



PROS®

2017

ANNUAL REPORT



ANNUAL REPORT

FOR YEAR-END 2017



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Dear Shareholders, Customers, Partners, and Employees:



Thanks to our incredible team and their unwavering commitment to our mission of helping companies outperform, we accomplished great things in 2017. Not only did we increase annual recurring revenue by 31% year-over-year, we also grew subscription revenue by 59% and increased our number of cloud customers by 50%. We also achieved several important milestones in our cloud transformation, including returning to year-over-year revenue growth and realizing a recurring revenue mix of 77%. In the fourth quarter, we saw subscription revenue become the largest contributor to total revenue and we generated positive free cash flow.

I'm so proud of what our team accomplished last year, especially in the face of great adversity. Houston is our home and when Hurricane Harvey hit our city, our team responded with countless acts of charity and kindness. Our teams volunteered in the community, collected supplies for storm victims, provided backup child care onsite, and, as a company, we raised nearly a quarter million dollars to aid employees affected by the storm. Our teams also executed flawlessly from an operations standpoint, providing the services and support that our customers and employees have come to expect without interruption during the storm and beyond. I'm incredibly grateful to be part of a team and community that's truly defined by its resilience and heart.

As we enter this year, the team and I are energized and motivated by the opportunity in front of us. We are committed to continuing to drive growth and scale in our business as we work to realize our vision of being the AI platform that powers modern commerce.

I'd like to extend my sincerest thanks to our customers for choosing to partner with PROS on their modern commerce journey, and to our shareholders, partners and employees for their continued support as we enter the final stages of journey to the cloud.



Andres

**UNITED STATES
SECURITIES AND EXCHANGE COMMISSION**

Washington, D.C. 20549

SCHEDULE 14A

Proxy Statement Pursuant to Section 14(a) of the Securities Exchange Act of 1934

Filed by the Registrant ☒

Filed by a Party other than the Registrant ☐

Check the appropriate box:

☐ Preliminary Proxy Statement

☒ Definitive Proxy Statement

☐ Confidential, for Use of the Commission Only
(as permitted by Rule 14a-6(e)(2))

☐ Definitive Additional Materials

☐ Soliciting Material Pursuant to §240.14a-12



PROS HOLDINGS, INC.

(Name of Registrant as Specified In Its Charter)

Payment of Filing Fee (Check the appropriate box):

☒ **No fee required.**

☐ **Fee computed on table below per Exchange Act Rules 14a-6(i)(1) and 0-11.**

- (1) Title of each class of securities to which transaction applies:
- (2) Aggregate number of securities to which transaction applies:
- (3) Per unit price or other underlying value of transaction computed pursuant to Exchange Act Rule 0-11 (set forth the amount on which the filing fee is calculated and state how it was determined):
- (4) Proposed maximum aggregate value of transaction:
- (5) Total fee paid:

☐ **Fee paid previously with preliminary materials.**

☐ **Check box if any part of the fee is offset as provided by Exchange Act Rule 0-11(a)(2) and identify the filing for which the offsetting fee was paid previously. Identify the previous filing by registration statement number, or the Form or Schedule and the date of its filing.**

- (1) Amount Previously Paid:
- (2) Form, Schedule or Registration Statement No.:
- (3) Filing Party:
- (4) Date Filed:



NOTICE OF 2018 ANNUAL MEETING OF STOCKHOLDERS

DATE **Friday, May 11, 2018**

TIME **8:00 a.m., Central Daylight Time**

PLACE **3100 Main Street, 9th Floor, Houston, Texas 77002, +1 (713) 335-5151**

AGENDA

- 1 Elect three Class II directors named in the Proxy Statement to the board of directors of PROS Holdings, Inc. (Board of Directors or Board) each to serve a three-year term until our annual meeting of our stockholders to be held in the year 2021 (2021 Annual Meeting);
- 2 Advisory vote on named executive officer compensation;
- 3 Ratification of appointment of PricewaterhouseCoopers LLP as our independent registered public accounting firm for 2018; and
- 4 Transaction of other business that may properly come before the Annual Meeting.

RECORD DATE

Only stockholders of record at the close of business on March 16, 2018 (Record Date) will be entitled to receive notice of, and to vote at, the 2018 annual meeting of our stockholders (Annual Meeting).

MATERIALS TO REVIEW

We are mailing to our stockholders a Notice of Internet Availability of Proxy Materials (Notice), instead of a paper copy of this proxy statement (Proxy Statement) and our Annual Report to Stockholders for the Year Ended December 31, 2017 (2017 Annual Report). The Notice contains instructions on how to access those documents over the Internet. The Notice also contains instructions on how to request a paper copy of our proxy materials, including this Proxy Statement, our 2017 Annual Report and a form of proxy card or voting instruction card.

PROXY VOTING

Please vote your shares promptly to ensure the presence of a quorum at the meeting. Voting your shares now via the Internet, by telephone, or by signing, dating, and returning the accompanying proxy card or voting instruction form will save the expenses and extra work of additional solicitation. If you wish to vote by mail, we have enclosed an addressed envelope, postage prepaid if mailed in the United States. Submitting your proxy now will not prevent you from voting your shares at the meeting, as your proxy is revocable at your option.

By Order of the Board of Directors,

/s/ Damian Olthoff

Damian Olthoff

General Counsel and Secretary

Houston, Texas
March 30, 2018



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EXECUTIVE SUMMARY

This summary highlights selected information for PROS Holdings, Inc. (together with its consolidated subsidiaries, PROS, the Company, we, us or our) in this Proxy Statement. You should read this entire Proxy Statement carefully before voting.

Voting Matters

Proposal	Board Vote Recommendation	Page #
Elect three Class II directors	FOR each director nominee	21
Advisory vote on executive compensation	FOR	44
Ratification of appointment of PricewaterhouseCoopers LLP for fiscal year 2018	FOR	50

Governance Highlights

Board Practices	Shareholder Matters
<ul style="list-style-type: none"> ✓ All director nominees independent ✓ Independent non-executive chairman ✓ Independent Audit, Compensation and Leadership Development and Nominating and Corporate Governance Committees of the Board of Directors (Committees) ✓ Regular executive sessions of non-employee and independent directors. Our non-executive chairman of the Board of Directors presides at executive sessions. ✓ Annual Board and Committee evaluations ✓ Regularly attend continuing education events related to board governance best practices, including conferences and webinars provided by NYSE, NACD, Equilar, among others. ✓ Risk oversight by full Board of Directors and Committees ✓ 33% women and 50% under age 60 	<ul style="list-style-type: none"> ✓ Active shareholder outreach program ✓ Engage with shareholders throughout each year, including at earnings conference calls, investor road shows, investor days, as well as at individual shareholder meetings. We also welcome shareholders to attend our annual OutPerform event for customers and prospects. ✓ Annual “Say-on-Pay” advisory vote
Other Best Practices	
<ul style="list-style-type: none"> ✓ Anti-hedging, anti-short and anti-pledging policies ✓ Stock ownership guidelines for named executive officers (NEOs) ✓ “Clawback” policy to recover, under applicable law, incentive bonuses awarded to any NEO as a result of that NEO’s fraud or intentional misconduct. ✓ Director resignation policy requires director nominees who do not receive at least 50% of the stockholder votes “for” re-election to tender their resignation. 	

Business Highlights

In 2017, PROS reached several key milestones in our cloud transformation efforts, while continuing to enable our customers to leverage our dynamic pricing and machine learning solutions to help them compete in modern commerce. In 2017, we returned to year-over-year revenue growth, and in the fourth quarter of 2017, our subscription revenue exceeded maintenance revenue for the first time and we once again generated positive free cash flow¹.

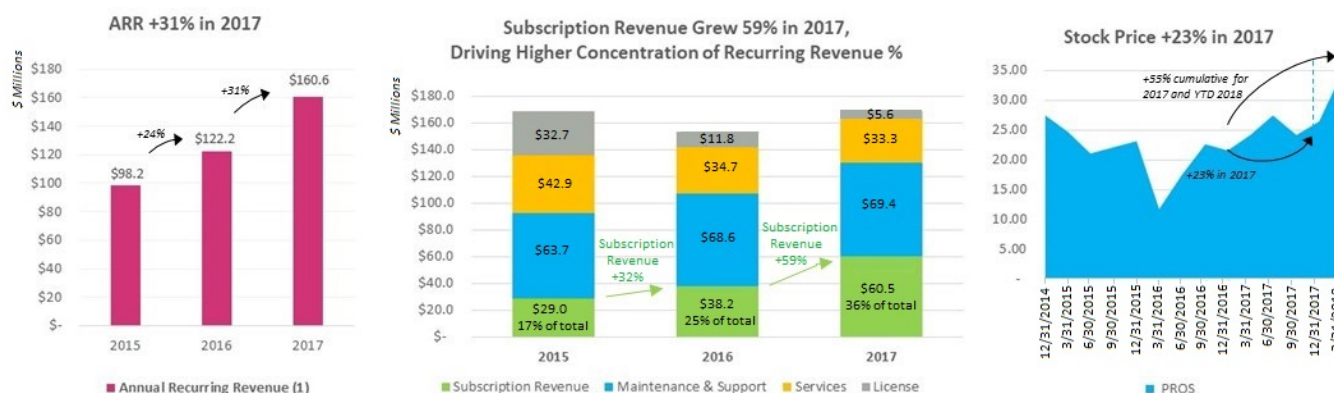
The following highlights some of our accomplishments in 2017:

- Drove **substantial growth**:
 - Annualized recurring revenue (ARR)² was \$160.6 million as of December 31, 2017, **up 31%** year-over-year;
 - **Subscription revenue increased 59%** in 2017 over 2016; and
 - **Total shareholder return grew 23%** during 2017, and cumulatively grew 55% from the end of 2016 through March 16, 2018.
- **Extended PROS modern commerce leadership position** in the travel industry by introducing shopping, pricing and merchandising solutions through the acquisition of Vayant Travel Technologies, Inc. (Vayant);
- Built our infrastructure to enable further growth by releasing **numerous new innovations enabling modern commerce**, including the introduction of Opportunity Detection, which helps uncover trends in buying behavior and identifies new sales opportunities, the release of Monet™, PROS artificial intelligence analyst that delivers data science-driven insights in PROS solutions, and the launch of PROS next-generation Guidance solution, which provides customers with an unprecedented level of transparency and self-service capabilities in the PROS cloud;
- Attained **ISO/IEC 27001: 2013 certification**, underscoring our commitment to customers by achieving the industry's most rigorous requirements for cloud security, data privacy, governance, and compliance; and
- **Strengthened our balance sheet** by completing a private offering of convertible senior notes due in 2047 with an aggregate principal amount of \$106.3 million at maturity.

