially equal installments on November 15, 2017, November 15, 2018 and November 15, 2019.

(3) The service-based RSUs were granted to employees, our executive officers and our directors. All service-based RSUs will vest in three substantially equal annual installments on or about the anniversary of the date of grant. In the first nine months of 2017, we granted the target performance-based TSR units ("target RSUs") shown in the table above to our executive officers. These RSUs are eligible to vest based upon our total shareholder return relative to a peer group (the "TSR units"), measured annually over a three year period. The number of TSR units to vest over the three year period will be determined based on the performance of PTC stock relative to the stock performance of an index of PTC peer companies established as of the grant date, as determined at the end of three measurement periods ending on September 30, 2017, 2018 and 2019, respectively. The shares earned for each period will vest on November 15 following each measurement period, up to a maximum of two times the number of target RSUs (up to a maximum of 499 thousand shares). No vesting will occur in a period unless an annual threshold requirement is achieved. The employee, subject to certain retirement provisions, must remain employed by PTC through the applicable vest date for any RSUs to vest, but in no event will any RSUs vest if the performance criteria are not achieved. If the return to PTC shareholders is negative but still meets or exceeds the peer group indexed return, a maximum of 100% of the target RSUs will vest for the measurement period. TSR units not earned in either of the first two measurement periods are eligible to be earned in the third measurement period.

The weighted average fair value of the TSR units was \$68.02 per target RSU on the grant date. The fair value of the TSR units was determined using a Monte Carlo simulation model, a generally accepted statistical technique used to simulate a range of possible future stock prices for PTC and the peer group. The method uses a risk-neutral framework to model future stock price movements based upon the risk-free rate of return, the volatility of each entity, and the pairwise correlations of each entity being modeled. The fair value for each simulation is the product of the payout percentage determined by PTC's TSR rank against the peer group, the projected price of PTC stock, and a discount factor based on the risk-free rate.

The significant assumptions used in the Monte Carlo simulation model were as follows:

Average volatility of peer group	29.3%
Risk-free interest rate	0.99%
Dividend yield	— %

Compensation expense recorded for our stock-based awards was classified in our Consolidated Statements of Operations as follows:

	Three months ended		Nine months ended	
	July 1, 2017	July 2, 2016	July 1, 2017	July 2, 2016
	(in thousands)			
Cost of license and subscription revenue	\$347	\$195	\$954	\$552
Cost of support revenue	1,139	963	3,638	3,611
Cost of professional services revenue	1,505	1,342	4,500	4,072
Sales and marketing	3,296	3,195	11,047	11,254
Research and development	2,805	2,531	9,753	7,578
General and administrative	7,482	5,570	26,247	24,754
Total stock-based compensation expense	\$16,574	\$13,796	\$56,139	\$51,821

Stock-based compensation expense in the third quarter and first nine months of 2017 includes \$0.9 million and \$2.2 million, respectively, related to the ESPP. Stock-based compensation expense in the first quarter of 2016 included \$10 million related to modifications of certain performance-based RSUs previously granted under our long-term incentive programs.

5. Earnings per Share (EPS) and Common Stock EPS

Basic EPS is calculated by dividing net income by the weighted average number of shares outstanding during the period. Diluted EPS is calculated by dividing net income by the weighted average number of shares outstanding plus the dilutive effect, if any, of outstanding RSUs using the treasury stock method. The calculation of the dilutive effect of outstanding equity awards

9

under the treasury stock method includes consideration of unrecognized compensation expense and any tax benefits as additional proceeds.

Calculation of Basic and Diluted EPS	Three months ended		Nine months ended	
	July 1, 2017	July 2, 2016	July 1, 2017	July 2, 2016
	(in thousands, except per share data)			
Net income (loss)	\$(951)	\$3,073	\$(11,196)	\$(25,992)
Weighted average shares outstanding—Basic	115,615	114,795	115,511	114,499
Dilutive effect of restricted stock units	—	903	—	—
Weighted average shares outstanding—Diluted	115,615	115,698	115,511	114,499
Earnings (loss) per share—Basic	\$(0.01)	\$0.03	\$(0.10)	\$(0.23)
Earnings (loss) per share—Diluted	\$(0.01)	\$0.03	\$(0.10)	\$(0.23)

For the nine months ended July 1, 2017 and July 2, 2016 the diluted net loss per share is the same as the basic net loss per share as the effects of our potential common stock equivalents are antidilutive. Total antidilutive shares were 2.0 million and 1.7 million for the nine months ended July 1, 2017 and July 2, 2016, respectively.

Common Stock Repurchases

Our Articles of Organization authorize us to issue up to 500 million shares of our common stock. Our Board of Directors periodically authorizes the repurchase of shares of our common stock. On August 4, 2014, our Board of Directors authorized us to repurchase up to \$600 million of our common stock through September 30, 2017. We have repurchased \$224.9 million of our common stock under this authorization. In the third quarter and first nine months of 2017, we repurchased \$35 million of our common stock. All shares of our common stock repurchased are automatically restored to the status of authorized and unissued.

6. Acquisitions

Acquisition-related costs were \$0.3 million and \$1.0 million for the third quarter and first nine months of 2017, respectively and \$0.9 million and \$3.2 million for the third quarter and first nine months of 2016, respectively. Acquisition-related costs include direct costs of potential and completed acquisitions (e.g., investment banker fees and professional fees, including legal and valuation services) and expenses related to acquisition integration activities (e.g., professional fees and severance). In addition, subsequent adjustments to our initial estimated amount of contingent consideration associated with specific acquisitions are included within acquisition-related charges. These costs are classified in general and administrative expenses in the accompanying Consolidated Statements of Operations.

Kepware

On January 12, 2016, we acquired all of the ownership interest in Kepware, Inc. for \$99.4 million in cash (net of cash acquired of \$0.6 million) and \$16.9 million representing the fair value of contingent consideration payable upon achievement of targets described below. We borrowed \$100.0 million under our existing credit facility in January 2016 to fund the acquisition.

The results of operations of Kepware have been included in our consolidated financial statements beginning on the acquisition date. Our results of operations prior to this acquisition, if presented on a pro forma basis, would not differ materially from our reported results.

The acquisition of Kepware has been accounted for as a business combination. Assets acquired and liabilities assumed were recorded at their estimated fair values as of the acquisition date. The fair values of intangible assets were based on valuations using an income approach, with estimates and assumptions provided by management of Kepware and PTC. The process for estimating the fair values of identifiable intangible assets and the contingent consideration liability requires the use of significant estimates and assumptions, including estimating future cash flows and developing appropriate discount rates. The excess of the purchase price over the tangible assets, identifiable intangible assets and assumed liabilities was recorded as goodwill. The former shareholders of Kepware are eligible to receive additional consideration of up to \$18.0 million, which is contingent on the achievement of certain financial performance, product integration and business integration targets within 24 months from April 3, 2016 to April 2,

2018. If such targets are achieved within the defined 12 month, 18 month and 24 month earn-out periods, the consideration corresponding to each target will be earned and payable in cash. All of the \$9.6 million achievable contingent consideration in 2017 has been earned and paid. The remainder, if subsequently earned, will become payable in 2018.

In connection with accounting for the business combination, we recorded a liability of \$16.9 million representing the fair value of the contingent consideration. The liability was valued using a discounted cash flow method and a probability weighted estimate of achievement of the targets. The estimated undiscounted range of outcomes for the contingent consideration is \$16.9 million to \$18.0 million. We assess the probability that the targets will be met and at what level each reporting period. Subsequent changes in the estimated fair value of the liability are reflected in earnings until the liability is fully settled. As of July 1, 2017, our estimate of the liability was \$7.9 million, after a \$1.8 million payment made in December 2016 and \$7.8 million payment made in May 2017.

The purchase price allocation resulted in \$77.1 million of goodwill, which will be deductible for income tax purposes, and intangible assets of \$34.5 million. Intangible assets include purchased software of \$28.7 million, customer relationships of \$5.2 million and trademarks of \$0.6 million, which are being amortized over weighted average useful lives of 10 years, 10 years and 6 years, respectively, based upon when the economic benefits related to such assets are expected to be realized.

The resulting amount of goodwill reflects our expectations of the following benefits: 1) Kepware's protocol translators and connectivity platform strengthen the ThingWorx technology platform and accelerate our entry into the factory setting and Industrial IoT (IIoT); 2) cross-selling opportunities for our integrated technology platforms in the critical infrastructure markets to drive revenue growth; and 3) Kepware's 20 years of manufacturing experience strengthens our manufacturing talent and domain expertise and provides support for our manufacturing strategy initiatives.

Vuforia

On November 3, 2015, pursuant to an Asset Purchase Agreement, PTC acquired the Vuforia business from Qualcomm Connected Experiences, Inc., a subsidiary of Qualcomm Incorporated, for \$64.8 million in cash (net of cash acquired of \$4.5 million). We borrowed \$50 million under our credit facility to finance this acquisition. At the time of the acquisition, Vuforia had approximately 80 employees and historical annualized revenues were not material.

The acquisition of Vuforia has been accounted for as a business combination. Assets acquired and liabilities assumed have been recorded at their estimated fair values as of the acquisition date. The fair values of intangible assets were based on valuations using a cost approach which requires the use of significant estimates and assumptions, including estimating costs to reproduce an asset. The excess of the purchase price over the tangible assets, identifiable intangible assets and assumed liabilities was recorded as goodwill.

The purchase price allocation resulted in \$23.3 million of goodwill, \$41.2 million of technology and \$4.7 million of net tangible assets. The acquired technology is being amortized over a useful life of 6 years. All of the acquired goodwill was deductible for income tax purposes. The resulting amount of goodwill reflects the value of the synergies created by integrating Vuforia's augmented technology platform into IoT solutions.

7. Goodwill and Intangible Assets

We have three operating and reportable segments: (1) Solutions Group, (2) IoT Group and (3) Professional Services. We assess goodwill for impairment at the reporting unit level. Our reporting units are determined based on the components of our operating segments that constitute a business for which discrete financial information is available and for which operating results are regularly reviewed by segment management. Our reporting units are the same as our operating segments.

As of July 1, 2017, goodwill and acquired intangible assets in the aggregate attributable to our Solutions Group, IoT Group and Professional Services segment were \$1,177.9 million, \$237.0 million and \$30.6 million, respectively. As of September 30, 2016, goodwill and acquired intangible assets in the aggregate attributable to our Solutions Group, IoT Group and Professional Services segment were \$1,196.6 million, \$252.8 million and \$30.7 million, respectively.

Acquired intangible assets are reviewed for impairment whenever events or changes in circumstances indicate that the carrying value of the asset may not be recoverable. We evaluate goodwill for impairment in the third quarter of our fiscal year, or on an interim basis if an event occurs or circumstances change that would, more likely than not, reduce the fair value of a reporting segment below its carrying value. Factors that could trigger an impairment review include significant under-performance relative to historical or projected future operating results, significant changes in our use of the acquired assets or the strategy for our overall business, significant negative industry or economic trends, a significant decline in our stock price for a sustained period and a reduction of our market capitalization relative to net book value.

We completed our annual goodwill impairment review as of July 1, 2017 based on a qualitative assessment. Our qualitative assessment included company specific (financial performance and long-range plans), industry, and macroeconomic factors, and consideration of the fair value of each reporting unit, which was approximately double its carrying value or higher at July 2, 2106, the last valuation date. Based on our qualitative assessment, we believe it is more likely than not that the fair values of our reporting units exceed their carrying values and no further impairment testing is required.

Goodwill and acquired intangible assets consisted of the following:

	July 1, 2017			September 30, 2016		
	Gross Carrying Amount (in thousands)	Accumulated Amortization	Net Book Value	Gross Carrying Amount	Accumulated Amortization	Net Book Value
Goodwill (not amortized)			\$1,175,628			\$1,169,813
Intangible assets with finite lives (amortized) (1):						
Purchased software	\$358,434	\$219,258	\$139,176	\$354,595	\$199,192	\$155,403
Capitalized software	22,877	22,877	—	22,877	22,877	—
Customer lists and relationships	356,520	231,006	125,514	355,698	206,515	149,183
Trademarks and trade names	19,027	13,892	5,135	19,007	13,323	5,684
Other	3,979	3,979	—	3,955	3,920	35
	\$760,837	\$491,012	\$269,825	\$756,132	\$445,827	\$310,305
Total goodwill and acquired intangible assets			\$1,445,453			\$1,480,118

(1) The weighted average useful lives of purchased software, customer lists and relationships, and trademarks and trade names with a remaining net book value are 9 years, 10 years, and 10 years, respectively.

Goodwill

Changes in goodwill presented by reportable segments were as follows:

	Solutions Group	IoT Group	Professional Services	Total
	(in thousands)			
Balance, October 1, 2016	\$1,050,150	\$90,065	\$29,598	\$1,169,813
Acquisition	2,847	—	—	2,847
Foreign currency translation adjustment	2,664	228	76	2,968
Balance, July 1, 2017	\$1,055,661	\$90,293	\$29,674	\$1,175,628

Amortization of Intangible Assets

The aggregate amortization expense for intangible assets with finite lives was classified in our Consolidated Statements of Operations as follows:

	Three months ended		Nine months ended	
	July 1, 2017	July 2, 2016	July 1, 2017	July 2, 2016
	(in thousands)			
Amortization of acquired intangible assets	\$7,973	\$8,294	\$23,986	\$25,040
Cost of license and subscription revenue	6,517	6,383	19,294	18,235
Total amortization expense	\$14,490	\$14,677	\$43,280	\$43,275

8. Fair Value Measurements

Fair value is defined as the price that would be received from selling an asset or paid to transfer a liability in an orderly transaction between market participants at the measurement date. When determining the fair value measurements for assets and liabilities required to be recorded at fair value, we consider the principal or most advantageous market in which we would transact and consider assumptions that market participants would use when pricing the asset or liability, such as inherent risk, transfer restrictions, and risk of nonperformance. Generally accepted accounting principles prescribe a fair value hierarchy that requires an entity to maximize the use of observable inputs and minimize the use of unobservable inputs when measuring fair value. A financial instrument's categorization within the fair value hierarchy is based upon the lowest level of input that is significant to the fair value measurement. Three levels of inputs that may be used to measure fair value:

Level 1: quoted prices (unadjusted) in active markets for identical assets or liabilities;

Level 2: inputs other than Level 1 that are observable, either directly or indirectly, such as quoted prices in active markets 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 assets or liabilities; or

Level 3: unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities.

A financial instrument's level within the fair value hierarchy is based on the lowest level of any input that is significant to the fair value measurement.

Money market funds, time deposits and corporate notes/bonds are classified within Level 1 of the fair value hierarchy because they are valued based on quoted market prices in active markets.

Certificates of deposit, commercial paper and certain U.S. government agency securities are classified within Level 2 of the fair value hierarchy. These instruments are valued based on quoted prices in markets that are not active or based on other observable inputs consisting of market yields, reported trades and broker/dealer quotes.

The principal market in which we execute our foreign currency contracts is the institutional market in an over-the-counter environment with a relatively high level of price transparency. The market participants usually are large financial institutions. Our foreign currency contracts' valuation inputs are based on quoted prices and quoted pricing intervals from public data sources and do not involve management judgment. These contracts are typically classified within Level 2 of the fair value hierarchy.

The fair value of our contingent consideration arrangements is determined based on our evaluation as to the probability and amount of any earn-out that will be achieved based on expected future performances by the acquired entities. These arrangements are classified within Level 3 of the fair value hierarchy.

Our significant financial assets and liabilities measured at fair value on a recurring basis as of July 1, 2017 and September 30, 2016 were as follows:

	July 1, 2017			
	Level 1	Level 2	Level 3	Total
	(in thousands)			
Financial assets:				
Cash equivalents	\$60,118	\$—	\$—	\$60,118
Marketable securities				
Certificates of deposit	—	441	—	441
Corporate notes/bonds	47,354	—	—	47,354
U.S. government agency securities	—	2,394	—	2,394
Forward contracts	—	4,802	—	4,802
	\$107,472	\$7,637	\$—	\$115,109
Financial liabilities:				
Contingent consideration related to acquisitions	\$—	\$—	\$7,862	\$7,862
Forward contracts	—	4,525	—	4,525
	\$—	\$4,525	\$7,862	\$12,387

	September 30, 2016			
	Level 1	Level 2	Level 3	Total
	(in thousands)			
Financial assets:				
Cash equivalents	\$60,139	\$—	\$—	\$60,139
Marketable securities				
Certificates of deposit	—	681	—	681
Commercial paper	—	11,925	—	11,925
Corporate notes/bonds	34,601	—	—	34,601
U.S. government agency securities	—	2,409	—	2,409
Forward contracts	—	260	—	260
	\$94,740	\$15,275	\$—	\$110,015
Financial liabilities:				
Contingent consideration related to acquisitions	\$—	\$—	\$19,570	\$19,570
Forward contracts	—	3,170	—	3,170
	\$—	\$3,170	\$19,570	\$22,740

Changes in the fair value of Level 3 contingent consideration liability associated with our acquisitions of ColdLight and Kepware were as follows:

	Contingent Consideration			
	(in thousands)			
	ColdLight	Kepware	Total	
Balance, October 1, 2016	\$2,500	\$17,070	\$19,570	
Change in present value of contingent consideration	—	392	392	
Payment of contingent consideration	(2,500)	(9,600)	(12,100)	
Balance, July 1, 2017	\$—	\$7,862	\$7,862	
	Contingent Consideration			
	(in thousands)			
	ThingWorx	ColdLight	Kepware	Total
Balance, October 1, 2015	\$9,000	\$4,000	\$—	\$13,000
Addition to contingent consideration	—	—	16,900	16,900
Change in present value of contingent consideration	—	1,000	97	1,097
Payment of contingent consideration	(9,000)	(2,500)	—	(11,500)
Balance, July 2, 2016	\$—	\$2,500	\$16,997	\$19,497

In the Consolidated Balance Sheet as of July 1, 2017, \$7.9 million of the contingent consideration liability is included in accrued expenses and other current liabilities.

Of the \$12.1 million payments in the first nine months of 2017, \$11.1 million represents the fair value of the liabilities recorded at the acquisition date and is included in financing activities in the Consolidated Statements of Cash Flows.

Of the \$11.5 million payments in the first nine months of 2016, \$10.6 million represents the fair value of the liabilities recorded at the acquisition date and is included in financing activities in the Consolidated Statements of Cash Flows.

9. Marketable Securities

The amortized cost and fair value of marketable securities as of July 1, 2017 and September 30, 2016 were as follows:

	July 1, 2017			
	Amortized cost	Gross unrealized gains	Gross unrealized losses	Fair value
	(in thousands)			
Certificates of deposit	\$441	\$ —	—\$ —	\$441
Corporate notes/bonds	47,519	—	(165)	47,354
US government agency securities	2,401	—	(7)	2,394
	\$50,361	\$ —	—\$ (172)	\$50,189
	September 30, 2016			
	Amortized cost	Gross unrealized gains	Gross unrealized losses	Fair value
	(in thousands)			
Certificates of deposit	\$681	\$ —	—\$ —	\$681
Commercial paper	11,945	—	(20)	11,925
Corporate notes/bonds	34,701	—	(100)	34,601
US government agency securities	2,411	—	(2)	2,409
	\$49,738	\$ —	—\$ (122)	\$49,616

Our investment portfolio consists of certificates of deposit, commercial paper, corporate notes/bonds and government securities that have a maximum maturity of three years. The longer the duration of these securities, the more susceptible they are to changes in market interest rates and bond yields. All unrealized losses are due to changes in market interest rates, bond yields and/or credit ratings.

The following table presents our available-for-sale marketable securities by contractual maturity date as of July 1, 2017 and September 30, 2016.

	July 1, 2017		September 30, 2016	
	Amortize cost	Fair value	Amortize cost	Fair value
	(in thousands)		(in thousands)	
Due in one year or less	\$19,129	\$19,095	\$18,585	\$18,549
Due after one year through three years	31,232	31,094	31,153	31,067
	\$50,361	\$50,189	\$49,738	\$49,616

10. Derivative Financial Instruments

Our earnings and cash flows are subject to fluctuations due to changes in foreign currency exchange rates. Our most significant foreign currency exposures relate to Western European countries, Japan, China and Canada. Our foreign currency risk management strategy is principally designed to mitigate the future potential financial impact of changes in the U.S. Dollar value of anticipated transactions and balances denominated in foreign currency, resulting from changes in foreign currency exchange rates. We enter into derivative transactions, specifically foreign currency forward contracts, to manage the exposures to foreign currency exchange risk to reduce earnings volatility. We do not enter into derivatives transactions for trading or speculative purposes.

Non-Designated Hedges

We hedge our net foreign currency monetary assets and liabilities primarily resulting from foreign currency denominated receivables and payables with foreign exchange forward contracts to reduce the risk that our earnings and cash flows will be adversely affected by changes in foreign currency exchange rates. These contracts have maturities of up to approximately three months. Generally, we do not designate these foreign currency forward contracts as hedges for accounting purposes and changes in the fair value of these instruments are recognized immediately in earnings. Because we enter into forward contracts only as an economic hedge, any gain or loss on the underlying foreign-denominated balance would be offset by the loss or gain on the forward contract. Gains and losses on forward contracts and foreign denominated receivables and payables are included in interest income and other

expense, net.

As of July 1, 2017 and September 30, 2016, we had outstanding forward contracts with notional amounts equivalent to the following:

15

Currency Hedged	July 1, 2017	September 30, 2016
	(in thousands)	
Canadian / U.S. Dollar	\$8,488	\$ 14,685
Swiss Franc / Euro	7,374	730
Chinese Yuan offshore / Euro	10,303	—
Euro / U.S. Dollar	227,898	174,120
Japanese Yen / Euro	11,025	32,782
Israeli Shekel / U.S. Dollar	8,116	7,271
Japanese Yen / U.S. Dollar	2,718	6,716
Swedish Krona / U.S. Dollar	6,410	3,852
Danish Krona / U.S. Dollar	5,279	1,183
All other	7,018	8,195
Total	\$294,629	\$ 249,534

The following table shows the effect of our non-designated hedges in the Consolidated Statements of Operations for the three and nine months ended July 1, 2017 and July 2, 2016:

Derivatives Not Designated as Hedging Instruments	Location of Gain or (Loss) Recognized in Income	Net realized and unrealized gain or (loss) (excluding the underlying foreign currency exposure being hedged)			
		Three months ended		Nine months ended	
		July 1, 2017	July 2, 2016	July 1, 2017	July 2, 2016
Forward Contracts	Interest income and other expense, net	\$6,669	\$(1,059)	\$(1,422)	\$(1,645)

In the three and nine months ended July 1, 2017, foreign currency losses, net were 0.7 million and 3.2 million, respectively. In the three and nine months ended July 2, 2016, foreign currency losses, net were 0.3 million and 1.3 million, respectively.

Cash Flow Hedges

Our foreign exchange risk management program objective is to identify foreign exchange exposures and implement appropriate hedging strategies to minimize earnings fluctuations resulting from foreign exchange rate movements. We designate certain foreign exchange forward contracts as cash flow hedges of Euro, Yen and SEK denominated intercompany forecasted revenue transactions (supported by third party sales). All foreign exchange forward contracts are carried at fair value on the Consolidated Balance Sheets and the maximum duration of foreign exchange forward contracts is 15 months.

Cash flow hedge relationships are designated at inception, and effectiveness is assessed prospectively and retrospectively using regression analysis on a monthly basis. As the forward contracts are highly effective in offsetting changes to future cash flows on the hedged transactions, we record the effective portion of changes in these cash flow hedges in accumulated other comprehensive income and subsequently reclassify it into earnings in the period during which the hedged transactions are recognized in earnings. Changes in the fair value of foreign exchange forward contracts due to changes in time value are included in the assessment of effectiveness. Our derivatives are not subject to any credit contingent features. We manage credit risk with counterparties by trading among several counterparties and we review our counterparties' credit at least quarterly.

As of July 1, 2017 and September 30, 2016, we had outstanding forward contracts designated as cash flow hedges with notional amounts equivalent to the following:

Currency Hedged	July 1, 2017	September 30, 2016
	(in thousands)	
Euro / U.S. Dollar	\$109,702	\$ 26,181
Japanese Yen / U.S. Dollar	16,273	8,800
SEK / U.S. Dollar	3,672	4,078
Total	\$129,647	\$ 39,059

The following table shows the effect of our derivative instruments designated as cash flow hedges in the Consolidated Statements of Operations for the three and nine months ended July 1, 2017 and July 2, 2016 (in thousands):

Derivatives Designated as Hedging Instruments	Gain or (Loss) Recognized in OCI-Effective Portion		Location of Gain or (Loss) Reclassified from OCI into Income-Effective Portion	Gain or (Loss) Reclassified from OCI into Income-Effective Portion		Location of Gain or (Loss) Recognized-Ineffective Portion	Gain or (Loss) Recognized-Ineffective Portion	
	Three months ended July 1, 2017	July 2, 2016		Three months ended July 1, 2017	July 2, 2016		Three months ended July 1, 2017	July 2, 2016
Forward Contracts	\$(2,627)	\$361	Subscription, support and license revenue	\$(86)	\$(1,560)	Interest income and other expense, net	\$(29)	\$ 9
Forward Contracts	\$256	\$(3,633)	Subscription, support and license revenue	\$888	\$(727)	Interest income and other expense, net	\$(23)	\$(28)

As of July 1, 2017, we estimated that all amounts reported in accumulated other comprehensive income will be reclassified to income within the next twelve months.

In the event that an underlying forecast transaction does not occur, or it becomes probable that it will not occur, the related hedge gains and losses on the cash flow hedge would be immediately reclassified to interest income and other expense, net on the Consolidated Statements of Operations. For the three and nine months ended July 1, 2017 and July 2, 2016, there were no such gains or losses.

The following table shows our derivative instruments measured at gross fair value as reflected in the Consolidated Balance Sheets:

Derivative assets (1):	Fair Value of Derivatives Designated As Hedging Instruments		Fair Value of Derivatives Not Designated As Hedging Instruments	
	July 1, 2017	September 30, 2016	July 1, 2017	September 30, 2016
Forward Contracts	\$226	\$ 44	\$4,576	\$ 216

Derivative liabilities (2):

Forward Contracts \$2,310 \$ 1,477 \$2,215 \$ 1,693

(1) As of July 1, 2017 and September 30, 2016, all derivative assets were recorded in other current assets in the Consolidated Balance Sheet.

(2) As of July 1, 2017, \$4,394 thousand current derivative liabilities are recorded in accrued expenses and other current liabilities, and \$131 thousand long term derivative liabilities are recorded in other liabilities in the Consolidated Balance Sheets. As of September 30, 2016, all derivative liabilities were recorded in accrued expenses and other current liabilities in the Consolidated Balance Sheets.

Offsetting Derivative Assets and Liabilities

We have entered into master netting arrangements that allow net settlements under certain conditions. Although netting is permitted, it is currently our policy and practice to record all derivative assets and liabilities on a gross basis in the Consolidated Balance Sheets.

The following table sets forth the offsetting of derivative assets as of July 1, 2017:

	Gross Amounts Offset in the Consolidated Balance Sheets		Net Amounts of Assets Presented in the Consolidated Balance Sheets	Gross Amounts Not Offset in the Consolidated Balance Sheets		
As of July 1, 2017	Gross Amount of Recognized Assets	Gross Amounts Offset in the Consolidated Balance Sheets		Financial Instruments	Cash Collateral Received	Net Amount
	(in thousands)					
Forward Contracts	\$4,802	\$	—\$ 4,802	\$ (4,525)	\$	—\$ 277

The following table sets forth the offsetting of derivative liabilities as of July 1, 2017:

	Gross Amounts Offset in the Consolidated Balance Sheets		Net Amounts of Liabilities Presented in the Consolidated Balance Sheets	Gross Amounts Not Offset in the Consolidated Balance Sheets		
As of July 1, 2017	Gross Amount of Recognized Liabilities	Gross Amounts Offset in the Consolidated Balance Sheets		Financial Instruments	Cash Collateral Pledged	Net Amount
	(in thousands)					
Forward Contracts	\$4,525	\$	—\$ 4,525	\$ (4,525)	\$	—\$ —

11. Segment Information

We operate within a single industry segment -- computer software and related services. Operating segments as defined under GAAP are components of an enterprise about which separate financial information is available that is evaluated regularly by the chief operating decision maker, or decision-making group, in deciding how to allocate resources and in assessing performance. Our chief operating decision maker is our President and Chief Executive Officer. We have three operating and reportable segments: (1) the Solutions Group, which includes license, subscription, support and cloud services revenue for our core CAD, SLM and PLM products; (2) the IoT Group, which includes license, subscription, support and cloud services revenue for our IoT, analytics and augmented reality solutions, and (3) Professional Services, which includes consulting, implementation and training revenue. Our reported segment profit includes revenue from third party sales of our products and services, less direct controllable segment costs. Direct costs of the segments include certain costs of revenue, research and development and certain marketing costs. Costs excluded from segment margin include cost of revenue, selling expenses, corporate marketing and general and administrative costs that are incurred in support of all of our segments and are not specifically allocated to our segments for management reporting. Additionally, the segment profit does not include stock-based compensation, amortization of intangible assets, restructuring charges and certain other identified costs that we do not allocate to the

segments for purposes of evaluating their operational performance.