- (1) Free cash flow (FCF) is defined as net cash provided by (used in) operating activities, less additions to property, plant and equipment, purchases of other (non-acquisition-related) intangible assets and capitalized internal-use software development costs. For a reconciliation of this non-GAAP financial measure to our results as reported under the generally accepted accounting principles in the United States (GAAP), see [Exhibit 99.1 to our Current Report on Form 8-K](#) furnished to the Securities and Exchange Commission (SEC) on February 6, 2018, which Current Report and the exhibit thereto are hereby incorporated by reference in this Proxy Statement.
- (2) ARR is used to assess the trajectory of our cloud business. ARR means, as of a specified date, the contracted recurring revenue, including contracts with a future start date, together with annualized overage fees incurred above contracted minimum transactions, and excluding perpetual and term license agreements recognized as license revenue in accordance with GAAP. ARR should be viewed independently of revenue and any other GAAP measure.

CEO Pay and Company Performance

In 2015, we embarked on a multi-year cloud transformation, primarily to maximize long-term shareholder value. In 2017, we again demonstrated success in this transition, with year-over-year growth of 31% in ARR and 59% in subscription revenue, a return to year-over-year growth in total revenue, and generated positive free cash flow in the fourth quarter. Subscription revenue represented 36% of our total revenue in 2017, up from 25% in 2016. Shareholders saw a 23% increase in our share price during 2017, and a cumulative 55% increase from end of 2016 through March 16, 2018.



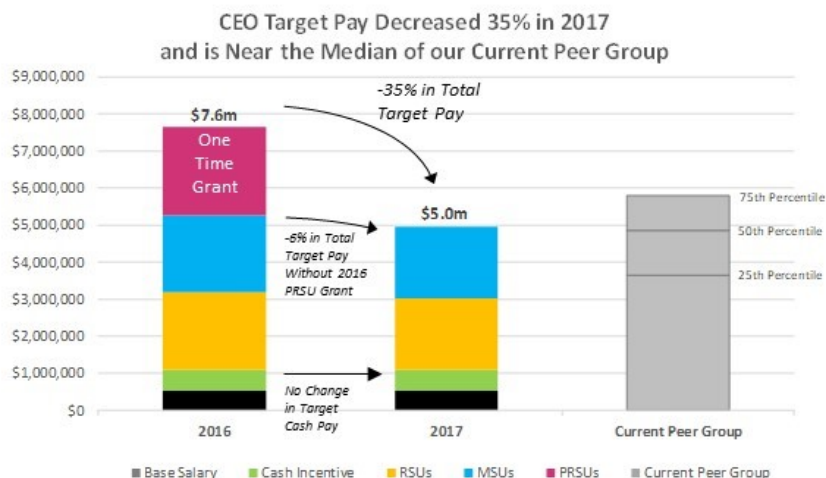
- (1) ARR is used to assess the trajectory of our cloud business. ARR means, as of a specified date, the contracted recurring revenue, including contracts with a future start date, together with annualized overage fees incurred above contracted minimum transactions, and excluding perpetual and term license agreements recognized as license revenue in accordance with GAAP. ARR should be viewed independently of revenue and any other GAAP measure.

Chief Executive Officer (CEO) target **pay decreased 35%** from 2016 to 2017 and sits near the median of our current peer group, while our **stock price increased 23%** in 2017, driven by both operational and cloud transition successes during the year.

The majority of our CEO's target pay is tied to the Company's operational and stock price performance through our cash incentive plan and equity grants that vest based off our stock price performance. As such, our CEO's realized pay¹ adjusted downward in 2017 where our actual performance was below-target. For example, due to aggressive target setting, on average from 2015 through 2017, our CEO attained 84% of his target cash incentive. During this same time period, our CEO attained an average of 19% of his target performance-based equity, as the target performance-based equity compensation levels were established prior to our decision to shift to a cloud strategy, and we did not change the target levels following our decision to embark on our multi-year cloud transformation. As a result, our CEO's realized pay lagged his target pay by 36% over that time period. Nevertheless, throughout our cloud transition we have continued to set aggressive goals for target cash incentive attainment and maintained a high percentage of total compensation at risk.

- (1) Realized CEO pay excludes exercises of stock options granted to Mr. Reiner prior to his appointment as our CEO in 2010, as referenced on the table in the "Option Exercises and Equity Awards Vested" section below. Realized CEO pay for 2018 represents projected cash payments from performance at 2018 target levels, actual equity vesting events prior to the Record Date, and excludes future PRSU equity vesting events that could result from future stock price improvement.

Despite positive performance against 2016 operating targets and continued execution on our cloud transition, our CEO's base salary and target cash incentive were not increased in 2017, and his target equity compensation¹ was reduced from \$6.5 million in 2016 to \$3.9 million in 2017, due to a one-time grant issued in 2016 which was not repeated in 2017.



- (1) Target equity compensation (a) for restricted stock units (RSUs) and market stock units (MSUs) represents total target equity compensation determined by the Compensation and Leadership Development Committee of \$3.9 million for 2017 and \$4.2 million for 2016, each divided by the average closing prices of the Company's common stock (Common Stock) reported by the New York Stock Exchange (NYSE) for the 30 days preceding December 31 prior to grant, and differs from the accounting grant date fair value included in the "Grants of Plan Based Awards" table on page 23 of this Proxy Statement); and (b) for performance restricted stock units (PRSUs) represents the \$2.4 million accounting grant date fair value.

Say-on-Pay

Our 2017 advisory vote to approve NEO compensation received the support of approximately 61% of our shareholder vote, following 85% support in the 2016 shareholder vote. Our Compensation and Leadership Development Committee viewed this outcome in 2017 as an indication that further engagement was needed. At the Committee's request, we engaged in extensive shareholder outreach during the summer and fall of 2017, reaching out to shareholders representing approximately 75% of our shares outstanding, to discuss feedback on our executive compensation program. As shareholder feedback was received following the Say-on-Pay vote in 2017, this feedback could not be taken into account for 2017 compensation decisions made prior to the vote. However, as a result of this feedback, the Committee reevaluated our executive compensation program and made several changes to our executive pay program for 2018. *For more information see the "2018 Compensation Highlights" section on page 23 of this Proxy Statement.* The following table summarizes our shareholders' feedback and the Committee's resulting decisions:

What We Heard	What We Did
✓ Mixed level of concern on CEO pay levels.	✓ Made clear that overall CEO target compensation decreased by 35% for 2017, primarily due to a one-time PRSU equity grant in 2016.
	✓ Updated our peer group to ensure an accurate comparison of peer executive compensation practices and pay levels, with CEO 2018 target compensation near the median of the updated peer group.
	✓ Set CEO 2018 target compensation near the median of the updated peer group.
	✓ Continued to set pay based on performance through our bonus plan and MSU grants tied to our operational and stock price performance versus to the Russell 2000 Index (Index).
	✓ Continued to set aggressive goals for cash incentive attainment. For example, in 2017, our primary growth-oriented performance metric was ARR, and this goal required 40% more growth to earn a target award than the approximate 18% median revenue growth rate experienced by our peers during 2016.
✓ Strong support for FCF¹ as a cash incentive performance metric , even if the target is negative, because it reflects the health of our business and the success of our cloud transition.	✓ FCF will remain as a measure in the cash incentive plan for 2018, because we believe it captures the health of our business and measures the success of our cloud transition.
✓ Desire for our performance-based goals to be tied to a successful cloud transition.	✓ We replaced gross profit with total revenue as a cash incentive performance metric. Total revenue will be an increasingly valuable indication of top line growth of our cloud business as recurring revenue continues to increase as a percentage of total revenue.
✓ Some misunderstanding of the performance structure of our CEO's cash incentive program, primarily related to quarterly goals and payments.	✓ We have removed the quarterly element of our cash incentive program for 2018 so that all goals are based on an annual measurement period. However, we reiterated that quarterly goals used in our 2016 and 2017 cash incentive programs were set at the beginning of the year and not changed throughout the year. In this way, they were similar to an annual budget based on a roll-up of quarterly planning, and used to measure both the amount of annual performance reinforce accountability for the timing of that performance.

(1) FCF is a non-GAAP financial measure which is defined as net cash provided by (used in) operating activities, less additions to property, plant and equipment, purchases of other (non-acquisition-related) intangible assets and capitalized internal-use software development costs.

CEO Year-End Compensation Decisions 2018 v. 2017

The compensation package for our CEO is designed to motivate him to successfully implement our cloud strategy, execute our corresponding financial plan, and create sustainable long-term value for our shareholders. To determine our CEO's compensation package for 2018, our Compensation and Leadership Development Committee reviewed both Company performance in 2017 and peer compensation practices and compensation levels. The base salary and cash incentive target of our CEO, Andres. D. Reiner, remained unchanged in 2018, the third year in a row without an increase in target cash compensation. The Committee instead decided to increase Mr. Reiner's performance-based pay in the form of equity-based compensation to \$4.3 million in 2018, from \$3.9 million in 2017, based on his successful performance in our cloud transition. Together these decisions resulted in Mr. Reiner's total target compensation being near the median of peer compensation for 2018.

	Cash Compensation			Target Equity ¹			Total Target Compensation
	Base Salary	Cash Incentive Target	Cash Incentive Earned	RSUs	MSUs	PRSUs	
2017 (Decided Jan. 2017)	\$ 525,000 (+0% vs. 2016)	\$ 577,500 (+0% vs. 2016)	\$ 419,843 (73% of target)(-53% vs. 2016)	\$ 1,930,000 (-7% vs. 2016)	\$ 1,930,000 (-7% vs. 2016)	\$ — (-100% vs. 2016)	\$ 4,962,500 (-35% vs. 2016)
2018 (Decided Jan. 2018)	\$ 525,000 (+0% vs. 2017)	\$ 577,500 (+0% vs. 2017)	Not Yet Earned	\$ 2,150,012 (+11% vs. 2017)	\$ 2,150,012 (+11% vs. 2017)	\$ — (+0% vs. 2017)	\$ 5,402,524 (+9% vs. 2017) (-29% vs. 2016)

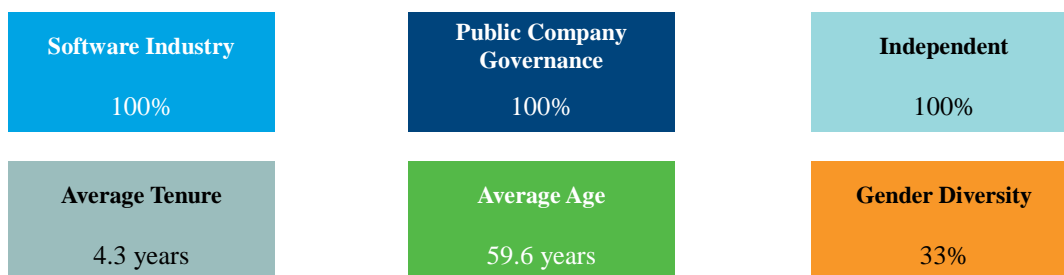
(1) Target equity reflects target award value approved by our Compensation and Leadership Development Committee on the date of grant calculated and does not reflect the fair value as reported in the Summary Compensation Table.