The revenue and profit attributable to our operating segments are summarized below. We do not produce asset information by reportable segment; therefore, it is not reported.

18

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	Three months ended		Nine months ended	
	July 1, 2017	July 2, 2016	July 1, 2017	July 2, 2016
(in thousands)				
Solutions Group				
Revenue	\$222,431	\$217,673	\$654,315	\$652,985
Direct costs	47,362	44,882	138,552	140,465
Profit	175,069	172,791	515,763	512,520
IoT Group				
Revenue	25,204	20,678	68,409	51,034
Direct costs	25,454	22,255	72,051	61,478
Loss	(250)	(1,577)	(3,642)	(10,444)
Professional Services				
Revenue	43,658	50,301	134,936	148,277
Direct costs	35,588	42,393	110,681	124,832
Profit	8,070	7,908	24,255	23,445
Total segment revenue	291,293	288,652	857,660	852,296
Total segment costs	108,404	109,530	321,284	326,775
Total segment profit	182,889	179,122	536,376	525,521
Other unallocated operating expenses	170,082	168,711	504,746	484,919
Restructuring charges	1,551	2,815	8,300	44,541
Total operating income (loss)	11,256	7,596	23,330	(3,939)
Interest expense	(10,200)	(8,164)	(32,239)	(19,511)
Interest income and other expense, net	(357)	(136)	2,049	(369)
Income (loss) before income taxes	\$699	\$(704)	\$(6,860)	\$(23,819)

12. Income Taxes

In the third quarter and first nine months of 2017, our effective tax rate was 236% on a pre-tax income of \$0.7 million, and (63)% on a pre-tax loss of \$6.9 million, respectively, compared to 537% on pre-tax loss of \$0.7 million and (9)% on a pre-tax loss \$23.8 million in the third quarter and first nine months of 2016, respectively. In the first nine months of 2017 and 2016, our effective tax rate was lower than the 35% statutory federal income tax rate due to our corporate structure in which our foreign taxes are at a net effective tax rate lower than the U.S. rate. A significant amount of our foreign earnings is generated by our subsidiaries organized in Ireland. In 2017 and 2016, the foreign rate differential predominantly relates to these Irish earnings. Our foreign rate differential in 2017 and 2016 includes the continuing rate benefit from a business realignment completed on September 30, 2014 in which intellectual property was transferred between two wholly-owned foreign subsidiaries. For the third quarter and first nine months of 2017 and 2016, this realignment resulted in tax benefits of approximately \$9 million and \$21 million, respectively, and \$9 million and \$16 million, respectively. Also, in the first nine months of 2017, we recorded a tax benefit of \$1.8 million related to a favorable agreement in a foreign jurisdiction. Additionally, in the first nine months of 2016, our provision reflects a tax benefit of \$2.6 million related to a retroactive extension of the U.S. research and development tax credit enacted in the first quarter of 2016. This benefit was offset by a corresponding provision to increase our U.S. valuation allowance.

We have concluded, based on the weight of available evidence, that a full valuation allowance continues to be required against our U.S. net deferred tax assets as they are not more likely than not to be realized in the future. We will continue to reassess our valuation allowance requirements each financial reporting period.

In the normal course of business, PTC and its subsidiaries are examined by various taxing authorities, including the Internal Revenue Service in the U.S. We regularly assess the likelihood of additional assessments by tax authorities and provide for these matters as appropriate. We are currently under audit by tax authorities in several jurisdictions. Audits by tax authorities typically involve examination of the deductibility of certain permanent items, limitations on net operating losses and tax credits. Although we believe our tax estimates are appropriate, the final determination of tax audits and any related litigation could result in material changes in our estimates.

As of July 1, 2017 and September 30, 2016, we had unrecognized tax benefits of \$15.3 million and \$15.5 million, respectively. If all of our unrecognized tax benefits as of July 1, 2017 were to become recognizable in the future, we would record a benefit to the income tax provision of \$13.4 million, which would be partially offset by an increase in the U.S. valuation allowance of \$5.1 million.

Although we believe our tax estimates are appropriate, the final determination of tax audits and any related litigation could result in favorable or unfavorable changes in our estimates. We believe it is reasonably possible that within the next 12 months the amount of unrecognized tax benefits related to the resolution of multi-jurisdictional tax positions could be reduced by up to \$6 million as audits close and statutes of limitations expire.

In the fourth quarter of 2016, we received an assessment of approximately \$12 million from the tax authorities in Korea related to a tax audit. The assessment relates to various tax issues but primarily to foreign withholding taxes. We have appealed and will vigorously defend our positions. We believe that it is more likely than not that our positions will be sustained upon appeal. Accordingly, we have not recorded a tax reserve for this matter. We paid this assessment in the first quarter of 2017 and have recorded the amount in other assets, pending resolution of the appeal.

13. Debt

At July 1, 2017 and September 30, 2016, we had the following long-term borrowing obligations:

	July 1, 2017	September 30, 2016
	(in thousands)	
6.000% Senior notes due 2024	\$ 500,000	\$ 500,000
Credit facility revolver	218,125	258,125
Total debt	718,125	758,125
Unamortized debt issuance costs for the Senior notes (1)	(5,934)	(6,524)
Total debt, net of issuance costs	\$ 712,191	\$ 751,601

Reported as

Current portion of long-term debt	\$ —	\$ —
Long-term debt	718,125	758,125
Total debt	\$ 718,125	\$ 758,125

(1) Unamortized debt issuance costs related to the credit facility were \$2.3 million and \$4.2 million as of July 1, 2017 and September 30, 2016, respectively, and were included in other assets.

Senior Notes

In May 2016, we issued \$500 million in aggregate principal amount of 6.0% senior, unsecured long-term debt at par value, due in 2024. We used the net proceeds from the sale of the notes to repay a portion of our outstanding revolving loan under our current credit facility. Interest is payable semi-annually on November 15 and May 15. The debt indenture includes covenants that limit our ability to, among other things, incur additional debt, grant liens on our properties or capital stock, enter into sale and leaseback transactions or asset sales, and make capital distributions. We were in compliance with all of the covenants as of July 1, 2017.

On or after May 15, 2019, we may redeem the senior notes at any time in whole or from time to time in part at specified redemption prices. In certain circumstances constituting a change of control, we would be required to make an offer to repurchase the senior notes at a purchase price equal to 101% of the aggregate principal amount of the notes, plus accrued and unpaid interest. Our ability to repurchase the senior notes in such event may be limited by law, by the indenture associated with the senior notes, by our then-available financial resources or by the terms of other agreements to which we may be party at such time. If we fail to repurchase the senior notes as required by the

indenture, it would constitute an event of default under the indenture governing the senior notes which, in turn, may also constitute an event of default under other obligations.

20

As of July 1, 2017, the total estimated fair value of the Notes was approximately \$545.0 million, which is based on quoted prices for the notes on that date.

Credit Agreement

In November 2015, we entered into a multi-currency credit facility with a syndicate of sixteen banks for which JPMorgan Chase Bank, N.A. acts as Administrative Agent. We use the credit facility for general corporate purposes, including acquisitions of businesses, share repurchases and working capital requirements. As of July 1, 2017, the fair value of our credit facility approximates its book value.

The credit facility initially consisted of a \$1 billion revolving loan commitment, which was reduced to \$900 million in June 2016 and further reduced to \$600 million in March 2017 pursuant to amendments to the Credit Agreement. The March 2017 amendment also increased the maximum permissible leverage ratio, defined as consolidated total indebtedness to the consolidated trailing four quarters EBITDA, from 4.00 to 1.00 to 4.50 to 1.00. The loan commitment may be increased by an additional \$500 million (in the form of revolving loans or term loans, or a combination thereof) if the existing or additional lenders are willing to make such increased commitments. The revolving loan commitment does not require amortization of principal and may be repaid in whole or in part prior to the scheduled maturity date at our option without penalty or premium. The credit facility matures on September 15, 2019, when all remaining amounts outstanding will be due and payable in full.

PTC and certain eligible foreign subsidiaries are eligible borrowers under the credit facility. Any borrowings by PTC Inc. under the credit facility would be guaranteed by PTC Inc.'s material domestic subsidiaries that become parties to the subsidiary guaranty, if any. As of the filing of this Form 10-Q, there are no subsidiary guarantors of the obligations under the credit facility. Any borrowings by eligible foreign subsidiary borrowers would be guaranteed by PTC Inc. and any subsidiary guarantors. As of the filing of this Form 10-Q, no amounts under the credit facility have been borrowed by an eligible foreign subsidiary borrower. In addition, PTC and certain of its material domestic subsidiaries' owned property (including equity interests) is subject to first priority perfected liens in favor of the lenders of this credit facility. 100% of the voting equity interests of certain of PTC's domestic subsidiaries and 65% of its material first-tier foreign subsidiaries are pledged as collateral for the obligations under the credit facility.

As of July 1, 2017, we had \$218.1 million in loans outstanding under the credit facility. Loans under the credit facility bear interest at variable rates which reset every 30 to 180 days depending on the rate and period selected by PTC as described below. As of July 1, 2017, the annual interest rate for borrowing outstanding was 2.94%. Interest rates on borrowings outstanding under the credit facility range from 1.25% to 1.75% above an adjusted LIBO rate for Euro currency borrowings or would range from 0.25% to 0.75% above the defined base rate (the greater of the Prime Rate, the FRBNY rate plus 0.5%, or an adjusted LIBO rate plus 1%) for base rate borrowings, in each case based upon PTC's total leverage ratio. Additionally, PTC may borrow certain foreign currencies at rates set in the same range above the respective London interbank offered interest rates for those currencies, based on PTC's total leverage ratio. A quarterly commitment fee on the undrawn portion of the credit facility is required, ranging from 0.175% to 0.30% per annum, based upon PTC's total leverage ratio.

The credit facility limits PTC's and its subsidiaries' ability to, among other things: incur liens or guarantee obligations; pay dividends (other than to PTC) and make other distributions; make investments and enter into joint ventures; dispose of assets; and engage in transactions with affiliates, except on an arms-length basis. Under the credit facility, PTC and its material domestic subsidiaries may not invest cash or property in, or loan to, PTC's foreign subsidiaries in aggregate amounts exceeding \$75.0 million for any purpose and an additional \$200.0 million for acquisitions of businesses. In addition, under the credit facility, PTC and its subsidiaries must maintain the following financial ratios:

- a total leverage ratio, defined as consolidated total indebtedness to the consolidated trailing four quarters EBITDA, not to exceed 4.50 to 1.00 as of the last day of any fiscal quarter;
- a senior secured leverage ratio, defined as senior consolidated total indebtedness (which excludes unsecured indebtedness) to the consolidated trailing four quarters EBITDA, not to exceed 3.00 to 1.00 as of the last day of any fiscal quarter; and
- a fixed charge coverage ratio, defined as the ratio of consolidated trailing four quarters EBITDA less consolidated capital expenditures to consolidated fixed charges, of not less than 3.50 to 1.00 as of the last day of any fiscal quarter.

As of July 1, 2017, our total leverage ratio was 3.19 to 1.00, our senior secured leverage ratio was 0.97 to 1.00 and our fixed charge coverage ratio was 5.08 to 1.00 and we were in compliance with all financial and operating covenants of

the credit facility.

Any failure to comply with the financial or operating covenants of the credit facility would prevent PTC from being able to borrow additional funds, and would constitute a default, permitting the lenders to, among other things, accelerate the amounts outstanding, including all accrued interest and unpaid fees, under the credit facility and to terminate the credit facility. A change in control of PTC, as defined in the agreement, also constitutes an event of default, permitting the lenders to accelerate the indebtedness and terminate the credit facility.

21

Interest expense was \$10.2 million and \$32.2 million for the third quarter and first nine months of 2017, respectively, and \$8.2 million and \$19.5 million for the third quarter and first nine months 2016, respectively.

14. Commitments and Contingencies

Legal and Regulatory Matters

Korean Tax Audit

In July 2016, we received an assessment of approximately \$12 million from the tax authorities in Korea related to an ongoing tax audit. See Note 12. Income Taxes for additional information.

Legal Proceedings

On March 7, 2016, a putative class action lawsuit captioned Matthew Crandall v. PTC Inc. et al., No. 1:16-cv-10471, was filed against us and certain of our current and former officers and directors in the U.S. District Court for the District of Massachusetts, ostensibly on behalf of purchasers of our stock during the period November 24, 2011 through July 29, 2015. The lawsuit, which sought unspecified damages, interest, attorneys' fees and costs, alleges (among other things) that, during that period, PTC's public disclosures concerning investigations by the U.S. Securities and Exchange Commission and the U.S. Department of Justice into U.S. Foreign Corrupt Practices Act matters in China (the "China Investigation") were false and/or misleading. The parties settled the lawsuit for an amount that is not material to our results of operations. The associated liability was accrued in our fiscal 2016 results and was paid into escrow in the third quarter of 2017. The settlement received final court approval on July 14, 2017 and all claims against PTC and the other defendants have been dismissed with prejudice.

We are subject to various other legal proceedings and claims that arise in the ordinary course of business. We do not believe that resolving the legal proceedings and claims that we are currently subject to will have a material adverse impact on our financial condition, results of operations or cash flows. However, the results of legal proceedings cannot be predicted with certainty. Should any of these legal proceedings and claims be resolved against us, the operating results for a particular reporting period could be adversely affected.

Accruals

With respect to legal proceedings and claims, we record an accrual for a contingency when it is probable that a liability has been incurred and the amount of the loss can be reasonably estimated. For legal proceedings and claims for which the likelihood that a liability has been incurred is more than remote but less than probable, we estimate the range of possible outcomes. As of July 1, 2017, we had a legal proceedings and claims accrual of \$0.6 million.

Accounts Receivable

Accounts receivable as of July 1, 2017 includes an amount invoiced under a multi-year contract for which the period of performance, and related revenue recognized, has spanned a number of years (with no revenue recognized in either the second or third quarter of 2017). The invoiced amount is being disputed by the customer. We intend to vigorously pursue collection of the full invoiced amount. If we are unsuccessful in collecting the full invoiced amount, there could be a write-down of accounts receivable and professional services revenue, which could range from \$0 to \$17.3 million.

Guarantees and Indemnification Obligations

We enter into standard indemnification agreements in the ordinary course of our business. Pursuant to such agreements with our business partners or customers, we indemnify, hold harmless, and agree to reimburse the indemnified party for losses suffered or incurred by the indemnified party, generally in connection with patent, copyright or other intellectual property infringement claims by any third party with respect to our products, as well as claims relating to property damage or personal injury resulting from the performance of services by us or our subcontractors. The maximum potential amount of future payments we could be required to make under these indemnification agreements is unlimited. Historically, our costs to defend lawsuits or settle claims relating to such indemnity agreements have been minimal and accordingly we believe the estimated fair value of liabilities under these agreements is immaterial.

We warrant that our software products will perform in all material respects in accordance with our standard published specifications in effect at the time of delivery of the licensed products for a specified period of time. Additionally, we generally warrant that our consulting services will be performed consistent with generally accepted industry standards. In most cases, liability for these warranties is capped. If necessary, we would provide for the estimated cost of product and service warranties based on specific warranty claims and claim history; however, we have not incurred significant

cost under our product or services warranties. As a result, we believe the estimated fair value of these liabilities is immaterial.

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

Forward-Looking Statements

Statements in this Quarterly Report on Form 10-Q that are not historic facts, including statements about future financial and growth expectations and targets are forward-looking statements that involve risks and uncertainties that could cause actual results to differ materially from those projected. These risks include: the macroeconomic and/or global manufacturing climates may not improve or may deteriorate; customers may not purchase our solutions when or at the rates we expect; our businesses, including our Internet of Things (IoT) business, may not expand and/or generate the revenue we expect; foreign currency exchange rates may vary from our expectations and thereby affect our reported revenue and expense; the mix of revenue between license & subscription solutions, support and professional services could be different than we expect, which could impact our EPS results; our customers may purchase more of our solutions as subscriptions than we expect, which would adversely affect near-term revenue, operating margins, and EPS; customers may not purchase subscriptions as we expect, which could impact our ability to achieve targeted subscription bookings and subscription mix; sales of our solutions as subscriptions may not have the longer-term effect on revenue that we expect; we may be unable to improve performance in Japan when or as we expect; we may be unable to generate sufficient operating cash flow to return 40% of free cash flow to shareholders and other uses of cash or our credit facility limits could preclude share repurchases; and any repatriation of cash held outside the U.S., which constitutes a significant portion of our cash, could be subject to significant taxes; as well as other risks and uncertainties described below throughout or referenced in Part II, Item 1 A. Risk Factors of this report.

Operating and Non-GAAP Measures

Our discussion of results includes discussion of our operating measures (including "subscription bookings" and "license and subscription bookings") and non-GAAP financial measures. You can find an explanation of these measures in Results of Operations - Subscription Measures and Results of Operations - Non-GAAP Financial Measures below.

Business Overview

PTC is a global computer software and services company. We are organized in two primary businesses: the Internet of Things and Solutions.

Internet of Things (IoT)

IoT and Augmented Reality

Our IoT portfolio is comprised of our IoT, analytics and augmented reality software. This software enables connectivity, rapid application development, machine learning and predictive analysis, and augmented reality software applications for smart, connected products, factory operations, and other environments.

As the IoT gains momentum, software, sensors, and IP-enabled connectivity are increasingly embedded into the design and build of products and are becoming integral to the manufacturing and post-sales service processes. This transformation is taking shape across all manufacturing and industrial sectors.

Solutions

Our Solutions portfolio is comprised of our innovative Computer-Aided Design (CAD), Product Lifecycle Management (PLM) and Service Lifecycle Management (SLM) solutions for manufacturers to create, operate, and service smart, connected products.

Executive Overview

Revenue	Three months ended			Constant Currency Change	Nine months ended			Constant Currency Change	
	July 1, 2017	July 2, 2016	Change		July 1, 2017	July 2, 2016	Change		
	(in millions)								
Subscription	\$74.9	\$31.8	135 %	137 %	\$195.0	\$77.7	151 %	152 %	
Support	140.4	161.9	(13)%	(12)%	433.6	494.3	(12)%	(12)%	
Total recurring revenue	215.3	193.7	11 %	12 %	628.6	571.9	10 %	10 %	
Perpetual license	32.3	44.6	(28)%	(27)%	94.1	132.1	(29)%	(29)%	
Total subscription, support and license revenue	247.6	238.4	4 %	5 %	722.7	704.0	3 %	3 %	
Professional services	43.7	50.3	(13)%	(12)%	134.9	148.3	(9)%	(9)%	
Total revenue	\$291.3	\$288.7	1 %	2 %	\$857.7	\$852.3	1 %	1 %	

Earnings Measures	Three months ended			Nine months ended		
	July 1, 2017	July 2, 2016	Change	July 1, 2017	July 2, 2016	Change
Operating Margin	3.9 %	2.6 %		2.7 %	(0.5)%	
Loss Per Share	\$(0.01)	\$0.03	(131)%	\$(0.10)	\$(0.23)	57 %
Non-GAAP Operating Margin ⁽¹⁾	15.4 %	14.1 %		15.6 %	16.5 %	
Non-GAAP Earnings Per Share ⁽¹⁾	\$0.28	\$0.26	7 %	\$0.84	\$1.00	(16)%

(1) Non-GAAP measures are reconciled to GAAP results under Results of Operations - Non-GAAP Financial Measures below.

Total revenue in the quarter grew 1% over the third quarter of 2016, the second quarter in which revenue has increased year over year since we began our subscription transition in 2015, and total recurring revenue grew 11%. We believe these results evidence our exit from the subscription trough. Increases in subscription revenue were offset by related declines in perpetual license revenue and support revenue and an expected decline in professional services revenue consistent with our strategy to migrate more service engagements to our partners and to deliver products that require less consulting and training services.

Subscription bookings were 64% of total bookings for the third quarter, compared to 58% in the third quarter of 2016. License and subscription bookings in the third quarter and first nine months of 2017 declined 14% and grew 6% over the third quarter and first nine months of 2016, respectively. The decline in bookings in the third quarter of 2017 over the third quarter of 2016 is primarily due to a decline in bookings in Japan, where bookings declined 74% for the third quarter and 52% for the first nine months due to sales execution issues. Additionally, the decline reflects a difficult comparison to the third quarter of 2016, when bookings grew over 30% compared to the third quarter of 2015.

The increase in operating margin in the third quarter of 2017 reflects higher revenue and slightly lower sales and marketing and general and administrative costs, offset by increased research and development spending. Additionally, restructuring charges of \$2 million and \$8 million for the third quarter and first nine months of 2017, respectively, were lower than restructuring charges of \$3 million and \$45 million for the third quarter and first nine months of 2016, respectively.

We ended the quarter with cash, cash equivalents and marketable securities of \$311 million. We generated \$74 million of cash from operations in the third quarter of 2017, which is net of restructuring payments of \$6 million and legal payments of \$2 million. We repurchased \$35 million of common stock in the third quarter of 2017. At July 1, 2017, the balance outstanding under our credit facility was \$218 million and total debt outstanding was \$718 million.

Future Expectations, Strategies and Risks

Despite recent improvements in certain global macroeconomic factors, we continue to remain cautious about the strength of the global macroeconomic environment. Because a significant percentage of our annual revenue comes from large customers in the broader manufacturing space, total subscription, support and license revenue growth in our core CAD and PLM products historically has correlated to growth in broader measures of the global manufacturing economy, including GDP, industrial production and manufacturing PMI. Although recent PMI data indicates potential modest improvements in North America and Europe, it is too early for us to conclude that this has caused, or will cause, a change in buying behavior within our customer base.

Our transition to a subscription model has been a headwind for revenue and earnings in 2017, which is moderating as the subscription business matures. A higher mix of subscription bookings is expected to benefit us over the long term, but results in lower revenue and lower earnings in the near term. Changes in foreign currency rates can have a significant impact on our results and, relative to the prior year, may negatively impact results in the remainder of fiscal 2017.

Our 2017 initiatives are to:

- 1) drive sustainable growth,
- 2) expand our subscription-based licensing, and
- 3) continue to control costs and improve margins.

Sustainable Growth

Our goals for overall growth are predicated on continuing to grow in the IoT market and continuing to drive improvements in operational performance in our core Solutions business.

Subscription

Through 2015, the majority of our software licenses were sold as perpetual licenses, under which customers own the software license and revenue is recognized at the time of sale. We began offering subscription licensing for our core Solutions products in 2015 and expanded our subscription program in 2016. Under a subscription, customers pay a periodic fee to license our software and access technical support over a specified period of time. As part of our expanded subscription program, we also launched a program for our existing customers to convert their support contracts to subscription contracts. Upon conversion to subscription, we typically see an increase in the annualized recurring revenue. A number of customers converted their support contracts to subscriptions in 2016 and the first nine months of 2017, and we expect there will be continued opportunities to convert existing support contracts to subscription contracts in the remainder of 2017. In the third quarter of 2017, subscription bookings were 64% of total bookings, compared to 58% in the third quarter of 2016.

The transition to a subscription licensing model has had an adverse impact on revenue, operating margin and EPS relative to periods in which we primarily sold perpetual licenses. Until the transition of our customer base to subscription is completed, revenue and earnings will continue to be adversely impacted. In the third quarter of 2017, total revenue was modestly higher than in the third quarter of 2016, the second quarter that revenue increased year over year since we began the subscription transition, despite a higher subscription mix. Total revenue growth was driven by an 11% increase in recurring revenue and reflects a 4% increase in software revenue in the third quarter of 2017 compared to the third quarter of 2016.

Given the subscription adoption rates we have seen in the Americas and Western Europe, we recently announced that, effective January 1, 2018, new software licenses for our core solutions and ThingWorx platform will be available only by subscription in the Americas and Western Europe. We plan to continue to offer both perpetual and subscription licenses to customers outside the Americas and Western Europe until such time as we believe a change may be appropriate. The announcement could affect customer purchasing decisions, particularly in the affected regions, as customers may accelerate purchases of perpetual licenses before January 1, 2018 or, conversely, may delay purchases.

Cost Controls and Margin Expansion

We continue to manage proactively our cost structure and invest in what we believe are high return opportunities in our business. Our goal is to drive continued margin expansion over the long term. To that end, we restructured our workforce in 2016, and we substantially completed facility-related restructuring actions in the first nine months of 2017. We do not expect to record additional restructuring charges in the fourth quarter of 2017. As of July 1, 2017, we had incurred aggregate restructuring charges of approximately \$86 million under the 2016 workforce restructuring. Of that amount, \$2 million was recorded in the third quarter of 2017.

We expect that the cost savings associated with the headcount and facility reductions will be offset by certain planned cost increases and investments in other areas of our business. As a result, we do not expect net operating expense reductions in 2017, as compared to 2016 levels.

Results of Operations

The following table shows the financial measures that we consider the most significant indicators of the performance of our business. In addition to operating income, operating margin, and diluted earnings per share as calculated under GAAP, the table also includes non-GAAP operating income, non-GAAP operating margin, and non-GAAP diluted

earnings per share for the reported periods. We discuss the non-GAAP measures in detail, including items excluded from the measures, and provide a reconciliation to the comparable GAAP measures under Non-GAAP Financial Measures below. Any reference to "software revenue" in the discussion that follows means the sum of subscription revenue, support revenue and perpetual license revenue. "Subscription revenue" includes cloud services revenue.

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	Three months ended		Percent Change 2016 to 2017		Nine months ended		Percent Change 2016 to 2017		
	July 1, 2017	July 2, 2016	Actual	Constant Currency	July 1, 2017	July 2, 2016	Actual	Constant Currency	
	(Dollar amounts in millions, except per share data)								
Subscription	\$74.9	\$31.8	135 %	137 %	\$195.0	\$77.7	151 %	152 %	
Support	140.4	161.9	(13)%	(12)%	433.6	494.3	(12)%	(12)%	
Total recurring revenue	215.3	193.7	11 %	12 %	628.6	571.9	10 %	10 %	
Perpetual license	32.3	44.6	(28)%	(27)%	94.1	132.1	(29)%	(29)%	
Total subscription, support and license revenue	247.6	238.4	4 %	5 %	722.7	704.0	3 %	3 %	
Professional services	43.7	50.3	(13)%	(12)%	134.9	148.3	(9)%	(9)%	
Total revenue	291.3	288.7	1 %	2 %	857.7	852.3	1 %	1 %	
Total cost of revenue	82.3	82.5	— %		246.2	242.8	1 %		
Gross margin	209.0	206.2	1 %		611.4	609.5	— %		
Operating expenses	197.8	198.6	— %		588.1	613.4	(4)%		
Total costs and expenses	280.0	281.1	— %	1 %	834.3	856.2	(3)%	(2)%	
Operating income (loss)	11.3	7.6	48 %	38 %	\$23.3	\$(3.9)	(692)%	(773)%	
Non-GAAP operating income ⁽¹⁾	\$44.9	\$40.7	10 %	10 %	\$134.2	\$141.1	(5)%	(6)%	
Operating margin	3.9 %	2.6 %			2.7 %	(0.5)%			
Non-GAAP operating margin ⁽¹⁾	15.4 %	14.1 %			15.6 %	16.5 %			
Diluted loss per share	\$(0.01)	\$0.03			\$(0.10)	\$(0.23)			
Non-GAAP diluted earnings per share ⁽²⁾	\$0.28	\$0.26			\$0.84	\$1.00			
Cash flow from operations ⁽³⁾	\$73.7	\$59.5			\$102.1	\$169.6			

(1) See Non-GAAP Financial Measures below for a reconciliation of our GAAP results to our non-GAAP measures.