Director Nominees

Name	Age	Director Since	Class	Independent	AC	CC	NC	Other Current Public Company Boards
Penelope Herscher	57	2018	II	Yes		M ¹	M ¹	Faurecia SA; Lumentum Operations LLC; Rambus, Inc.; Verint;
Leslie Rechan	56	2015	II	Yes	M ²	M ²	M	-
William Russell	66	2008	II	Yes		M	C	-
AC Audit Committee		CC Compensation & Leadership Development Committee			NC Nominating and Corporate Governance Committee			
		C Chair			M Member			

- (1) If reelected, Ms. Herscher will be appointed to the Compensation and Leadership Development and Nominating and Corporate Governance Committees.
(2) If reelected, Mr. Rechan will be appointed to the Audit Committee and will discontinue serving on the Compensation and Leadership Development Committee.

Our director nominees exhibit a mix of skills, experience, and diversity:



Continuing Directors

Name	Age	Director Since	Class	Independent	AC	CC	NC	Other Current Public Company Boards
Greg B. Petersen	55	2007	I	Yes	M	C		-
Andres D. Reiner	47	2010	III	No				Paylocity Holding Corporation
Timothy V. Williams	69	2007	I	Yes	C		M	ChannelAdvisor Corporation
Mariette M. Woestemeyer	66	1985	I	No				-
Ronald F. Woestemeyer	72	1985	III	No				-
AC Audit Committee		CC Compensation & Leadership Development Committee			NC Nominating and Corporate Governance Committee			
		C Chair			M Member			



2018 ANNUAL MEETING OF STOCKHOLDERS MAY 11, 2018

General

The enclosed proxy is solicited on behalf of the Board of Directors for use at the Annual Meeting to be held May 11, 2018 at 8:00 a.m., local time, at 3100 Main Street, 9th Floor, Houston, Texas 77002, or at any adjournment or postponement thereof, for the purposes set forth herein and in the accompanying Notice of 2018 Annual Meeting of Stockholders. Only stockholders of record at the close of business on the Record Date are entitled to notice of and to vote at the Annual Meeting.

The Notice containing instructions on how to access our proxy solicitation materials and our 2017 Annual Report, including financial statements, was first mailed and those documents were first made available on or about March 30, 2018 to stockholders entitled to vote at the Annual Meeting.

The purposes of the Annual Meeting are:

- 1 To elect three Class II directors to the Board of Directors, each to serve for a three-year term until the 2021 Annual Meeting;
- 2 To conduct an advisory vote on executive compensation;
- 3 To ratify the appointment of PricewaterhouseCoopers LLP as our independent registered public accounting firm for the fiscal year ending December 31, 2018; and
- 4 To transact such other business as may properly come before the Annual Meeting or any adjournment

Record Date and Shares Outstanding

Stockholders of record at the close of business on the Record Date are entitled to notice of and to vote at the Annual Meeting. As of the Record Date, 32,588,924 shares of Common Stock were outstanding. Each stockholder of record as of the Record Date is entitled to one vote for each share of Common Stock held by such stockholder.

Vote Required

If a quorum is present, a plurality vote of the holders of our Common Stock entitled to vote and present or represented by proxy at the Annual Meeting is required for the election of a director. This “plurality” standard means the nominees who receive the largest number of “for” votes cast are elected as directors. Thus, the number of shares not voted for the election of a nominee (and the number of “withhold” votes cast with respect to that nominee) will not affect the determination of whether that nominee has received the necessary votes for election under Delaware law. However, the number of “withhold” votes with respect to a nominee will affect whether our Director Resignation Policy will apply to that individual. Our Director Resignation Policy provides that any nominee for director who receives a greater number of votes “withheld” from his or her election than votes “for” such election is required to offer his or her resignation following certification of the stockholder vote. The Nominating and Corporate Governance Committee would then consider the offer of resignation and make a recommendation to our independent directors as to the action to be taken with respect to the offer. This policy does not apply in contested elections. *For more information about this policy, see “Corporate Governance - Director Resignation Policy.”*

The affirmative vote of the holders of a majority of the shares of Common Stock present or represented by proxy and voting at the Annual Meeting is required to approve the ratification of the selection of our independent auditors and the advisory vote on executive compensation. We will not count abstentions as either for or against a director, so abstentions have no effect on the election of a director. A properly executed proxy marked “abstain” with respect to any matter is considered entitled to vote, and thus, will have the effect of a vote against a matter, except for the election of directors.

Our bylaws provide that a majority of the outstanding shares of our stock entitled to vote, whether present in person or represented by proxy, shall constitute a quorum for the transaction of business at the Annual Meeting. Votes for and against, abstentions and “broker non-votes” (shares held by a broker or nominee that does not have the authority, either express or discretionary, to vote on a particular matter) will each be counted as present for purposes of determining the presence of a quorum.

Effect of Not Casting Your Vote

The NYSE prohibits banks, brokers and other intermediaries from voting shares held in their clients’ accounts on elections of directors and other “non-routine” matters unless the client has provided voting instructions. Therefore, if you hold your shares in street name through a broker, it is important that you cast your vote if you want it to count for purposes of Proposals One, Two and Three of this Proxy Statement.

Attending the Annual Meeting

The Annual Meeting will be held at 8:00 a.m., local time, on Friday, May 11, 2018, at 3100 Main Street, 9th Floor, Houston, Texas 77002. When you arrive, the receptionist will direct you to the meeting room. Please note that the doors to the meeting room will not be open until 7:50 a.m. You do not need to attend the Annual Meeting to vote. Even if you plan to attend the Annual Meeting, please submit your vote in advance as instructed below.

Revocability of Proxies

Any proxy given pursuant to this solicitation may be revoked by the person giving it at any time before it is voted at the Annual Meeting. Proxies may be revoked by:

- Filing with our Corporate Secretary, at or before the taking of the vote at the Annual Meeting, a written notice of revocation bearing a later date than the proxy;
- Duly executing a later-dated proxy relating to the same shares and delivering it to our Corporate Secretary at or before the taking of the vote at the Annual Meeting; or
- Attending the Annual Meeting and voting in person (although attendance at the Annual Meeting will not in and of itself constitute a revocation of a proxy).

Any written notice of revocation or subsequent proxy should be delivered to PROS Holdings, Inc. at 3100 Main Street, Suite 900, Houston, Texas 77002, Attention: Corporate Secretary, or hand-delivered to our Corporate Secretary before the taking of the vote at the Annual Meeting.

Electronic Delivery of Stockholder Communications

We take advantage of the SEC rules that allow companies to furnish their proxy materials over the Internet. As a result, we are mailing to our stockholders the Notice, instead of a paper copy of this Proxy Statement and our 2017 Annual Report. The Notice contains instructions on how to access those documents over the Internet. The Notice also contains instructions on how to request a paper copy of our proxy materials, including this Proxy Statement, our 2017 Annual Report and a form of proxy card or voting instruction card. As a result of the Notice, not all stockholders will receive a paper copy of our proxy materials.

Voting Instructions

To ensure that your vote is recorded promptly, please vote as soon as possible, even if you plan to attend the Annual Meeting in person. Most stockholders have three options for submitting their votes: (1) via the Internet, (2) by telephone or (3) by mail using the paper proxy card. If you have Internet access, **we encourage you to vote via the Internet**. If you attend the Annual Meeting, you may also submit your vote in person, and any previous votes that you submitted, whether by Internet, telephone or mail, will be superseded by the vote that you cast at the Annual Meeting.

- *Vote by Internet.* You can vote via the Internet at www.PROXYVOTE.com. Have your proxy card in hand when you access the web site and follow the instructions to obtain your records and to create an electronic voting instruction form. You can use the Internet to transmit your voting instructions up until 11:59 P.M. Eastern Time on May 10, 2018. Internet voting is available 24 hours a day. If you vote via the Internet you do NOT need to vote by telephone or return a proxy card.

- *Vote by Telephone.* You can vote by telephone by calling the toll-free telephone number provided on your proxy card. Have your proxy card in hand when you call and then follow the instructions. You may transmit your voting instructions from any touch-tone telephone up until 11:59 P.M. Eastern Time on May 10, 2018. Telephone voting is available 24 hours a day. If you vote by telephone you do NOT need to vote over the Internet or return a proxy card.
- *Vote by Mail.* If you received a printed copy of the proxy card, you can vote by marking, dating and signing it, and returning it in the postage-paid envelope provided to PROS Holdings, Inc., c/o Broadridge, 51 Mercedes Way, Edgewood, NY 11717. Please promptly mail your proxy card to ensure that it is received prior to the closing of the polls at the Annual Meeting. If you vote by mail you do NOT need to vote over the Internet or vote by telephone.

If you are a beneficial owner, or you hold your shares in “street name,” please check your voting instruction card or contact your bank, broker or nominee to determine whether you will be able to vote by Internet or telephone.

Householding Matters

Some banks, brokers and other nominee record holders may be participating in the practice of “householding” proxy statements and annual reports. This means that only one copy of the Notice and Proxy Statement may have been sent to multiple stockholders in your household. If you would prefer to receive separate copies of a proxy statement, please contact our Corporate Secretary by calling 713-335-5151 or by writing to us at 3100 Main Street, Suite 900, Houston, Texas 77002. Upon oral or written request, we will promptly provide separate copies of the Notice or this Proxy Statement to each stockholder at that address. In addition, stockholders sharing an address and receiving multiple copies can request delivery of a single copy of proxy statements upon written request to our Corporate Secretary at the address stated above.



CORPORATE GOVERNANCE

Independence

The Board of Directors has adopted categorical standards in our Corporate Governance Guidelines to assist in making independence determinations with respect to each director. The Board of Directors has determined that the following directors are independent within the meaning of the NYSE listing standards and federal securities laws: Messrs. Petersen, Rechan, Russell, and Williams and Mss. Keszler and Herscher. As part of such determination of independence, our Board of Directors has affirmatively determined that none of these directors has a relationship with us that would interfere with the exercise of independent judgment in carrying out his or her responsibilities as a director. The majority of our Board of Directors is independent, and our Audit Committee, Compensation and Leadership Development Committee and Nominating and Corporate Governance Committee are comprised of all independent directors.