(2) We have recorded a full valuation allowance against our U.S. net deferred tax assets and a valuation allowance against net deferred tax assets in certain foreign jurisdictions. As we are profitable on a non-GAAP basis, the 2017 and 2016 non-GAAP tax provisions are being calculated assuming there is no valuation allowance. Income tax adjustments reflect the tax effects of non-GAAP adjustments which are calculated by applying the applicable tax rate by jurisdiction to the non-GAAP adjustments listed above. For the three and nine months ended July 1, 2017 and July 2, 2016 our non-GAAP tax provision is based on our annual expected non-GAAP tax rate applied to our year-to-date non-GAAP earnings.

(3) Cash flow from operations for the three and nine months ended July 1, 2017 includes \$6.4 million and \$35.3 million of restructuring payments, respectively, and \$2.1 million and \$3.3 million of legal payments, respectively. Cash flow from operations for the three and nine months ended July 2, 2016 includes \$8.1 million and \$49.9 million of restructuring payments, respectively, and \$0.0 million and \$28.2 million of legal payments, respectively.

Subscription Measures

Given the difference in revenue recognition between the sale of a perpetual software license (revenue is recognized at the time of sale) and a subscription (revenue is recognized ratably over the subscription term), we use bookings for internal planning, forecasting and reporting of new license and subscription sales and cloud services transactions.

Bookings

In order to normalize between perpetual and subscription licenses, we define subscription bookings as the subscription annualized contract value (subscription ACV) of new subscription bookings multiplied by a conversion factor of 2. We arrived at the conversion factor of 2 by considering a number of variables, including pricing, support, length of term, and renewal rates. In 2016, and for the third quarter and first nine months of 2017, the average subscription contract term was approximately two years.

We define subscription ACV as the total value of a new subscription booking divided by the term of the contract (in days), multiplied by 365. If the term of the subscription contract is less than a year, the ACV is equal to the total

contract value.

We define license and subscription bookings as subscription bookings (as described above) plus perpetual license bookings plus any monthly software rental bookings during the period.

26

License and subscription bookings for the third quarter of 2017 were \$90 million, down 14% over the third quarter of 2016 primarily due to a decline in bookings in Japan. Additionally, the decline reflects a difficult comparison to the third quarter of 2016, when bookings grew over 30% compared to the third quarter of 2015. On a year-to-date basis, license and subscription bookings were \$275 million, up 6% (7% constant currency) over the first nine months of 2016, despite an 800 basis point headwind due to the performance in Japan, where bookings were down \$20 million for the period.

We define total ACV as subscription ACV (as described above) plus the annualized value of incremental monthly software rental bookings during the period.

Total subscription ACV decreased 6% over the third quarter of 2016 to \$29 million, and increased 42% over the first nine months of 2016 to \$91 million.

The decline in license and subscriptions booking as well as ACV in the third quarter of 2017 over the third quarter of 2016 is primarily due to declines in bookings in Japan due to sales execution issues. Japan bookings declined 74% and 52% for the third quarter and first nine months of 2017 compared to the third quarter and first nine months of 2016. Because subscription bookings is a metric we use to approximate the value of subscription sales if sold as perpetual licenses, it does not represent the actual revenue that will be recognized with respect to subscription sales or that would be recognized if the sales had been perpetual licenses, nor does the annualized value of monthly software rental bookings represent the value of any such booking.

Annualized Recurring Revenue (ARR)

Annualized Recurring Revenue (ARR) for a given quarter is calculated by dividing the non-GAAP subscription and support software revenue for the quarter by the number of days in the quarter and multiplying by 365. ARR should be viewed independently of revenue and deferred revenue as it is an operating measure and is not intended to be combined with or to replace either of those items. ARR is not a forecast and does not include perpetual license or professional services revenues.

ARR was approximately \$865 million for the third quarter of 2017, which increased 11% compared to the third quarter of fiscal 2016.

Impact of Foreign Currency Exchange on Results of Operations

Approximately two-thirds of our revenue and half of our expenses are transacted in currencies other than the U.S. Dollar. Because we report our results of operations in U.S. Dollars, currency translation, particularly changes in the Euro and Yen relative to the U.S. Dollar, affects our reported results. If actual results for the third quarter and first nine months of 2017 had been converted into U.S. Dollars based on the foreign currency exchange rates in effect for the third quarter and first nine months of 2016, revenue would have been higher by \$3.9 million and \$4.3 million, respectively, costs and expenses would have been higher by \$2.6 million and \$5.1 million, respectively, and operating income would have been higher by \$1.3 million for the third quarter of 2017, and lower by \$0.8 million for the first nine months of 2017. Our constant currency disclosures are calculated by multiplying the actual results for the third quarter and first nine months of 2017 by the exchange rates in effect for the comparable periods of 2016 excluding the effect of any hedging.

Revenue from Acquired Businesses

The results of operations of acquired businesses have been included in our consolidated financial statements beginning on their respective acquisition dates. Kepware, acquired in the second quarter of 2016, contributed approximately \$20.3 million to our software revenue in the first nine months of 2017. Results for the third quarter of both 2017 and 2016 include Kepware revenue.

Allocations and Reclassifications

In 2016, we launched Navigate, a ThingWorx-based PLM solution. In 2017, revenue and bookings for Navigate are being allocated 50% to Solutions and 50% to IoT; 2016 reported amounts have been reclassified to conform to the current presentation. The impact of the reclassification on 2016 revenue was immaterial.

Deferred Revenue and Backlog (Unbilled Deferred Revenue)

Deferred revenue primarily relates to software agreements invoiced to customers for which the revenue has not yet been recognized. Unbilled deferred revenue is the aggregate of contractually committed orders for license, subscription and support for which the associated revenue has not been recognized and the customer has not been invoiced. We do not record unbilled deferred revenue on our Consolidated Balance Sheet until we invoice the

customer.

27

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July 1, 2017, September 30, 2016, July 2, 2016

(Dollar amounts in millions)

Deferred revenue	\$465	\$ 414	\$ 425
Unbilled deferred revenue	443	369	232
Total	\$909	\$ 783	\$ 658

Total billed and unbilled deferred revenue increased 38% year over year and 3% sequentially primarily due to the increase in subscription bookings, which are generally billed annually at the start of each annual subscription period. We expect that the amount of unbilled deferred revenue and deferred revenue will change from quarter to quarter due to the specific timing, duration and size of large customer subscription and support agreements, varying billing cycles of such agreements, the specific timing of customer renewals, foreign currency fluctuations and the timing of when revenue is recognized.

Revenue

We report our revenue by line of business (as described above), by business group (Solutions and IoT Groups), and by geographic region (Americas, Europe, and Asia Pacific). Results include combined revenue from direct sales and our channel.

Revenue by Line of Business	% of Total Revenue			
	Three months ended July 1, 2017		Nine months ended July 1, 2016	
Subscription	26%	11%	23%	9%
Support	48%	56%	51%	58%
Perpetual license	11%	15%	11%	15%
Professional services	15%	17%	16%	17%

Revenue by Business Group	Three months ended				Nine months ended			
	July 1, 2017	July 2, 2016	Percent Change Actual	Percent Change Constant Currency	July 1, 2017	July 2, 2016	Percent Change Actual	Percent Change Constant Currency
(Dollar amounts in millions)								
Solutions Group								
Subscription	\$59.8	\$20.8	187%	190%	\$153.6	\$45.8	235%	237%
Support	137.5	159.1	(14)%	(13)%	425.1	486.7	(13)%	(12)%
Total recurring revenue	197.2	179.9	10%	11%	578.6	532.5	9%	9%
Perpetual license	25.2	37.7	(33)%	(33)%	75.7	120.5	(37)%	(37)%
Total subscription, support and license revenue	222.4	217.7	2%	3%	654.3	653.0	—%	1%
Professional services	41.0	48.7	(16)%	(15)%	128.1	142.7	(10)%	(10)%
Total revenue	\$263.5	\$266.4	(1)%	—%	\$782.4	\$795.6	(2)%	(1)%
IoT Group								
Subscription	\$15.1	\$11.0	38%	37%	\$41.4	\$31.9	30%	30%
Support	3.0	2.8	6%	6%	8.6	7.6	13%	13%
Total recurring revenue	18.1	13.8	31%	31%	50.0	39.5	27%	27%
Perpetual license	7.1	6.9	3%	4%	18.4	11.6	59%	60%
Total subscription, support and license revenue	25.2	20.7	22%	22%	68.4	51.0	34%	34%
Professional services	2.6	1.6	66%	66%	6.9	5.6	22%	22%
Total revenue	\$27.8	\$22.3	25%	25%	\$75.3	\$56.7	33%	33%

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Europe	38	%	38	%	37%	37	%
Asia Pacific	19	%	21	%	20%	20	%

We believe that our recent performance in North America and Europe has been driven by improved execution in a somewhat weak macro-environment, which we do not expect will change materially over the short term. We believe our challenges in Japan are driven by sales execution issues, which we are addressing, and not due to macro-economic issues as the

PMI in Japan was 52 in June (the 10th quarter of modest expansion). We do not believe there have been any changes in the competitive landscape in Japan.

Americas

Bookings in the Americas in the third quarter of 2017 compared to the strong third quarter of 2016 declined by 9%, while subscription revenue grew 135% year over year. The decline in bookings for the third quarter reflects a difficult comparison to the third quarter of 2016, when bookings grew over 30% compared to the third quarter of 2015.

Bookings in the Americas in the first nine months of 2017 compared to the first nine months of 2016 grew by 17%.

Europe

Bookings in Europe in the third quarter of 2017 compared to the third quarter of 2016 grew by 21%, (25% on a constant currency basis) with subscription revenue growing 140% year over year. Bookings in Europe in the first nine months of 2017 compared to the first nine months of 2016 grew by 23% (26% on a constant currency basis). Bookings in the third quarter of 2017 includes one IoT perpetual deal over \$1 million.

Asia Pacific

Bookings in Asia Pacific in the third quarter of 2017 compared to the third quarter of 2016 declined by 46%.

Notwithstanding the bookings declines, subscription revenue grew 128% in the third quarter of 2017 over the third quarter of 2016. In the first nine months of 2017 compared to the first nine months of 2016, bookings declined by 21%. The decline in bookings is largely due to sales execution issues in Japan where bookings declined 74% in the third quarter of 2017 compared to the third quarter of 2016 and 52% in the first nine months of 2017 compared to the first nine months of 2016.

Gross Margin

	Three months ended			Nine months ended		
	July 1, 2017	July 2, 2016	Percent Change	July 1, 2017	July 2, 2016	Percent Change
	(Dollar amounts in millions)					
Gross margin	\$209.0	\$206.2	1 %	\$611.4	\$609.5	— %
Non-GAAP gross margin (1)	219.1	216.0	1 %	641.7	638.2	1 %
Gross margin as a % of revenue:						
License and subscription gross margin	80	% 77	%	78	% 76	%
Support gross margin	83	% 87	%	84	% 87	%
Professional services gross margin	15	% 13	%	15	% 13	%
Gross margin as a % of total revenue	72	% 71	%	71	% 72	%
Non-GAAP gross margin as a % of total revenue (1)	75	% 75	%	75	% 75	%

(1) Non-GAAP measures are reconciled to GAAP results under Non-GAAP Financial Measures below.

The increase in total gross margin in the third quarter and first nine months of 2017 compared to the third quarter and first nine months of 2016 is in line with the total revenue growth. Total revenue in the quarter grew 1% over the third quarter of 2016. The third quarter of 2017 is the second quarter in which revenue has increased year over year since we began our subscription transition in 2015. Margins are beginning to expand as the subscription model matures and revenue that has been deferred begins to contribute to each quarterly period. Support gross margins are down for the third quarter and first nine months of 2017 compared to the third quarter and first nine months of 2016, primarily due to a 13% and 12% decrease in support revenue, respectively.

	Three months ended			Nine months ended		
	July 1, 2017	July 2, 2016	Percent Change	July 1, 2017	July 2, 2016	Percent Change
(Dollar amounts in millions)						
Costs and expenses:						
Cost of license and subscription revenue	\$21.6	\$17.8	22 %	\$62.3	\$50.6	23 %
Cost of support revenue	23.6	21.1	12 %	69.0	63.7	8 %
Cost of professional services revenue	37.0	43.6	(15)%	114.9	128.5	(11)%
Sales and marketing	93.1	94.9	(2)%	271.6	264.5	3 %
Research and development	59.9	57.1	5 %	175.5	171.4	2 %
General and administrative	35.3	35.5	(1)%	108.8	108.0	1 %
Amortization of acquired intangible assets	8.0	8.3	(4)%	24.0	25.0	(4)%
Restructuring charges	1.6	2.8	(45)%	8.3	44.5	(81)%
Total costs and expenses	\$280.0	\$281.1	— %	\$834.3	\$856.2	(3)%
Total headcount at end of period	5,983	5,761	4 %			

Costs and expenses in the third quarter of 2017 compared to the third quarter of 2016 decreased slightly, primarily as a result of the following:

• a \$2.8 million increase in stock-based compensation expense, and

• a \$2.8 million increase in cloud services hosting costs, of which \$1.1 million is included in cost of license and subscription revenue;

offset by:

• a decrease in professional services costs as we migrated more service engagements to our partners and we delivered products that require less consulting and training services.

Costs and expenses for the first nine months of 2017 compared to the first nine months of 2016 decreased primarily as a result of:

• a \$36.2 million decrease in restructuring charges;

offset by:

• a \$7.1 million increase in cloud services hosting costs, of which \$2.9 million is included in cost of license and subscription revenue, and

• a \$6.3 million increase in total compensation, benefit costs and travel expenses.

Cost of License, Subscription and Support Revenue

In the third quarter of 2017, we began reporting cost of support revenue separate from cost of license and subscription revenue. Costs for previous periods have also been separately reported to conform to the current period presentation.

Cost of License and Subscription Revenue	Three months ended			Nine months ended		
	July 1, 2017	July 2, 2016	Percent Change	July 1, 2017	July 2, 2016	Percent Change
(Dollar amounts in millions)						

Cost of license and subscription revenue	\$21.6	\$17.8	22 %	\$62.3	\$50.6	23 %
% of total revenue	7	% 6	%	7	% 6	%
% of total license and subscription revenue	20	% 23	%	22	% 24	%
License and subscription headcount at end of period	239	155	54 %			

Our cost of license and subscription includes cost of license, which consists of fixed and variable costs associated with reproducing and distributing software and documentation, as well as royalties paid to third parties for technology embedded in or licensed with our software products, amortization of intangible assets associated with acquired products, and cost of subscription, which includes our cost of cloud services and software as a service revenue. Costs associated with providing post-contract support such as providing software updates and technical support for both our subscription offerings and our

perpetual licenses are included in cost of support revenue. Cost of license and subscription revenue as a percent of license and subscription revenue can vary depending on the subscription mix percentage, the product mix sold, the effect of fixed and variable royalties, headcount and the level of amortization of acquired software intangible assets. Costs and expenses in the third quarter of 2017 compared to the third quarter of 2016 increased primarily as a result of a \$1.1 million increase in cloud services hosting costs and a \$1.3 million increase in total compensation, benefit costs and travel expenses due to increased headcount. Costs and expenses for the first nine months of 2017 compared to the first nine months of 2016 increased primarily as a result of a \$3.7 million increase in total compensation, benefit costs and travel expenses due to increased headcount and a \$2.9 million increase in cloud services hosting costs.

Cost of Support Revenue	Three months ended			Nine months ended		
	July 1, 2017	July 2, 2016	Percent Change	July 1, 2017	July 2, 2016	Percent Change
	(Dollar amounts in millions)					
Cost of support revenue	\$23.6	\$21.1	12 %	\$69.0	\$63.7	8 %
% of total revenue	8 %	7 %		8 %	7 %	
% of total support revenue	17 %	13 %		16 %	13 %	
Support headcount at end of period	680	663	3 %			

Cost of support revenue consists of costs such as salaries, benefits, and computer equipment and facilities associated with customer support and the release of support updates (including related royalty costs) associated with providing support for both our perpetual licenses and subscription licenses.

Costs and expenses in the third quarter and first nine months of 2017 compared to the third quarter and first nine months of 2016 increased by \$2.6 million and \$5.4 million, respectively, primarily due to a \$1.0 million and \$2.1 million increase in total compensation, benefit costs and travel expenses, respectively.

Cost of Professional Services Revenue	Three months ended			Nine months ended		
	July 1, 2017	July 2, 2016	Percent Change	July 1, 2017	July 2, 2016	Percent Change
	(Dollar amounts in millions)					
Cost of professional services revenue	\$37.0	\$43.6	(15) %	\$114.9	\$128.5	(11) %
% of total revenue	13 %	15 %		13 %	15 %	
% of total professional services revenue	85 %	87 %		85 %	87 %	
Professional services headcount at end of period	921	987	(7) %			

Our cost of professional services revenue includes costs such as salaries, benefits, and computer equipment and facilities for our training and consulting personnel, and third-party subcontractor fees. In the third quarter and first nine months of 2017 compared to the third quarter and first nine months of 2016, total compensation, benefit costs and travel expenses decreased 6% (\$1.8 million) and 6% (\$5.0 million), respectively. The decrease in compensation-related and travel costs is due to lower headcount as a result of lower professional services revenue. The cost of third-party consulting services also decreased in the third quarter and first nine months of 2017 by 34% (\$2.6 million) and 18% (\$3.9 million), respectively, due to decreases in professional services revenue.

Sales and Marketing	Three months ended			Nine months ended		
	July 1, 2017	July 2, 2016	Percent Change	July 1, 2017	July 2, 2016	Percent Change
	(Dollar amounts in millions)					
Sales and marketing	\$93.1	\$94.9	(2) %	\$271.6	\$264.5	3 %
% of total revenue	32 %	33 %		32 %	31 %	
Sales and marketing headcount at end of period	1,482	1,417	5 %			

Our sales and marketing expenses primarily include salaries and benefits, sales commissions, advertising and marketing programs, travel and facility costs. In the third quarter and first nine months of 2017 compared to the third quarter and first nine months of 2016, total compensation, benefit costs and travel expenses decreased 3% (\$2.5 million) and were relatively

flat, respectively. In the first nine months of 2017 compared to the first nine months of 2016, event costs increased \$3.2 million due to our LiveWorx event held in May 2017.

Research and Development	Three months ended			Nine months ended		
	July 1, 2017	July 2, 2016	Percent Change	July 1, 2017	July 2, 2016	Percent Change
	(Dollar amounts in millions)					
Research and development	\$59.9	\$57.1	5 %	\$175.5	\$171.4	2 %
% of total revenue	21 %	20 %		20 %	20 %	
Research and development headcount at end of period	1,985	1,862	7 %			

Our research and development expenses consist principally of salaries and benefits, costs of computer equipment and facility expenses. Major research and development activities include developing new products and releases and updates of our software that enhance functionality and add features. Research and development costs for the third quarter and first nine months of 2017 compared to the third quarter and first nine months of 2016 increased \$2.8 million and \$4.1 million, respectively, primarily due to a 3% (\$1.5 million) and 1% (\$1.5 million) increase in total compensation, benefit costs and travel expenses, respectively, due to an increase in headcount as well as increased severance costs.

General and Administrative	Three months ended			Nine months ended		
	July 1, 2017	July 2, 2016	Percent Change	July 1, 2017	July 2, 2016	Percent Change
	(Dollar amounts in millions)					
General and administrative	\$35.3	\$35.5	(1) %	\$108.8	\$108.0	1 %
% of total revenue	12 %	12 %		13 %	13 %	
General and administrative headcount at end of period	676	677	— %			

Our general and administrative expenses include the costs of our corporate, finance, information technology, human resources, legal and administrative functions, as well as acquisition-related charges, bad debt expense and outside professional services, including accounting and legal fees. In the third quarter and first nine months of 2017 compared to the third quarter and first nine months of 2016, total compensation, benefit costs and travel expenses increased 10% (\$2.4 million) and 4% (\$3.6 million), respectively. The increase in total compensation primarily relates to increased stock-based compensation expense and a one-time accelerated stock vest and severance accrual for a former employee. Offsetting the increase in employee costs, equipment maintenance and software subscription costs decreased \$0.8 million and \$1.8 million in the third quarter and first nine months of 2017 compared to the third quarter and first nine months of 2016, respectively.

Amortization of Acquired Intangible Assets	Three months ended			Nine months ended		
	July 1, 2017	July 2, 2016	Percent Change	July 1, 2017	July 2, 2016	Percent Change
	(Dollar amounts in millions)					
Amortization of acquired intangible assets	\$8.0	\$8.3	(4) %	\$24.0	\$25.0	(4) %
% of total revenue	3 %	3 %		3 %	3 %	

Amortization of acquired intangible assets reflects the amortization of acquired non-product related intangible assets, primarily customer and trademark-related intangible assets, recorded in connection with completed acquisitions. The decrease in amortization of acquired intangible assets in the third quarter and first nine months of 2017 compared to the third quarter and first nine months of 2016 is due to certain assets being fully amortized as well as the impact of exchange rates.

Restructuring Charges	Three months ended		Nine months ended	
	July 1, 2017	July 2, 2016	July 1, 2017	July 2, 2016
	(in millions)			
Restructuring charges	\$1.6	\$2.8	\$8.3	\$44.5

On October 23, 2015 (our fiscal 2016), we committed to a plan to restructure our global workforce and consolidate select facilities in order to reduce our cost structure and to realign our investments with our identified growth opportunities. As of July 1, 2017, we were materially complete with those actions and had incurred total restructuring charges of approximately \$85.5 million. We expect that the expense reductions will be offset by planned cost increases, investments in our business and the

anticipated effects of foreign currency fluctuations, which effect is contemplated in our most recent financial targets for fiscal 2017. In the third quarter and first nine months of 2017, we recorded charges of \$1.6 million and \$8.3 million, respectively, of which \$1.8 million and \$5.8 million related to the closure of excess facilities.

In the third quarter and first nine months of 2017, we made cash payments related to restructuring charges of \$6.4 million and \$35.3 million, compared to \$8.1 million and \$49.9 million in the third quarter and first nine months 2016. At July 1, 2017, accrued restructuring totaled \$8.1 million, of which we expect to pay \$6.0 million within the next twelve months.

Interest Expense	Three months ended		Nine months ended	
	July 1, 2017	July 2, 2016	July 1, 2017	July 2, 2016
	(in millions)			

Interest expense	(10.2)	(8.2)	(32.2)	(19.5)
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The increase in interest expense in the third quarter and first nine months of 2017 compared to the third quarter and first nine months of 2016 is due to the \$500 million of 6% senior notes issued in the third quarter of 2016, partially offset by lower amounts outstanding under our credit facility. We had \$718 million of total debt at July 1, 2017, compared to \$758 million at July 2, 2016. We modified our credit facility in March 2017 to decrease the loan commitment to \$600 million from \$900 million, which will reduce the associated commitment fees by approximately \$0.9 million per year.

Interest Income and Other Expense, net	Three months ended		Nine months ended	
	July 1, 2017	July 2, 2016	July 1, 2017	July 2, 2016
	(in millions)			

Interest income	\$0.8	\$0.8	\$2.4	\$2.4
Other expense, net	(1.2)	(0.9)	(0.4)	(2.8)
Total interest income and other expense, net	\$(0.4)	\$(0.1)	\$2.0	\$(0.4)

Interest income and other expense, net includes interest income, foreign currency net losses and other non-operating gains and losses. Foreign currency net losses include costs of forward contracts, certain realized and unrealized foreign currency transaction gains or losses, and foreign exchange gains or losses resulting from the required period-end currency re-measurement of the assets and liabilities of our subsidiaries that use the U.S. Dollar as their functional currency. We use foreign currency forward contracts to reduce our exposure to fluctuations in foreign exchange rates.

Income Taxes	Three months ended		Nine months ended	
	July 1, 2017	July 2, 2016	July 1, 2017	July 2, 2016
	(Dollar amounts in millions)			

Pre-tax income (loss)	\$0.7	\$(0.7)	\$(6.9)	\$(23.8)
Tax provision (benefit)	1.7	(3.8)	4.3	2.2
Effective income tax rate	236 %	537 %	(63)%	(9)%

In the first nine months of 2017 and 2016, our effective tax rate was lower than the 35% statutory federal income tax rate due to our corporate structure in which our foreign taxes are at a net effective tax rate lower than the U.S. rate. A significant amount of our foreign earnings is generated by our subsidiaries organized in Ireland. In 2017 and 2016, the foreign rate differential predominantly relates to these Irish earnings. Our foreign rate differential in 2017 and 2016 includes the continuing rate benefit from a business realignment completed on September 30, 2014 in which intellectual property was transferred between two wholly-owned foreign subsidiaries. For the third quarters and first nine months of 2017 and 2016, this realignment resulted in tax benefits of approximately \$9 million and \$21 million, and \$9 million and \$16 million, respectively. Also, in the first nine months of 2017, we recorded a tax benefit of \$1.8 million related to a favorable agreement in a foreign jurisdiction. Additionally, for the first nine months of 2016, our provision reflects a tax benefit of \$2.6 million related to a retroactive extension of the U.S. research and development

tax credit enacted in the first quarter of 2016. This benefit was offset by a corresponding provision to increase our U.S. valuation allowance.

Changes to tax laws have been proposed by the Executive and Legislative branches of the U.S. government. Some of the proposed changes, if enacted into law, could have a material impact to our effective tax rate.

We have concluded, based on the weight of available evidence, that a full valuation allowance continues to be required against our U.S. net deferred tax assets as they are not more likely than not to be realized in the future. We will continue to reassess our valuation allowance requirements each financial reporting period.

In the normal course of business, PTC and its subsidiaries are examined by various taxing authorities, including the Internal Revenue Service in the U.S. We regularly assess the likelihood of additional assessments by tax authorities and provide for these matters as appropriate. We are currently under audit by tax authorities in several jurisdictions. Audits by tax authorities typically involve examination of the deductibility of certain permanent items, limitations on net operating losses and tax credits. Although we believe our tax estimates are appropriate, the final determination of tax audits and any related litigation could result in material changes in our estimates.

In the fourth quarter of 2016, we received an assessment of \$12 million from the tax authorities in Korea related to a tax audit. The assessment relates to various tax issues but primarily to foreign withholding taxes. We have appealed and will vigorously defend our positions. We believe that it is more likely than not that our positions will be sustained upon appeal. Accordingly, we have not recorded a tax reserve for this matter. We paid this assessment in the first quarter of 2017, pending resolution of the appeal.

Non-GAAP Financial Measures

The non-GAAP financial measures presented in the discussion of our results of operations and the respective most directly comparable GAAP measures are:

non-GAAP revenue—GAAP revenue

non-GAAP gross margin—GAAP gross margin

non-GAAP operating income—GAAP operating income

non-GAAP operating margin—GAAP operating margin

non-GAAP net income—GAAP net income

non-GAAP diluted earnings or loss per share—GAAP diluted earnings or loss per share

The non-GAAP measures exclude fair value adjustments related to acquired deferred revenue and deferred costs, stock-based compensation expense, amortization of acquired intangible assets expense, acquisition-related charges, restructuring charges, pension plan termination-related costs, non-operating credit facility refinancing costs, identified discrete charges included in non-operating other expense, net and the related tax effects of the preceding items, and any other identified tax items.

These items are normally included in the comparable measures calculated and presented in accordance with GAAP. Our management excludes these items when evaluating our ongoing performance and/or predicting our earnings trends, and therefore excludes them when presenting non-GAAP financial measures. Management uses, and investors should consider, non-GAAP measures in conjunction with our GAAP results.