Executive Sessions

Executive sessions of the non-employee members of the Board of Directors are regularly scheduled throughout the year. Non-employee directors meet by themselves at every regularly scheduled in-person Board of Directors meeting. Independent directors also meet by themselves at least annually at scheduled in-person Board of Directors meetings. Non-employee directors and independent directors may hold other such sessions at the request of any non-employee director or independent director. Non-employee and independent directors may notify the non-executive chairman of the Board of Directors if they would like to hold such a session, and the non-executive chairman of the Board of Directors will facilitate the scheduling of such a session. Executive sessions (whether of the non-employee directors or independent directors) are led by our non-executive chairman of the Board of Directors.

Risk Oversight

The Board of Directors oversees our risk management process. Management reviews the process, including identification of key risks and steps taken to address them, with the full Board of Directors at least on an annual basis. The Audit Committee, the Compensation and Leadership Development Committee, and the Nominating and Corporate Governance Committee assist the Board of Directors in discharging its oversight duties. The Compensation and Leadership Development Committee reviews risks related to the subject matters enumerated in its charter, including risks associated with our compensation programs. The Nominating and Corporate Governance Committee considers risks related to the subject matters for which it is responsible as identified in its charter, including risks associated with corporate governance. Similarly, the Audit Committee considers risks related to the subject matters enumerated in its charter, including risks relating to internal controls, disclosure, and financial reporting. Accordingly, while each of the three committees contributes to the risk management oversight function by assisting the Board of Directors in the manner outlined above, the Board of Directors itself remains responsible for the oversight of our risk management program.

Corporate Governance Guidelines

We believe in sound corporate governance practices and have adopted formal Corporate Governance Guidelines. Our Board of Directors adopted these Corporate Governance Guidelines in order to ensure that it has the necessary authority and practices in place to review and evaluate our business operations as needed, to make decisions that are independent of our management, and to align the interests of directors and management with the interests of our stockholders. The Corporate Governance Guidelines set forth the practices our Board of Directors follows, including, but not limited to, the Board of Directors and committee composition and selection, director responsibilities, director access to officers and employees and Chief Executive Officer performance evaluation and succession planning. A printed copy of our Corporate Governance Guidelines may be obtained without charge by any stockholder upon sending a written request to us at 3100 Main Street, Suite 900, Houston, Texas 77002, Attn: Corporate Secretary. A copy of our Corporate Governance Guidelines is also available under the Corporate Governance – Investor Relations section of our website at www.PROS.com.

Director Nomination

The Nominating and Corporate Governance Committee has the responsibility for establishing the criteria for recommending which directors should stand for reelection to our Board of Directors and the selection of new directors to serve on our Board of Directors. In addition, the Nominating and Corporate Governance Committee is responsible for establishing the procedures for our stockholders to nominate candidates to our Board of Directors. Although the Nominating and Corporate Governance Committee has not formulated any specific minimum qualifications for director candidates, it has determined that desirable characteristics include, but are not limited to, business experience, mature judgment, personal and professional ethics, and integrity. The Company does not have a formal policy with respect to consideration of diversity in identifying director nominees; however, in the process of selecting a director nominee, the Nominating and Corporate Governance Committee assesses backgrounds, diversity and expected contributions of the individuals to the Board of Directors. A printed copy of our Corporate Governance Guidelines may be obtained without charge by any stockholder upon sending a written request to us at 3100 Main Street, Suite 900, Houston, Texas 77002, Attn: Corporate Secretary. Our Corporate Governance Guidelines are also available under the Corporate Governance - *Investor Relations* section of our website at www.PROS.com.

Our bylaws permit any stockholder of record to nominate directors. Stockholders who wish to submit nominees for election at an annual or special meeting of stockholders should follow the procedure described in the "*Stockholder Proposals*" section on page 51 of this Proxy Statement. The Nominating and Corporate Governance Committee applies the same standards in considering candidates submitted by stockholders as it does in evaluating candidates submitted by members of the Board of Directors.

The Board of Directors is currently led by a non-executive chairman, who is an independent director. The Board of Directors' current preferred governance structure is to have an independent director serve as chairman. We believe the current structure provides strong leadership for our Board of Directors, while also positioning our Chief Executive Officer as the leader of the Company. We believe that our current structure helps ensure independent oversight over the Company, while allowing our Chief Executive Officer to focus his energies on management of the Company.

The Board of Directors recognizes that there is no single, generally accepted approach to providing board leadership, and the board leadership structure may vary in the future as circumstances warrant. If the Board of Directors determines it is in the best interests of our stockholders to combine the positions of chairman and Chief Executive Officer, the independent directors will designate a lead independent director.

Our non-executive chairman oversees the planning of the annual Board of Directors' calendar, and, with the Chief Executive Officer, in consultation with the other directors, schedules and sets the agenda for meetings of the Board of Directors and leads the discussion at such meetings. Our non-executive chairman also presides at executive sessions, serves as a liaison between the Chief Executive Officer and the independent directors, sees that directors receive appropriate and timely information, assists the chairmen of the committees of the Board of Directors in preparing agendas for the respective committee meetings, chairs our annual meetings of stockholders, is available in appropriate circumstances to speak on behalf of the Board of Directors, and performs such other functions and responsibilities as set forth in our Corporate Governance Guidelines or as requested by the Board of Directors from time to time. Our non-executive chairman also encourages direct dialogue between all directors and management and provides leadership to the Board of Directors in its oversight function.

Director Resignation Policy

Our Board of Directors has adopted a director resignation policy. Under this policy in an uncontested election of directors (an election at which the number of nominees is equal to the number of seats open) any nominee for director who receives a greater number of votes "withheld" from his or her election than votes "for" such election must promptly tender his or her resignation to the Nominating and Corporate Governance Committee (following certification of the stockholders' vote) for consideration in accordance with the procedures described below.

The Nominating and Corporate Governance Committee will promptly consider such resignation and recommend to the Qualified Independent Directors (as defined below) the action to be taken with respect to such offered resignation, which may include (1) accepting the resignation; (2) maintaining the director but addressing what the Qualified Independent Directors believe to be the underlying cause of the withheld votes; (3) determining that the director will not be renominated in the future

for election; or (4) rejecting the resignation. The Nominating and Corporate Governance Committee will consider all relevant factors including, without limitation, (a) the stated reasons why votes were withheld from such director; (b) any alternatives for curing the underlying cause of the withheld votes; (c) the tenure and qualifications of the director; (d) the director's past and expected future contributions to the Company; (e) our director criteria; (f) our Corporate Governance Guidelines; and (g) the overall composition of the Board, including whether accepting the resignation would cause the Company to fail to meet any applicable SEC or NYSE requirement.

The Qualified Independent Directors will act on the Nominating and Corporate Governance Committee's recommendation no later than 90 days following the date of the stockholders' meeting in which the election occurred. In considering the Nominating and Corporate Governance Committee's recommendation, the Qualified Independent Directors will consider the factors considered by the Nominating and Corporate Governance Committee and such additional information and factors the Board of Directors believes to be relevant. Following the Qualified Independent Directors' decision, the Company will promptly disclose in a Current Report on Form 8-K the decision whether to accept the resignation as tendered (providing a full explanation of the process by which the decision was reached or, if applicable, the reasons for rejecting the tendered resignation).

To the extent that a resignation is accepted, the Nominating and Corporate Governance Committee will recommend to the Board of Directors whether to fill such vacancy or vacancies or to reduce the size of the Board of Directors.

Any director who tenders his or her resignation pursuant to this provision will not participate in the Nominating and Corporate Governance Committee's recommendation or Qualified Independent Directors' consideration regarding whether to accept the tendered resignation. Prior to voting, the Qualified Independent Directors will afford the director an opportunity to provide any information or statement that he or she deems relevant. If a majority of the members of the Nominating and Corporate Governance Committee received a greater number of votes "withheld" from their election than votes "for" their election at the same election, then the remaining Qualified Independent Directors who are on the Board of Directors who did not receive a greater number of votes "withheld" from their election than votes "for" their election (or who were not standing for election) will consider the matter directly or may appoint a committee of the Board of Directors amongst themselves solely for the purpose of considering the tendered resignations that will make the recommendation to the Board of Directors whether to accept or reject them.

For purposes of this policy, the term "Qualified Independent Directors" means:

- All directors who (1) are independent directors (as defined in accordance with the NYSE Corporate Governance Rules) and (2) are not required to offer their resignation in accordance with this policy.
- If there are fewer than three independent directors then serving on the Board who are not required to offer their resignations in accordance with this policy, then the Qualified Independent Directors shall mean all of the independent directors and each independent director who is required to offer his or her resignation in accordance with this Policy shall recuse himself or herself from the deliberations and voting only with respect to his or her individual offer to resign.

Stock Ownership Guidelines

As part of our overall corporate governance and compensation practices, our Board of Directors has adopted stock ownership guidelines for our NEOs and directors. These guidelines are designed to align our NEOs' and directors' interests with our stockholders' long-term interests by promoting long-term share ownership, which reduces the incentive for excessive short-term risk taking and further increase our NEOs' and directors' alignment with stockholder interests. These guidelines require our Chief Executive Officer to hold shares of our stock worth four times his annual salary and the other NEOs to hold shares of our stock worth two times their annual salary. The guidelines also state that each non-employee director is required to hold shares of our stock worth five times the director's annual retainer. Our NEOs and directors are expected to achieve their ownership thresholds within five years after joining our Board of Directors and/or being appointed as an NEO. As of December 31, 2017, each of our NEOs and directors were in compliance with the applicable guidelines.

Prohibition Against Hedging, Short-Sale, Pledging, and Repricing Underwater Stock Options

We have implemented both anti-hedging and anti-pledging policies, as well as a prohibition on participating in short sales of our stock, to ensure that our executives' stock remains at-risk. Our 2017 Equity Incentive Plan (2017 Plan) also prohibits repricing, repurchase or exchange of underwater stock options without stockholder approval.

Compensation and Leadership Development Committee Interlocks and Insider Participation

No member of our Compensation and Leadership Development Committee and none of our executive officers has any relationships that would constitute an interlocking relationship with executive officers and directors of any other entity.

Code of Business Conduct and Ethics

Our Board of Directors has adopted a Code of Business Conduct and Ethics that applies to all of our directors and employees. A printed copy of our Code of Business Conduct and Ethics may be obtained without charge by any stockholder upon sending a written request to us at 3100 Main Street, Suite 900, Houston, Texas 77002, Attn: Corporate Secretary. Our Code of Business Conduct and Ethics is also available under the Corporate Governance – Investor Relations section of our website at www.PROS.com.

Communication with Our Board of Directors

Stockholders or interested parties who wish to communicate with members of our Board of Directors may send correspondence to them in care of our Corporate Secretary at 3100 Main Street, Suite 900, Houston, TX 77002. Such communication will be forwarded to the intended recipient(s). We currently do not intend to have our Corporate Secretary screen this correspondence, but we may change this policy if directed by our Board of Directors due to the nature or volume of the correspondence. Communications that are intended specifically for the non-executive chairman of the Board of Directors may also be sent to the street address noted above, to the attention of the non-executive chairman of the Board of Directors.

OUR BOARD OF DIRECTORS AND ITS COMMITTEES

The Company's governance framework provides the Board with flexibility to select the appropriate leadership structure for the Company. In making leadership structure determinations, the Board considers many factors, including the specific needs of the business and what is in the best interests of the Company's stockholders. The current leadership structure is comprised of a non-executive chairman of the Board, and Committees led by independent directors. The Board believes this structure provides an effective balance between strong Company leadership and appropriate safeguards and oversight by independent directors.

Our Board of Directors currently consists of nine members, divided into three classes, with each class serving for a staggered three-year term. The term of office of one class of directors expires each year in rotation so that one class is elected at each annual meeting for a full three-year term. Our Board of Directors also has three standing Committees: an Audit Committee, a Compensation and Leadership Development Committee, and a Nominating and Corporate Governance Committee. Our Board of Directors has determined that each member of the Audit Committee, Compensation and Leadership Development Committee, and Nominating and Corporate Governance Committee meets the independence requirements of the NYSE listing standards and federal securities laws. Each Committee has a written charter, which can be found under the *Corporate Governance – Investor Relations* section of our website at www.PROS.com. A printed copy of these charters may be obtained without charge by any stockholder upon sending a written request to PROS Holdings, Inc., 3100 Main Street, Suite 900, Houston, Texas 77002, Attn: Corporate Secretary. The table below provides ages, positions, current membership, term of office, and other relevant information for each of our directors:

Name	Age	Position(s) with the Company	Director Since	Current Term Expires	Current Class of Director	Audit	Compensation and Leadership Development	Nominating and Corporate Governance
Penelope Herscher	57	Director (Nominee)	2018	2018	II		Member ¹	Member ¹
Ellen Keszler	55	Director	2008	2018	II	Member		Member
Greg B. Petersen	55	Director	2007	2020	I	Member	Chair	
Leslie Rechan	56	Director (Nominee)	2015	2018	II	Member ²	Member ²	Member
Andres D. Reiner	47	President, CEO and Director	2010	2019	III			
William Russell	66	Non-Executive Chairman (Nominee)	2008	2018	II		Member	Chair
Timothy V. Williams	69	Director	2007	2020	I	Chair		Member
Mariette M. Woestemeyer	66	Director	1985	2020	I			
Ronald F. Woestemeyer	72	Director	1985	2019	III			
Number of meetings in 2017						10	6	4

- (1) If reelected, Ms. Herscher will be appointed to the Compensation and Leadership Development and Nominating and Corporate Governance Committees.
(2) If reelected, Mr. Rechan will be appointed to the Audit Committee and will discontinue serving on the Compensation and Leadership Development Committee.

Directors and Director Nominees

Penelope Herscher: We welcomed Ms. Herscher to our Board of Directors in January 2018. Ms. Herscher is a seasoned technology public company board director, executive and entrepreneur, with more than 15 years of experience as a high-tech CEO in Silicon Valley and more than 10 years of experience serving on public company boards of directors. Ms. Herscher currently serves on the boards of Faurecia SA (EPA:EO), Verint (NASDAQ:VRNT), Lumentum Operations LLC (NASDAQ:LITE) and Rambus, Inc. (NASDAQ:RMBS). Ms. Herscher previously served as CEO for FirstRain, a privately held company in the unstructured data analytics space, from December 2004 to November 2015. Prior to leading FirstRain, she was CEO of Simplex Solutions and served in C-level and senior executive positions for a number of software and technology firms, including Cadence Design Systems, Inc. Ms. Herscher has extensive business and leadership experience in software companies, including experience in software sales, marketing, strategy, governance, compensation planning and mergers and acquisitions.

Ellen Keszler. Ms. Keszler will not be standing for re-election and will be retiring from our Board of Directors at the Annual Meeting after ten years of service. We are grateful to Ms. Keszler for her service. Ms. Keszler currently serves as president and chief executive officer of Clear Sky Associates, LLC, a management and strategy consulting firm focused on the technology and travel industries, a position she has held since 2007. She also serves on three private technology company boards and a number of technology startup advisory boards. Previously, Ms. Keszler served as president of Travelocity Business from 2003 to 2007, a technology-focused corporate travel management company. From 2000 to 2003, Ms. Keszler served as Senior Vice President—North American Division of Sabre Travel Network, a travel technology and services business. From 1987 to 2000, Ms. Keszler held various finance roles at Sabre Holdings, American Airlines and JCPenney. Ms. Keszler holds a Bachelor of Science in Civil Engineering from Texas A&M University and a Master of Business Administration from the University of Texas at Austin. Ms. Keszler has extensive business and leadership experience, including experience in managing financial reporting, sales, operations, strategy, marketing and advertising. Ms. Keszler also has significant expertise in travel and travel technology industries, which we serve.

Greg B. Petersen. Mr. Petersen currently serves as president of Brookview Capital Advisors based in Austin, Texas, a position he has held since 2016. Mr. Petersen previously served as a board member on three other technology companies - Diligent Corporation (from 2013 to 2016), and Pikel, Inc. (from 2012 to 2017). Mr. Petersen served as the Chairman of the Audit Committee at Diligent and Pikel, and an advisory board member at Synthesio. Previously Mr. Petersen served as the Executive Vice Chairman at Diligent Corporation, a high growth SaaS business from 2014 to 2015, and as the Chief Financial Officer of several software and technology companies, including Activant Solutions, Inc., a \$400 million provider of business management solutions to retail and wholesale distribution businesses from 2001 to 2007; and Lombardi Software, Inc., a business process management software provider, which was sold to IBM in 2010. After earning an MBA from Duke University in 1989, Mr. Petersen began his career with American Airlines, Inc. where he held increasing responsible executive positions over eight years, the most recent being as managing director of corporate development where he led a project to create Sabre Holdings, Inc. and complete its IPO. Mr. Petersen has also served as an executive in finance and treasury roles with Trilogy Software, a provider of enterprise software and business services, and in planning and development roles with RailTex, a publicly traded short-line and regional rail service provider. Mr. Petersen holds a Bachelor of Arts in Economics from Boston College and a Master of Business Administration from the Fuqua School of Business at Duke University. Mr. Petersen has business and leadership experience in software companies, merger and acquisition experience, and extensive financial planning, accounting, governance, compensation planning and risk management knowledge.

Leslie Rechan. Mr. Rechan serves as President and Chief Executive Officer and a director of Solace Corp., a cloud-based smart data movement solutions company, a position he has held since September 2017. Prior to Solace, Mr. Rechan previously served as President and Chief Executive Officer and a director of Halogen Software, a cloud-based talent management software provider from November 2015 to May 2017. Mr. Rechan previously served as General Manager, IBM Business Analytics Division from November 2011 to April 2014, and Vice President, Sales, Solutions and Services, IBM Business Analytics Division from 2008 through 2011. He served as Chief Operating Officer of Cognos Inc. from 2006 to 2008. Prior to joining Cognos, Mr. Rechan served as Senior Vice President and Global General Manager, CRM Strategy at Oracle Corporation in 2006, when Oracle Corporation acquired Siebel Systems Inc. Mr. Rechan served as Senior Vice President and General Manager of Americas Sales of Siebel Systems, Inc. (formerly Siebel Systems Inc.) and served in the same capacity for Global Manufacturing and Distribution Industries business unit of Siebel Systems, Inc. from 2004 to 2006. Mr. Rechan served as Senior Vice President and General Manager of North American Worldwide Field Operations of Cadence Design Systems Inc. from 2003 to 2004. He served as President and Chief Operating Officer of Onyx Software Corp. from 2001 to 2002. Prior to 2001, Mr. Rechan held several leadership positions at IBM Corp. across field sales, systems engineering, services, solutions, development, and general management in North America, Europe and Asia Pacific. Mr. Rechan has also served as a director of Cognitive Scale, a privately held cognitive cloud company. Mr. Rechan, throughout his career, has demonstrated strong leadership, and operational excellence. Mr. Rechan received his B.S. in Electrical Engineering and his B.A. in organizational behavior from Brown University and his M.A. in management from Northwestern University. Mr. Rechan has extensive business and leadership experience in software companies, including experience in software sales and operations management.

Andres D. Reiner serves as our President and Chief Executive Officer, a position he has held since November 2010. Mr. Reiner has also served on the board of directors of Paylocity Holding Corporation since September 2014, and is currently on the compensation and nominating and governance committees for Paylocity. Mr. Reiner holds a Bachelor of Science in Computer Science with a minor in Mathematics from the University of Houston. As a result of his 18+ years of experience with the Company, Mr. Reiner has familiarity with all of the Company's key day to day operations and has leadership, management and operating experience. In addition, Mr. Reiner has in-depth experience in and knowledge of the development of our products,

services and the markets in which we compete. *For more information on Mr. Reiner, see “Executive Officers” on page 22 of this Proxy Statement.*

William Russell has served in a variety of roles in both public and private technology company boards and previously served on the boards of SABA Software, Inc. (from January 2010 to March 2015), webMethods and Cognos. Mr. Russell has held a number of senior-level roles in his more than 20 years at Hewlett-Packard, including Vice President and General Manager of the multi-billion-dollar Enterprise Systems Group. Mr. Russell holds a Bachelor of Science in Computer Science from Edinburgh University and has completed several executive development programs from institutions including Harvard Business School and INSEAD. Mr. Russell is a National Association of Corporate Directors (NACD) Board Leadership Fellow, demonstrating his commitment to the highest standards of boardroom excellence. NACD Fellowship is a comprehensive and continuous program of study that empowers directors with the latest insights, intelligence, and leading boardroom practices. As a result of leading Hewlett-Packard’s substantial software business, Mr. Russell has broad knowledge of large-scale software operations, including sales, marketing, development, finance, strategic planning and leadership.

Timothy V. Williams most recently served as Senior Vice President and Chief Financial Officer of Blackbaud, Inc., a publicly-traded provider of software and services to non-profit organizations, from January 2001 until his retirement in November 2011. Mr. Williams previously served as Executive Vice President and Chief Financial Officer of both Mynd Corporation (now a subsidiary of Computer Sciences Corporation), a provider of software and services to the insurance industry, and Holiday Inn Worldwide, a subsidiary of Bass PLC. Mr. Williams holds a Bachelor of Arts in business from the University of Northern Iowa. Mr. Williams also has served on the board of directors and as chairman of the audit committee of ChannelAdvisor Corporation since November 2012. Mr. Williams previously served on the board of directors and as chairman of the audit committee of Halogen Software, Inc. from April 2011 to May 2017. In 2014, Mr. Williams joined the board of directors and serves as chairman of the audit committee of PointClickCare, Inc., a privately held software firm. Mr. Williams has extensive financial, business, management and public software company expertise. Through his experience as a chief financial officer, including with three other software and services firms, Mr. Williams’ brings to the Board of Directors extensive knowledge of accounting, risk management, general management of software companies, and public company reporting requirements and processes.