Fair value of acquired deferred revenue is a purchase accounting adjustment recorded to reduce acquired deferred revenue to the fair value of the remaining obligation, so our GAAP revenue for the periods after an acquisition do not reflect the full amount of revenue that would have been reported if the acquired deferred revenue was not written down to fair value. We believe excluding these adjustments to revenue from these contracts (and associated costs in fair value adjustment to deferred services cost) is useful to investors as an additional means to assess revenue trends of our business.

Stock-based compensation is a non-cash expense relating to stock-based awards issued to executive officers, employees and outside directors and to our employee stock purchase program. We exclude this expense as it is a non-cash expense and we assess our internal operations excluding this expense and believe it facilitates comparisons to the performance of other companies in our industry.

Amortization of acquired intangible assets is a non-cash expense that is impacted by the timing and magnitude of our acquisitions. We believe the assessment of our operations excluding these costs is relevant to our assessment of internal operations and comparisons to the performance of other companies in our industry.

Acquisition-related charges included in general and administrative costs are direct costs of potential and completed acquisitions and expenses related to acquisition integration activities, including transaction fees, due diligence costs, severance and professional fees. Subsequent adjustments to our initial estimated amount of contingent consideration associated with specific acquisitions are also included within acquisition-related charges. We do not include these costs when reviewing our operating results internally. The occurrence and amount of these costs will vary depending

on the timing and size of acquisitions.

35

Restructuring charges include excess facility restructuring charges and severance costs resulting from reductions of personnel driven by modifications to our business strategy. We do not include these costs when reviewing our operating results internally. These costs may vary in size based on our restructuring plan.

U.S. pension plan termination-related costs include charges related to our plan that we began terminating in the second quarter of 2014, and substantially completed in the fourth quarter of 2015. Costs associated with termination of the plan are not considered part of our regular operations.

Non-operating credit facility refinancing costs are non-operating charges we record as a result of the refinancing of our credit facility. We assess our internal operations excluding these costs and believe it facilitates comparisons to the performance of other companies in our industry.

Income tax adjustments include the tax impact of the items above and assumes that we are profitable on a non-GAAP basis in the U.S. and one foreign jurisdiction. It also eliminates the effect of the valuation allowance recorded against our net deferred tax assets in those jurisdictions. Additionally, we exclude other material tax items that we do not include when reviewing our operating results internally.

We use these non-GAAP measures, and we believe that they assist our investors, to make period-to-period comparisons of our operational performance because they provide a view of our operating results without items that are not, in our view, indicative of our core operating results. We believe that these non-GAAP measures help illustrate underlying trends in our business, and we use the measures to establish budgets and operational goals (communicated internally and externally) for managing our business and evaluating our performance. We believe that providing non-GAAP measures also affords investors a view of our operating results that may be more easily compared to the results of other companies in our industry that use similar financial measures to supplement their GAAP results.

The items excluded from the non-GAAP measures often have a material impact on our financial results and many of such items recur. Accordingly, the non-GAAP measures included in this Quarterly Report should be considered in addition to, and not as a substitute for or superior to, the comparable measures prepared in accordance with GAAP.

The following tables reconcile each of these non-GAAP measures to its most closely comparable GAAP measure on our financial statements.

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	Three months ended		Nine months ended	
	July 1, 2017	July 2, 2016	July 1, 2017	July 2, 2016
	(in millions, except per share amounts)			
GAAP revenue	\$291.3	\$288.7	\$857.7	\$852.3
Fair value of acquired deferred revenue	0.6	1.0	2.2	2.6
Non-GAAP revenue	\$291.9	\$289.7	\$859.9	\$854.9
GAAP gross margin	\$209.0	\$206.2	\$611.4	\$609.5
Fair value of acquired deferred revenue	0.6	1.0	2.2	2.6
Fair value of acquired deferred costs	(0.1)	(0.1)	(0.3)	(0.4)
Stock-based compensation	3.0	2.5	9.1	8.2
Amortization of acquired intangible assets included in cost of revenue	6.5	6.4	19.3	18.2
Non-GAAP gross margin	\$219.1	\$216.0	\$641.7	\$638.2
GAAP operating income (loss)	\$11.3	\$7.6	\$23.3	\$(3.9)
Fair value of acquired deferred revenue	0.6	1.0	2.2	2.6
Fair value of acquired deferred costs	(0.1)	(0.1)	(0.3)	(0.4)
Stock-based compensation	16.6	13.8	56.1	51.8
Amortization of acquired intangible assets included in cost of revenue	6.5	6.4	19.3	18.2
Amortization of acquired intangible assets	8.0	8.3	24.0	25.0
Acquisition-related charges included in general and administrative expenses	0.3	0.9	1.0	3.2
U.S. pension plan termination-related costs	0.3	—	0.3	—
Restructuring charges	1.6	2.8	8.3	44.5
Non-GAAP operating income	\$44.9	\$40.7	\$134.2	\$141.1
GAAP net income (loss)	\$(1.0)	\$3.1	\$(11.2)	\$(26.0)
Fair value of acquired deferred revenue	0.6	1.0	2.2	2.6
Fair value of acquired deferred costs	(0.1)	(0.1)	(0.3)	(0.4)
Stock-based compensation	16.6	13.8	56.1	51.8
Amortization of acquired intangible assets included in cost of revenue	6.5	6.4	19.3	18.2
Amortization of acquired intangible assets	8.0	8.3	24.0	25.0
Acquisition-related charges included in general and administrative expenses	0.3	0.9	1.0	3.2
U.S. pension plan termination-related costs	0.3	—	0.3	—
Restructuring charges	1.6	2.8	8.3	44.5
Non-operating credit facility refinancing costs	—	—	1.2	2.4
Income tax adjustments ⁽¹⁾	(0.2)	(6.2)	(2.8)	(6.5)
Non-GAAP net income	\$32.6	\$30.0	\$98.0	\$114.9
GAAP diluted earnings (loss) per share	\$(0.01)	\$0.03	\$(0.10)	\$(0.23)
Fair value of acquired deferred revenue	0.01	0.01	0.02	0.02
Stock-based compensation	0.14	0.12	0.48	0.45
Amortization of acquired intangible assets	0.12	0.13	0.37	0.38
Acquisition-related charges included in general and administrative expenses	—	0.01	0.01	0.03
Restructuring charges	0.01	0.02	0.07	0.39
Non-operating credit facility refinancing costs	—	—	0.01	0.02
Income tax adjustments ⁽¹⁾	—	(0.05)	(0.02)	(0.06)
Non-GAAP diluted earnings per share	\$0.28	\$0.26	\$0.84	\$1.00

Operating margin impact of non-GAAP adjustments:

	Three months ended		Nine months ended	
	July 1, 2017	July 2, 2016	July 1, 2017	July 2, 2016
GAAP operating margin	3.9 %	2.6 %	2.7 %	(0.5) %
Fair value of acquired deferred revenue	0.2 %	0.4 %	0.3 %	0.3 %
Fair value of acquired deferred costs	— %	— %	— %	— %
Stock-based compensation	5.7 %	4.8 %	6.5 %	6.1 %
Amortization of acquired intangible assets	5.0 %	5.1 %	5.0 %	5.1 %
Acquisition-related charges included in general and administrative expenses	0.1 %	0.3 %	0.1 %	0.4 %
U.S. pension plan termination-related costs	0.1 %	— %	— %	— %
Restructuring charges	0.5 %	1.0 %	1.0 %	5.2 %
Non-GAAP operating margin	15.4 %	14.1 %	15.6 %	16.5 %

We have recorded a full valuation allowance against our U.S. net deferred tax assets and a valuation allowance against net deferred tax assets in certain foreign jurisdictions. As we are profitable on a non-GAAP basis, the 2017 and 2016 non-GAAP tax provisions are being calculated assuming there is no valuation allowance. Income tax (1) adjustments reflect the tax effects of non-GAAP adjustments which are calculated by applying the applicable tax rate by jurisdiction to the non-GAAP adjustments listed above. For the three and nine months ended July 1, 2017 and July 2, 2016 our non-GAAP tax provision is based on our annual expected non-GAAP tax rate applied to our year-to-date non-GAAP earnings.

Critical Accounting Policies and Estimates

The financial information included in Item 1 reflects no material changes in our critical accounting policies and estimates as set forth under the heading Critical Accounting Policies and Estimates in Part II, Item 7: Management's Discussion and Analysis of Financial Condition and Results of Operations of our 2016 Annual Report on Form 10-K.

Recent Accounting Pronouncements

In accordance with recently issued accounting pronouncements, we will be required to comply with certain changes in accounting rules and regulations. Refer to Note 1. Basis of Presentation to the Condensed Consolidated Financial Statements in this Form 10-Q for all recently issued accounting pronouncements. We are currently evaluating the impact of the new guidance on our consolidated financial statements. Outlined below are the recent accounting pronouncements that we believe may have the most significant impact to us.

Income Taxes

In October 2016, the FASB issued ASU 2016-16, Income Taxes (Topic 740): Intra-Entity Transfers of Assets Other Than Inventory ("ASU 2016-16"). The purpose of ASU 2016-16 is to simplify the income tax accounting of an intra-entity transfer of an asset other than inventory and to record its effect when the transfer occurs. The guidance is effective for annual reporting periods beginning after December 15, 2017, our fiscal 2019, including interim reporting periods within those annual reporting periods and early adoption is permitted. We are currently evaluating the impact of the new guidance on our consolidated financial statements.

Leases

In February 2016, the FASB issued ASU No. 2016-02, Leases (Topic 842), which will replace the existing guidance in ASC 840, Leases. The updated standard aims to increase transparency and comparability among organizations by requiring lessees to recognize lease assets and lease liabilities on the balance sheet and to disclose important information about leasing arrangements. ASU 2016-02 is effective for annual periods beginning after December 15, 2018, our fiscal 2020, and interim periods within those annual periods. Early adoption is permitted and modified retrospective application is required. We are currently evaluating the impact of the new guidance on our consolidated financial statements.

Revenue Recognition

In May 2014, the FASB issued ASU No. 2014-09, Revenue from Contracts with Customers: Topic 606 (ASU 2014-09), to supersede nearly all existing revenue recognition guidance under U.S. GAAP. The core principle of ASU 2014-09 is to

38

recognize revenues when promised goods or services are transferred to customers in an amount that reflects the consideration that is expected to be received for those goods or services. ASU 2014-09 defines a five step process to achieve this core principle and, in doing so, it is possible more judgment and estimates may be required within the revenue recognition process than required under existing U.S. GAAP including identifying performance obligations in the contract, estimating the amount of variable consideration to include in the transaction price and allocating the transaction price to each separate performance obligation. In July 2015, the FASB approved a one-year delay in the effective date. ASU 2014-09 is effective for us in our first quarter of fiscal 2019 using either of two methods: (i) retrospective to each prior reporting period presented with the option to elect certain practical expedients as defined within ASU 2014-09; or (ii) retrospective with the cumulative effect of initially applying ASU 2014-09 recognized at the date of initial application and providing certain additional disclosures as defined per ASU 2014-09. Subsequently, the FASB has issued the following standards to provide additional clarification and implementation guidance on ASU 2014-09: ASU 2016-08, Revenue from Contracts with Customers (Topic 606): Principal versus Agent Considerations; ASU 2016-10, Revenue from Contracts with Customers (Topic 606): Identifying Performance Obligations and Licensing; and ASU 2016-12, Revenue from Contracts with Customers (Topic 606): Narrow-Scope Improvements and Practical Expedients. We are currently evaluating the impact of these new standards on our consolidated financial statements.

Liquidity and Capital Resources

	July 1, 2017	July 2, 2016
	(in thousands)	
Cash and cash equivalents	\$260,695	\$294,626
Marketable securities	50,189	44,606
Total	\$310,884	\$339,232

	Nine months ended	
	July 1, 2017	July 2, 2016
	(in thousands)	
Cash provided by operating activities	\$102,066	\$169,596
Cash used by investing activities	(9,808)	(225,428)
Cash provided (used) by financing activities	(108,101)	72,097

Cash and cash equivalents

We invest our cash with highly rated financial institutions and in diversified domestic and international money market mutual funds. Cash and cash equivalents include highly liquid investments with original maturities of three months or less. In addition, we hold investments in marketable securities totaling approximately \$50 million with an average maturity of 16 months. At July 1, 2017, cash and cash equivalents totaled \$261 million, down from \$278 million at September 30, 2016, reflective of \$102.1 million in operating cash flows and \$15.2 million from proceeds of sale of investments, offset by \$40.0 million net repayments made under our credit facility, \$35.0 million used for repurchases of common stock, \$26.2 million used to pay withholding taxes on stock-based awards that vested in the period, \$19.3 million used for capital expenditures, \$11 million used for payment of contingent consideration, and \$5 million used for acquisitions.

Cash provided by operating activities

Cash provided by operating activities was \$102.1 million in the first nine months of 2017, compared to \$169.6 million provided by the operating activities in the first nine months of 2016. The decrease is primarily due to an increase in bonus and commission payments of approximately \$36 million, higher interest payments of approximately \$25 million, lower cash collections from accounts receivable of approximately \$17 million (due to higher 2016 collections of receivables with extended payment terms and a higher subscription mix in 2017), and a \$12 million payment related to the Korean tax audit, partially offset by \$15 million of lower restructuring payments and \$28 million paid in 2016 to resolve a regulatory investigation with respect to our China business.

Net loss for the first nine months of 2017 and 2016 was \$11 million and \$26 million, respectively.

Cash used by investing activities

	Nine months ended	
	July 1, 2017	July 2, 2016
	(in thousands)	
Cash used by investing activities included the following:		
Additions to property and equipment	\$(19,333)	\$(16,632)
Acquisitions of businesses, net of cash acquired	(4,960)	(164,191)
Purchases of short- and long-term marketable securities	\$(14,173)	\$(44,605)
Proceeds from maturities of short- and long-term marketable securities	13,440	—
Proceeds from sales and maturities of investments	15,218	—
	\$(9,808)	\$(225,428)

Our expenditures for property and equipment consisted primarily of computer equipment, software, office equipment and facility improvements. In the first nine months of 2016, we acquired Vuforia and Kepware.