Mariette M. Woestemeyer co-founded the Company in 1985 with her husband, Ronald F. Woestemeyer. Mrs. Woestemeyer was the Chief Financial Officer of Metro Networks, a broadcasting company, from 1983 to 1985 and held various financial roles with Continental Airlines and its predecessor, Texas International Airlines, prior to 1983. Mrs. Woestemeyer holds a Bachelor of Business Administration and a Master of Business Administration from the University of Houston. As co-founder of the Company, Mrs. Woestemeyer brings continuity and history of current and past management and direct relevant industry experience. Mrs. Woestemeyer also has familiarity with all of the Company’s key operations as a result of serving as our director since 1985. Mrs. Woestemeyer also has experience as our Chief Financial Officer for many years and related operational expertise.

Ronald F. Woestemeyer co-founded the Company in 1985 with his wife, Mariette Woestemeyer. Mr. Woestemeyer previously served as our Executive Vice President, Strategic Business Planning from 1997 until his retirement in July 2015. From 1985 to 1997, Mr. Woestemeyer served as our Chief Executive Officer. Prior to founding the Company, Mr. Woestemeyer spent 14 years at Texas International Airlines in various management and executive positions with responsibility over sales and marketing. Mr. Woestemeyer holds a Bachelor of Business Administration degree from the University of Houston. Mr. Woestemeyer brings continuity and direct relevant industry experience to the Board of Directors as well as his unique familiarity with the business, structure, culture, history and deep knowledge of our markets.

The following table provides a summary view of the experience, expertise and other attributes of our directors and director nominees:

Board Experience, Expertise or Attribute	Penelope Herscher (Nominee)	Ellen Keszler	Greg B. Petersen	Leslie Rechan (Nominee)	Andres D. Reiner	William Russell (Nominee)	Timothy V. Williams	Mariette M. Woestemeyer	Ronald F. Woestemeyer
Accounting		•	•				•	•	
Business Operations	•	•	•	•	•	•	•	•	•
Finance		•	•	•	•		•	•	
International	•			•	•	•		•	•
Leadership	•	•	•	•	•	•	•	•	•
M&A	•		•	•	•	•	•		
Public Company/Governance	•	•	•	•	•	•	•		
Risk Management	•	•	•	•			•		
Sales & Marketing	•			•	•	•			•
Software Industry	•	•	•	•	•	•	•	•	•
Travel Industry		•	•	•	•			•	•
SaaS	•	•	•	•	•	•	•		

Meeting Attendance

During 2017, our Board of Directors held five meetings and acted via unanimous written consent five times, the Audit Committee held ten meetings and acted via unanimous written consent one time, the Compensation and Leadership Development Committee held six meetings and acted via unanimous written consent two times, and the Nominating and Corporate Governance Committee held four meetings. The directors attended each meeting of our Board of Directors and the Committees on which he or she served during 2017, with the exception that Ms. Keszler did not attend the Audit Committee meetings on July 25 and October 24 and the Nominating and Corporate Governance Committee meeting on December 11, Mr. Rechan did not attend the Compensation and Leadership Development Committee meeting on January 3, and Mr. Williams did not attend the Audit Committee meeting on February 13. The Board of Directors encourages all directors to attend annual meetings of the stockholders. All incumbent directors attended the 2017 meeting of the stockholders, except Ms. Herscher, who was not appointed to the Board of Directors until January 1, 2018, after such meeting.

Director Continuing Education

Our directors regularly attend continuing education events related to board governance best practices, including conferences and webinars provided by the NYSE, NACD and Equilar, among others. For example, the majority of our independent directors have attended the NACD Global Board Leaders' Summit in the last four years. In addition, Mr. Russell, our Non-Executive Chairman, has been recognized as an NACD Board Leadership Fellow, the highest credential for corporate directors offered by the NACD.

Audit Committee

Our Board of Directors has determined that each member of the Audit Committee qualifies as an Audit Committee financial expert within the meaning of the SEC regulations and the rules of the NYSE. In arriving at this determination, the Board of Directors has examined each member's scope of experience and the nature of their employment in the corporate finance sector.

The Audit Committee oversees our accounting and financial reporting processes and the audits of our financial statements. Primary responsibilities of our Audit Committee include:

- reviewing and providing oversight over the qualification, independence and performance of our independent auditor and determining whether to retain or terminate its services;
- approving the terms of engagement of our independent auditor and pre-approving the engagement of our independent auditor to perform permissible non-audit services;

- reviewing and discussing with management and our independent auditor the results of the annual audit and the independent auditor's review of our annual and quarterly financial statements and reports, including discussions with independent auditors without management present;
- reviewing and discussing with management all press releases regarding our financial results and any other financial information and earnings guidance provided to securities analysts and rating agencies, including any non-GAAP financial measures;
- reviewing with management and our independent auditor matters that have a significant impact on our financial statements;
- conferring with management and our independent auditors regarding the scope, adequacy and effectiveness of our internal control over financial reporting;
- establishing procedures for the receipt, retention and treatment of complaints received by us regarding accounting, internal control or auditing matters and for the confidential, anonymous submission by our employees of concerns regarding questionable accounting or auditing matters; and
- reviewing and approving all related party transactions.

Compensation and Leadership Development Committee

Each member of our Compensation and Leadership Development Committee is a non-employee director, as defined in Rule 16b-3 promulgated under the Securities Exchange Act of 1934 (Exchange Act), and an outside director, as defined pursuant to Section 162(m) of the Internal Revenue Code (Code).

The Compensation and Leadership Development Committee discharges the responsibilities of our Board of Directors relating to the compensation and benefits for our executive officers and directors. Primary responsibilities of our Compensation and Leadership Development Committee include:

- determining and reviewing all forms of compensation for our executive officers and directors, including, among other things, annual salaries, bonuses, equity awards, severance arrangements, change in control protections and other compensatory arrangements;
- reviewing and approving corporate performance goals and objectives relevant to such compensation;
- administering our equity incentive plans and granting awards of options and other share-based awards to our executive officers, directors and employees;
- reviewing our compensation discussion and analysis and Compensation and Leadership Development Committee report required by the rules of the SEC;
- evaluating and recommending to our Board of Directors the compensation plans and programs advisable for us, and evaluating and recommending the modification or termination of existing plans and programs;
- engage with a third party independent advisor to review market practices around executive compensation and assist us in evaluating our executive compensation program.
- providing oversight on the overall leadership development program throughout the Company; and
- overseeing succession planning for executive officers jointly with the Nominating and Corporate Governance Committee.

Nominating and Corporate Governance Committee

Primary responsibilities of our Nominating and Corporate Governance Committee include:

- identifying, evaluating and recommending to our Board of Directors candidates to serve as members of our Board of Directors and considering the nomination of our incumbent directors for reelection;
- evaluating stockholder nominations of candidates for election to our Board of Directors;
- reviewing our general policy relating to selection of director candidates and members of committees of our Board of Directors, including an assessment of the performance of our Board of Directors; and
- reviewing and making recommendations to our Board of Directors regarding corporate governance principles and policies.



PROPOSAL ONE

ELECTION OF DIRECTORS

What am I voting on?

Stockholders are being asked to elect three Class II director nominees to the Board of Directors for a three-year term.

Voting Recommendation:

The Board of Directors recommends voting “FOR” the election of each of the three Class II director nominees.

Three (3) directors are to be elected at the Annual Meeting. Our Board of Directors, upon the recommendation of the Nominating and Corporate Governance Committee, has nominated Penelope Herscher, Leslie Rechan and William Russell as Class II directors, each to hold office until the 2021 Annual Meeting and until their successor has been duly elected and qualified or until the earlier of their death, resignation or removal.

The Board of Directors is also composed of two Class III directors, whose terms expire upon the election and qualification of directors at the annual meeting of our stockholders to be held in 2019, and three Class I directors, whose terms expire upon the election and qualification of directors at the annual meeting of our stockholders to be held in 2020.

The Board of Directors knows of no reason why any of the nominees would be unable or unwilling to serve, but if any nominee should for any reason be unable or unwilling to serve, the proxies will be voted for the election of such other person for the office of director as the Board of Directors may recommend in the place of such nominee. Unless otherwise instructed, the proxy holders will vote the proxies received by them for the nominees named below.

Vote Required

Directors are elected by a plurality vote of the votes cast by holders of our Common Stock entitled to vote at the Annual Meeting. Abstentions and broker non-votes will not have any effect on this proposal. Accordingly, the three nominees who receive the highest number of properly executed “FOR” votes from the holders of Common Stock will be elected as directors.

In accordance with Delaware law, abstentions will be counted for purposes of determining both whether a quorum is present at the Annual Meeting and the total number of shares represented and voting on this proposal. While broker non-votes will be counted for purposes of determining the presence or absence of a quorum, broker non-votes will not be counted for purposes of determining the number of shares represented and voting with respect to the particular proposal on which the broker has expressly not voted and, accordingly, will not affect the approval of this proposal.

The number of “withhold” votes with respect to a nominee will affect whether our Director Resignation Policy will apply to that individual. In accordance with our Director Resignation Policy, any nominee for director who receives a greater number of votes “withheld” from his or her election than votes “for” such election is required to offer his or her resignation following certification of the stockholder vote. Our Nominating and Corporate Governance Committee of our Board of Directors would then consider whether to accept the resignation and make a recommendation to our independent directors as to the action to be taken with respect to the offer. *For more information about this policy, see “Corporate Governance - Director Resignation Policy.”*

The NYSE broker discretionary rules prohibit banks, brokers and other intermediaries from voting shares held in their clients’ accounts on elections of directors unless the client has provided voting instructions. Therefore, if you hold your shares in street name, it is important that you cast your vote if you want it to count in the election of directors.

THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS VOTING “FOR” THE ELECTION OF EACH OF THE THREE CLASS II DIRECTOR NOMINEES.