Cash provided (used) by financing activities

	Nine months ended	
	July 1, 2017	July 2, 2016
	(in thousands)	
Cash provided (used) by financing activities included the following:		
Net borrowings (repayments) of debt	\$ (40,000)	\$ 110,000
Repurchases of common stock	(34,994)	—
Payments of withholding taxes in connection with vesting of stock-based awards	(26,244)	(20,636)
Proceeds from issuance of common stock	3,978	19
Excess tax benefits from stock-based awards	397	94
Contingent consideration	(11,054)	(10,621)
Credit facility origination costs	(184)	(6,759)
	\$ (108,101)	\$ 72,097

In the first nine months of 2017, the contingent consideration paid was associated with the ColdLight and Kepware acquisitions. In the first nine months of 2016, we borrowed \$170 million under the credit facility to acquire Vuforia and Kepware, \$60 million of which was repaid in the third quarter of 2016.

Credit Agreement

In November 2015, we entered into a multi-currency credit facility with a syndicate of banks. As a result of an amendment to the credit facility in March 2017, the revolving loan commitment was reduced to \$600 million from \$900 million. The revolving loan commitment may be increased by an additional \$500 million if the existing or

additional lenders are willing to make such increased commitments. Due to the decrease in the loan commitment amount under the credit facility, associated annual commitment fees will decline by approximately \$0.9 million. Outstanding revolving loan amounts may be repaid in whole or in part, without penalty or premium, prior to the September 15, 2019 maturity date, when all remaining amounts outstanding will be due and payable in full. As of July 1, 2017, the fair value of our credit facility approximates its book value.

We and certain of our foreign subsidiaries may borrow under the credit facility. Any amounts borrowed by us would be guaranteed by our material domestic subsidiaries that become parties to the subsidiary guaranty, if any. Any amounts borrowed by one of our foreign subsidiaries would be guaranteed by us and any subsidiary guarantors. As of the filing of this Form 10-Q, there are no subsidiary guarantors and no amounts have been borrowed under the credit facility by a foreign subsidiary. The credit facility is secured by our assets and those of some of our U.S. subsidiaries (which include equity interests in some of our other subsidiaries).

As of July 1, 2017, we had \$218.1 million in revolving loans outstanding under the credit facility. Loans under the credit facility bear interest at variable rates which reset every 30 to 180 days depending on the rate and period selected by us. As of July 1, 2017, the weighted average annual interest rate for amounts outstanding was 2.94%. We also pay a quarterly

commitment fee on the undrawn portion of the credit facility ranging from 0.175% to 0.30% per year based on our total leverage ratio.

The credit facility limits our and our subsidiaries' ability to, among other things: incur liens or guarantee obligations; pay dividends and make other distributions; make investments and enter into joint ventures; dispose of assets; engage in transactions with foreign subsidiaries and engage in transactions with affiliates, except on an arms-length basis. In addition, the credit facility requires us to maintain the financial ratios set forth below.

	Ratio as of July 1, 2017
Total Leverage Ratio	
Ratio of consolidated total indebtedness to the consolidated trailing four quarters EBITDA, not to exceed 4.50 to 1.00 as of the last day of any fiscal quarter.	3.19 to 1.00
Fixed Charge Coverage Ratio	
Ratio of consolidated trailing four quarters EBITDA less consolidated capital expenditures to consolidated fixed charges as of the last day of any fiscal quarter, to be not less than 3.50 to 1.00.	5.08 to 1.00
Senior Secured Leverage Ratio	
Ratio of senior consolidated total indebtedness (which excludes unsecured indebtedness) to consolidated trailing four quarters EBITDA as of the last day of any fiscal quarter, not to exceed 3.00 to 1.00.	0.97 to 1.00

As part of the March 2017 amendment, the permitted total leverage ratio was increased to 4.50 to 1.00 from 4.00 to 1.00. The increase in the permitted leverage ratio allows for greater capacity to offset lower EBITDA as a result of our transition to subscription. The effect of our subscription transition, in which revenue and operating margin have declined, and, accordingly, consolidated EBITDA calculated under the credit facility has declined, has resulted in an increase in our total leverage ratio and resulted in a reduction in capacity. Pursuant to the amended leverage ratio, as of the end of the third quarter of 2017, we could borrow only \$298 million of the \$382 million not borrowed under the credit facility.

As of July 1, 2017, we were in compliance with all financial and operating covenants of the credit facility.

Any failure to comply with the financial or operating covenants of the credit facility would prevent us from being able to borrow additional funds, and would constitute a default, permitting the lenders to, among other things, accelerate the amounts outstanding, including all accrued interest and unpaid fees, under the credit facility and to terminate the credit facility. A change in control of PTC Inc., as defined in the agreement, also constitutes an event of default, permitting the lenders to accelerate the indebtedness and terminate the credit facility.

The terms and conditions of the credit facility are described in Note 13 to the Financial Statements.

Outstanding Notes

On May 12, 2016, we issued \$500 million of 6.00% senior unsecured notes due 2024. Interest on the notes is payable twice per year, with the first payment made on November 15, 2016.

We may redeem the notes, in whole or in part, subject to certain conditions, including in some cases a payment of premium, prior to their maturity date. In addition, if we undergo a change of control, we will be required to make an offer to purchase all the notes at a price equal to 101% of the principal amount of the notes plus accrued and unpaid interest.

The notes were issued under an indenture that contains customary covenants. Subject to certain exceptions, our ability to incur certain additional debt is limited unless, after giving pro forma effect to such incurrence and the application of the proceeds thereof, the ratio of our EBITDA to our Consolidated Fixed Charges is not greater than 2.00 to 1.00. The indenture also restricts our ability to incur liens, pay dividends or make certain other distributions, sell assets or engage in sale/leaseback transactions. Any failure to comply with these and other covenants included in the indenture could constitute an event of default that could result in the acceleration of the payment of the aggregate principal amount of the notes then outstanding and accrued interest. As of July 1, 2017, we were in compliance with all such covenants.

Share Repurchases

Our Articles of Organization authorize us to issue up to 500 million shares of our common stock. Our Board of Directors periodically authorizes the repurchase of shares of our common stock. On August 4, 2014, our Board of Directors authorized us to repurchase \$600 million of our common stock through September 30, 2017, of which we have repurchased \$224.9 million to date. We intend to use cash from operations and borrowings under our credit facility to make such repurchases. In the first nine months of 2017, we repurchased \$35 million of common stock. All shares of our common stock repurchased are automatically restored to the status of authorized and unissued.

Future Expectations

Our transition to a subscription licensing model has had, and will continue to have, an adverse impact on revenue, operating margin and EPS relative to periods in which we primarily sold perpetual licenses until the expected transition of our customer base to subscription is completed. This also affects consolidated EBITDA as calculated under our credit facility and, as a result of the Total Leverage Ratio under the facility, limits the amount we can borrow under the facility. Notwithstanding the effect of the subscription transition and those limitations, we believe that existing cash and cash equivalents, together with cash generated from operations and amounts available under the credit facility, will be sufficient to meet our working capital and capital expenditure requirements through at least the next twelve months and to meet our known long-term capital requirements.

Our expected uses of cash could change, our cash position could be reduced and we could incur additional debt obligations if we decided to purchase our outstanding shares or to retire debt or to engage in strategic transactions, any of which could be commenced, suspended or completed at any time. Any such purchases or retirement of debt will depend on prevailing market conditions, our liquidity requirements, contractual restrictions and other factors. We also evaluate possible strategic transactions on an ongoing basis and at any given time may be engaged in discussions or negotiations with respect to possible strategic transactions. The amounts involved in any share or debt repurchases or strategic transactions may be material.

We ended the quarter with a cash balance of \$261 million and marketable securities of \$50 million. A significant portion of our cash is generated and held outside the U.S. At July 1, 2017, we had cash and cash equivalents of \$26 million in the U.S., \$107 million in Europe, \$104 million in Asia Pacific (including India), and \$24 million in other non-U.S. countries. All of the marketable securities are held in Europe. We have substantial cash requirements in the United States, but we believe that the combination of our existing U.S. cash and cash equivalents, marketable securities, and future U.S. operating cash flows and cash available under our credit facility, will be sufficient to meet our ongoing U.S. operating expenses and known capital requirements.

ITEM 3. QUANTITATIVE AND QUALITATIVE DISCLOSURES ABOUT MARKET RISK

There have been no significant changes in our market risk exposure as described in Item 7A: Quantitative and Qualitative Disclosures about Market Risk of our 2016 Annual Report on Form 10-K.

ITEM 4. CONTROLS AND PROCEDURES

Evaluation of Effectiveness of Disclosure Controls and Procedures

Our management maintains disclosure controls and procedures as defined in Rules 13a-15(e) and 15d-15(e) under the Securities Exchange Act of 1934, as amended (the "Exchange Act") that are designed to provide reasonable assurance that information required to be disclosed in our reports filed or submitted under the Exchange Act is processed, recorded, summarized and reported within the time periods specified in the SEC's rules and forms, and that such information is accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer (our principal executive officer and principal financial officer, respectively), as appropriate, to allow for timely decisions regarding required disclosure.

We evaluated, under the supervision and with the participation of management, including our principal executive and principal financial officers, the effectiveness of the design and operation of our disclosure controls and procedures as of the end of the period covered by this quarterly report. Based on this evaluation, our principal executive officer and principal financial officer concluded that our disclosure controls and procedures were effective at the reasonable assurance level as of July 1, 2017.

Changes in Internal Control over Financial Reporting

There was no change in our internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act) that occurred during the quarter ended July 1, 2017 that has materially affected, or is reasonably likely to materially affect, our internal control over financial reporting.

PART II—OTHER INFORMATION

ITEM 1. LEGAL PROCEEDINGS

On March 7, 2016, a putative class action lawsuit captioned Matthew Crandall v. PTC Inc. et al., No. 1:16-cv-10471, was filed against us and certain of our current and former officers and directors in the U.S. District Court for the District of Massachusetts, ostensibly on behalf of purchasers of our stock during the period November 24, 2011 through July 29, 2015. The lawsuit, which sought unspecified damages, interest, attorneys' fees and costs, alleges (among other things) that, during that period, PTC's public disclosures concerning investigations by the U.S. Securities and Exchange Commission and the U.S. Department of Justice into U.S. Foreign Corrupt Practices Act matters in China (the "China Investigation") were false and/or misleading. The parties settled the lawsuit for an amount that is not material to our results of operations. The associated liability was accrued in our fiscal 2016 results and was paid into escrow in the third quarter of 2017. The settlement received final court approval on July 14, 2017 and all claims against PTC and the other defendants have been dismissed with prejudice.

ITEM 1A. RISK FACTORS

In addition to other information set forth in this report, you should carefully consider the factors described in Part I. Item 1A. Risk Factors in our 2016 Annual Report on Form 10-K, which could materially affect our business, financial condition or future results. The risks described in our 2016 Annual Report on Form 10-K are not the only risks we face. Additional risks and uncertainties not currently known to us or that we currently deem to be immaterial also may materially adversely affect our business, financial condition and/or operating results.

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

The table below shows the shares of our common stock we repurchased in the third quarter of 2017.

Period (1)	Total Number of Shares (or Units) Purchased	Average Price Paid per Share (or Unit)	Total Number of Shares (or Units) Purchased as Part of Publicly Announced Plans or Programs	Approximate Dollar Value of Shares (or Units) that May Yet Be Purchased Under the Plans or Programs
April 2, 2017- April 29, 2017	18,500	53.87	18,500	\$409,063,270 (2)
April 30, 2017 - May 27, 2017	638,801	53.22	638,801	\$375,066,435 (2)
May 30, 2017 - July 1, 2017	—	—	—	\$375,066,435 (2)
Total	657,301	53.24	657,301	\$375,066,435 (2)

(1) Periods are our fiscal months within the fiscal quarter.

(2) In August 2014, our Board authorized us to repurchase up to \$600 million worth of our shares in the period August 4, 2014 through September 30, 2017, which repurchase program we announced on August 4, 2014.

ITEM 6. EXHIBITS

- 3.1 Restated Articles of Organization of PTC Inc. adopted August 4, 2015 (filed as Exhibit 3.1 to our Annual Report on Form 10-K for the fiscal year ended September 30, 2015 (File No. 0-18059) and incorporated herein by reference).
- 3.2 By-Laws, as amended and restated, of PTC Inc. (filed as Exhibit 3.2 to our Quarterly Report on Form 10-Q for the fiscal quarter ended March 29, 2014 (File No. 0-18059) and incorporated herein by reference).
- 4.1 Indenture, dated as of May 12, 2016, by and between the Company and The Bank of New York Mellon, as Trustee (filed as Exhibit 4.1 to our Current Report on Form 8-K filed on May 18, 2016 (File No. 0-18059) and incorporated herein by reference).
- 4.2 First Supplemental Indenture, dated as of May 12, 2016, by and between the Company and The Bank of New York Mellon, as Trustee (filed as Exhibit 4.2 to our Current Report on Form 8-K filed on May 18, 2016 (File No. 0-18059) and incorporated herein by reference).
- 4.3 6.000% Senior Notes due 2024 (filed as Exhibit 4.3 to our Current Report on Form 8-K filed on May 18, 2016 (File No. 0-18059) and incorporated herein by reference).
- 31.1 Certification of the Chief Executive Officer Pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a).
- 31.2 Certification of the Chief Financial Officer Pursuant to Exchange Act Rules 13a-14(a) and 15d-14(a).
- 32* Certification of Periodic Financial Report Pursuant to 18 U.S.C. Section 1350.
- 101 The following materials from PTC Inc.'s Quarterly Report on Form 10-Q for the quarter ended July 1, 2017 formatted in XBRL (eXtensible Business Reporting Language): (i) Condensed Consolidated Balance Sheets as of July 1, 2017 and September 30, 2016; (ii) Condensed Consolidated Statements of Operations for the three and nine months ended July 1, 2017 and July 2, 2016; (iii) Condensed Consolidated Statements of Comprehensive Income for the three and nine months ended July 1, 2017 and July 2, 2016; (iv) Condensed Consolidated Statements of Cash Flows for the nine months ended July 1, 2017 and July 2, 2016; and (v) Notes to Condensed Consolidated Financial Statements.

*Indicates that the exhibit is being furnished, not filed, with this report.

SIGNATURE

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

PTC Inc.

By: /S/ ANDREW MILLER

Andrew Miller

Executive Vice President and Chief Financial
Officer (Principal Financial Officer)

Date: August 8, 2017