EXECUTIVE OFFICERS

The following table sets forth the executive officers and key employees of the Company, their ages, and the positions currently held by each such person with the Company immediately prior to the Annual Meeting:

Name	Age	Position
<i>Named Executive Officers:</i>		
Andres D. Reiner	47	Chief Executive Officer, President and Director
Stefan B. Schulz	51	Executive Vice President and Chief Financial Officer
Thomas F. Dzersk	55	Executive Vice President, Worldwide Sales
<i>Other Significant Employees:</i>		
John Billings	49	Senior Vice President, Travel
Celia Fleischaker	48	Chief Marketing Officer
Mike Jahoda	38	Senior Vice President, Professional Services
Chris Jones	53	Senior Vice President, North America Sales
Damian Olthoff	43	General Counsel and Secretary
Rob Reiner	56	Chief Technology Officer
Wagner Williams	39	Chief People Officer
Benson Yuen	57	President, Travel
Craig Zawada	47	Chief Innovation Officer

Andres D. Reiner has served as a director and as our President and Chief Executive Officer since November 2010. Mr. Reiner joined the Company in 1999, and prior to his appointment as President and Chief Executive Officer, held a series of positions with successively increasing responsibility, including Senior Vice President of Product Development and Executive Vice President of Product and Marketing. Prior to becoming our President and Chief Executive Officer, he was responsible for global marketing and alliances, product management, science research, and development of our next generation software products. Mr. Reiner was also instrumental in our European growth and the expansion of the Company's sales and marketing efforts worldwide. Prior to joining us, Mr. Reiner held various technical and management positions in technology companies including Platinum Technology, ADAC Healthcare Information Systems, and Kinesix. Mr. Reiner holds a Bachelor of Science in Computer Science with a minor in Mathematics from the University of Houston.

Stefan B. Schulz joined the Company in March 2015 and serves as our Executive Vice President and Chief Financial Officer. Prior to joining the Company, Mr. Schulz served as Chief Financial Officer for Digital River, Inc., a global provider of cloud-based commerce, payments and marketing services, from July 2011 to February 2015. Prior to joining Digital River, Mr. Schulz spent six years with Lawson Software, an enterprise resource planning software company, where he served as Senior Vice President, Chief Financial Officer and Chief Accounting Officer. Before joining Lawson Software, Mr. Schulz spent 12 years with BMC Software in various finance and accounting roles, including Vice President and Corporate Controller. Prior to BMC Software, Mr. Schulz was with Arthur Andersen LLP in Houston, ultimately serving as an Audit Manager in the firm's Enterprise Group. Mr. Schulz holds a B.B.A. in Accounting from Lamar University.

Thomas F. Dzersk joined the Company in October 2017 and serves as our Executive Vice President, Worldwide Sales. Prior to joining the Company, Mr. Dzersk served as President for NICE Americas, a provider of enterprise software solutions that empower organizations to make smarter decisions based on advanced analytics, from April 2014 to January 2017. Prior to joining NICE, Mr. Dzersk spent eight years with JDA Software Group, Inc. a supply chain software provider, where he served three years as Executive Vice President, Worldwide Sales and five years as Marketing and Senior Vice President Americas. Mr. Dzersk holds a B.A. in Economics from the University of Michigan.

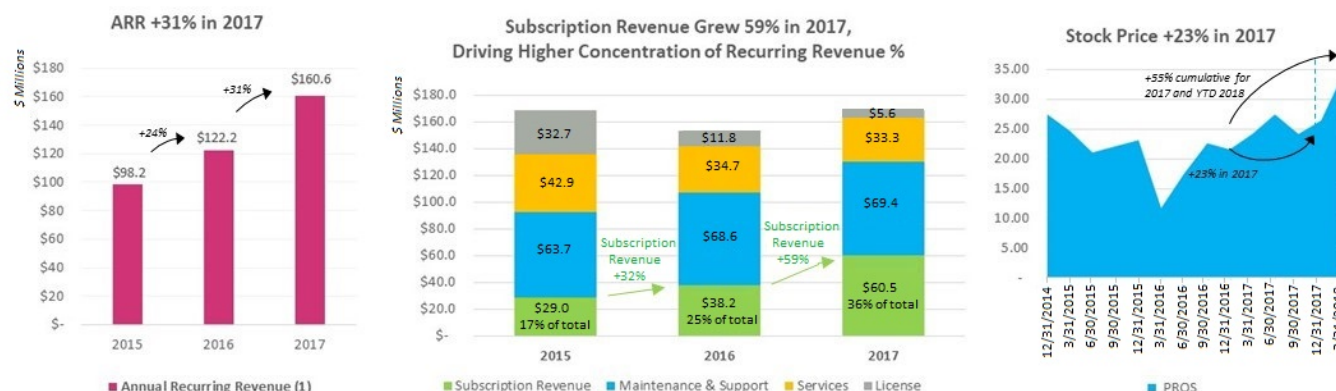
COMPENSATION DISCUSSION AND ANALYSIS

In this section, we describe the executive compensation program for our NEOs. We also explain how the Compensation and Leadership Development Committee determined the pay of our NEOs and its rationale for specific decisions in 2017. Our NEOs for 2017 are as follows:

Name	Title
Andres D. Reiner	Chief Executive Officer, President and Director
Stefan B. Schulz	Executive Vice President and Chief Financial Officer
Thomas F. Dzersk	Executive Vice President, Worldwide Sales

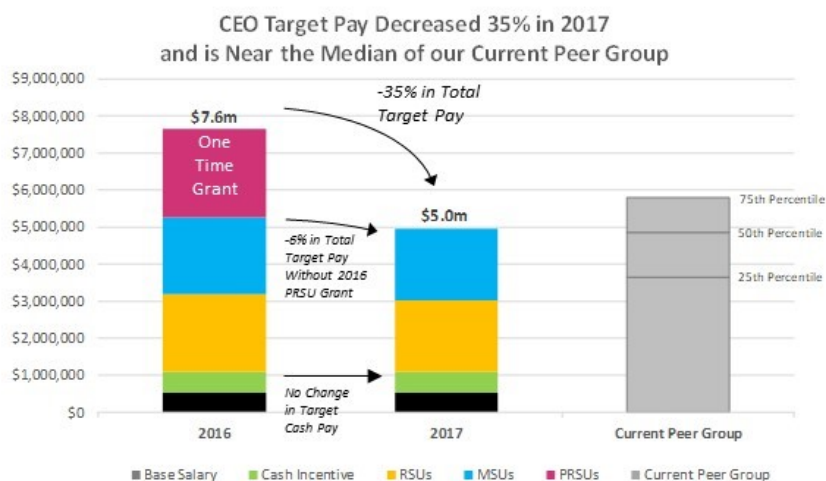
2017 Compensation Highlights

- In 2017, the Company successfully delivered on our cloud transition and financial goals. In May 2015, we announced our multi-year transition to a cloud-first, SaaS-based operating model to create long-term shareholder value. In 2017, our business results demonstrated even further success in our cloud transition, with year-over-year growth of 31% in ARR and 59% in subscription revenue, a return to year-over-year growth in total revenue and positive free cash flow in the fourth quarter. Recurring revenue now represents 36% of our total revenue, up from 25% in 2016. In connection with this growth, shareholders accordingly saw a 23% increase in our share price during 2017 and a cumulative 55% increase from end of 2016 through March 16, 2018.

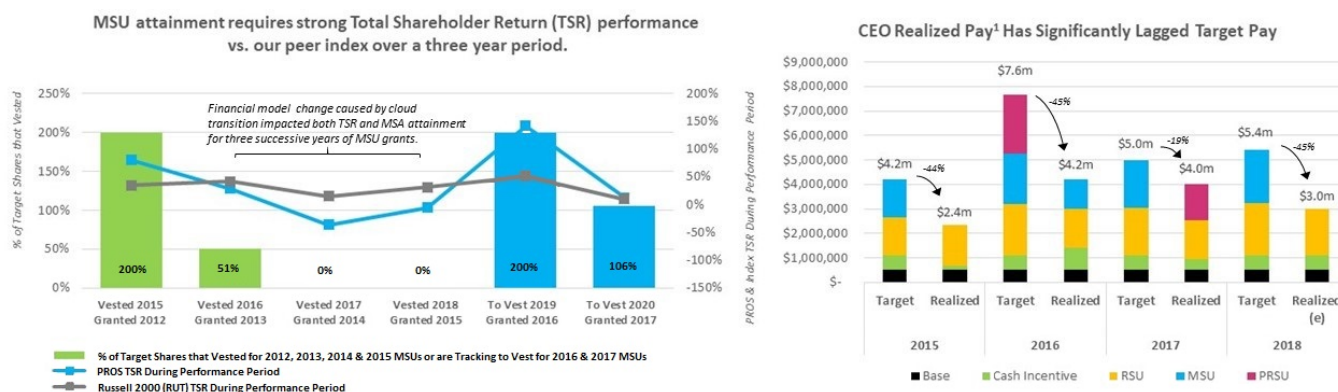


- CEO target pay decreased 35% in 2017 and is near the median of our peer group. Despite the Company's successful cloud transition, for 2017 our CEO's base salary and target cash incentive remained unchanged from 2016 to 2017, and his target equity compensation² decreased to \$3.9 million in 2017 from \$6.5 million in 2016, primarily due to the one-time PRSU equity grant in 2016 which vested contingent on substantial stock price growth. This resulted in a 35% reduction of our CEO's total target compensation in 2017 compared to 2016. Our CEO's total target pay for 2017 sits near the median of our 2018 peer group.

- ARR is used to assess the trajectory of our cloud business. ARR means, as of a specified date, the contracted recurring revenue, including contracts with a future start date, together with annualized overage fees incurred above contracted minimum transactions, and excluding perpetual and term license agreements recognized as license revenue in accordance with GAAP. ARR should be viewed independently of revenue and any other GAAP measure.
- Target equity compensation (a) for RSUs and MSUs represents total target equity compensation determined by the Compensation and Leadership Development Committee divided by the average closing prices of the Company's Common Stock reported by the NYSE for the 30 days preceding December 31 prior to grant, and differs from the accounting grant date fair value included in the "Grants of Plan Based Awards" table on page 23 of this Proxy Statement; and (b) for PRSUs represents the accounting grant date fair value.



- Realized pay aligns with performance and is less than reported in the Summary Compensation Table.* Despite the operational success of our cloud transition, our shift to a SaaS-based financial model has continued to significantly impact our CEO's realized pay. Realized pay has been lower than target because we do not reset performance goals, and the initial market reaction to the cloud transition was negative, causing under-target and even 0% payouts from previous years' market stock unit (MSU) performance-based equity awards. As a result, our CEO's **total realized pay has averaged 64% of total target compensation** for the three years from 2015 through 2017 (81% in 2017). This significantly trails our peer group CEOs, whose median realized pay has averaged 97% of median target pay during the same period. Further, because we set aggressive goals and performance versus the goals funded the actual awards, our CEO's actual annual cash bonus in 2017 was lower than 2016 actual annual cash bonus by more than 50%, despite our operating success and stock price increase. Thus equity compensation amounts disclosed in the Summary Compensation Table of this Proxy Statement are higher than the amounts actually earned by our CEO, because realized pay and performance are aligned by the program design.

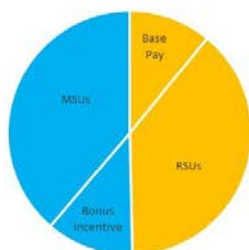


- Realized CEO pay excludes exercises of stock options granted to Mr. Reiner prior to his appointment as our CEO in 2010, as referenced on the Option Exercises and "Equity Awards Vested" table below on page 43 of this Proxy Statement. Realized CEO pay for 2018 represents projected cash payments from performance at 2018 target levels, actual equity vesting events prior to the Record Date, and excludes future PRSU equity vesting events that could result from future stock price improvement.

- Continued emphasis on pay-for-performance.* In 2017, our Compensation and Leadership Development Committee again sought to motivate our NEOs through predominantly "performance-based" cash and equity awards. The majority of our CEO's 2017 total target compensation was directly performance-based, including annual cash incentives tied to pre-established performance targets and MSU equity awards which vary based on the relative performance of our stock compared to the Index over a three-year performance measurement period. Including RSU equity awards, which increase in value based on share price appreciation, **89% of our CEO's 2017 total target compensation is considered at risk**. Further, more than 50% of the equity compensation fair value reported in the Summary Compensation Table was due to performance contingent MSU awards and less than 50% was the result of time-vested RSU awards. Performance goals that determine part of the cash incentive compensation are set aggressively with **above median performance expectations** compared to our peer group. For example, in 2017, our primary growth-oriented performance metric was

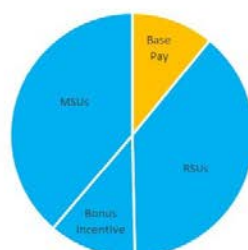
ARR, and this goal required 40% more growth to earn a target award, which was higher than the approximately 18% median revenue growth experienced by our peers during 2016. Based on these aggressive growth goals, the 2017 annual cash incentive plan resulted in our CEO attaining only 73% of his annual cash incentive target and earned a bonus in 2017 that was 53% lower than the bonus earnout in 2016, despite operational success against the multi-year cloud transformation that we believe helped to improve our stock price in 2017 and so far in 2018.

50% of 2017 CEO Pay was Performance-Based
(paid only upon achieving certain business and stock price performance)



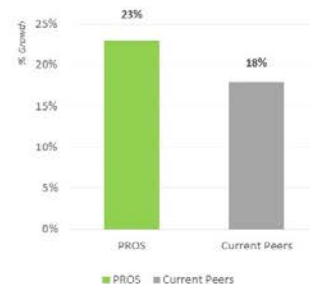
■ Performance-Based Compensation

89% of 2017 CEO Pay was At-Risk
(pay level directly tied to the success of our business and stock price)



■ Performance-Based Compensation

PROS Sets Aggressive Targets for Cash Incentive Attainment
(PROS 2017 Growth Targets vs. Peer Average)



2018 Compensation Highlights

Our Compensation and Leadership Development Committee chose to make the changes set forth below to our NEOs' compensation for 2018 after reviewing each leader's tenure and salary history with us, the Company's and each leader's 2017 performance, the compensation practices from our updated peer group, each leader's compensation relative to our updated peer group, and the feedback provided by our shareholders following our 2017 Say-on-Pay vote. Note that the shareholder feedback received following the Say-on-Pay vote in 2017 could not fully be taken into account for 2017 decisions that were already made prior to the vote.

Andres Reiner, President and Chief Executive Officer

Mr. Reiner joined the Company in 1999 and has served as our President and Chief Executive Officer since 2010. Mr. Reiner has successfully steered the Company through an accelerated transition to the cloud over the last several years. For 2018, the Compensation and Leadership Development Committee decided to leave Mr. Reiner's base salary and cash incentive target unchanged from 2017, the third year in a row without an increase in target cash compensation. The Committee instead decided to increase Mr. Reiner's performance-based pay in the form of equity based compensation from \$3.9 million in 2017 to \$4.3 million in 2018 due to Mr. Reiner's impact on the Company's successful operational and financial progress on our cloud transition. Together these decisions resulted in Mr. Reiner's total target compensation approximating the median of peer compensation for 2018, although the target incentive and 50% of the equity award will be forfeited if performance at the end of the performance period does not meet the minimum required performance levels.

	Cash Compensation			Target Equity ¹			Total Target Compensation
	Base Salary	Cash Incentive Target	Cash Incentive Earned	RSUs	MSUs	PRSUs	
2017 (Decided Jan. 2017)	\$ 525,000 (+0% vs. 2016)	\$ 577,500 (+0% vs. 2016)	\$ 419,843 (73% of target)(-53% vs. 2016)	\$ 1,930,000 (-7% vs. 2016)	\$ 1,930,000 (-7% vs. 2016)	\$ — (-100% vs. 2016)	\$ 4,962,500 (-35% vs. 2016)
2018 (Decided Jan. 2018)	\$ 525,000 (+0% vs. 2017)	\$ 577,500 (+0% vs. 2017)	Not Yet Earned	\$ 2,150,012 (+11% vs. 2017)	\$ 2,150,012 (+11% vs. 2017)	\$ — (+0% vs. 2017)	\$ 5,402,524 (+9% vs. 2017) (-29% vs. 2016)

- (1) Target equity reflects target award value approved by the Compensation and Leadership Development Committee on the date of grant calculated and does not reflect the fair value as reported in the 2017 Summary Compensation Table below in this Proxy Statement.

Stefan Schulz, Executive Vice President and Chief Financial Officer

Mr. Schulz joined the Company in March 2015 as Executive Vice President and Chief Financial Officer. Mr. Schulz's leadership has been integral to the Company's cloud transition and corresponding shift to a SaaS-based financial model. For 2018, the Compensation and Leadership Development Committee decided to increase Mr. Schulz's base salary and cash incentive target by 4.1% from 2017 to \$380,000 and \$304,000 at target, respectively. The Committee also decided to increase Mr. Schulz's equity-based compensation to \$1.8 million in 2018 from \$1.5 million in 2017 due to Mr. Schulz's impact on the Company's successful operational and financial progress on our cloud transition.

	Cash Compensation			Target Equity ¹			Total Target Compensation
	Base Salary	Incentive Target	Incentive Earned	RSUs	MSUs	PRSUs	
2017 (Decided Jan. 2017)	\$ 365,000 (+0% vs. 2016)	\$ 292,000 (+0% vs. 2016)	\$ 212,284 (73% of target)(-53% vs. 2016)	\$ 900,000 (-48% vs. 2016)	\$ 600,000 (-48% vs. 2016)	\$ — (-100% vs. 2016)	\$ 2,157,000 (-49% vs. 2016)
2018 (Decided Jan. 2018)	\$ 380,000 (+4% vs. 2017)	\$ 304,000 (+4% vs. 2017)	Not Yet Earned	\$ 1,080,000 (+20% vs. 2017)	\$ 720,000 (+20% vs. 2017)	\$ — (+0% vs. 2017)	\$ 2,484,000 (+15% vs. 2017)(-42% vs. 2016)

- (1) Target equity compensation represents total target equity compensation determined by the Compensation and Leadership Development Committee divided by the average closing prices of the Company's Common Stock reported by the NYSE for the 30 days preceding December 31 prior to grant, and differs from the accounting grant date fair value included in the "Grants of Plan Based Awards" table on page 23 of this Proxy Statement).

Thomas F. Dziersk, Executive Vice President, Worldwide Sales

Mr. Dziersk joined the Company in October 2017 as Executive Vice President, Worldwide Sales. Mr. Dziersk is responsible for the Company's sales results across all geographies and business lines, as well as all sales enablement operations. For 2018, the Compensation and Leadership Development Committee made no changes to Mr. Dziersk's target cash compensation but provided a small equity grant to Mr. Dziersk in order to get him on the same annual equity cycle as our other NEOs going forward.

	Cash Compensation				Target Equity ¹		Total Target Compensation
	Base Salary	Cash Inducement	Cash Incentive Target	Cash Incentive Earned	RSUs	MSUs	
2017 (Decided Oct. 2017)	\$ 375,000	\$ 100,000	\$ 86,301	\$ 76,377 (89% of target)	\$ 1,440,000	\$ 960,000	\$ 3,037,678
2018 (Decided Jan. 2018)	\$ 375,000 (+0% vs. 2017)	—	\$ 375,000	Not Yet Earned	\$ 240,000	\$ 160,000	\$ 1,150,000

- (1) Target equity compensation represents total target equity compensation determined by the Compensation and Leadership Development Committee divided by the average closing prices of the Company's Common Stock reported by the NYSE for the 15 days preceding October 9, 2017, and differs from the accounting grant date fair value included in the "Grants of Plan Based Awards" table on page 23 of this Proxy Statement).

Key Pay Practices

What We Do	What We Do Not Do
<ul style="list-style-type: none"> ✓ Emphasize pay-for-performance where compensation is contingent upon the performance of our business, our stock price and individual performance ✓ Utilize performance-based pay through MSUs and cash incentive awards that require achievement of pre-established goals ✓ Maintain "double trigger" change in control agreements ✓ Maintain a clawback policy ✓ Compensation and Leadership Development Committee oversees risks associated with compensation policies and practices ✓ Compensation and Leadership Development Committee retains an independent compensation consultant ✓ Expect our CEO to hold Company stock equal to four times his base salary ✓ Expect each other NEO to hold stock equal to two times their base salary 	<ul style="list-style-type: none"> ✓ No hedging or pledging of Company stock ✓ No excessive perquisites ✓ No pensions ✓ No short sales of our stock ✓ No discount from fair market value in setting exercise price of stock options and stock appreciation rights ✓ No repricing underwater stock options or stock appreciation rights without stockholder approval ✓ No equity vesting in less than one year, except for up to 5% of the authorized shares ✓ No "liberal" change in control definition for equity compensation

Our Compensation Philosophy

Our executive compensation program is designed to reward achievement of specific corporate goals and align our executives' interests with those of our stockholders by rewarding performance that meets or exceeds established goals. Our executive compensation program is designed to reward superior performance and to achieve the following overall objectives:

Objective	Rationale
Competitive pay	Enable the Company to attract and retain high-caliber talent by setting compensation competitive with that being offered to individuals holding comparable positions at other public companies with which we compete for business and talent. The Company does not target a specific percentile and reviews market data to check that compensation is generally in a market range and reflects the individual's experience, performance, and contribution.
Pay for performance	Provide a compensation package that is weighted heavily towards performance-based pay to motivate high performance among our NEOs, with compensation levels reflecting the achievement of short- and long-term performance objectives.
Incentivize and reward the achievement of our financial objectives	Directly link rewards to the achievement of measurable financial objectives that build long-term stockholder value.
Recognize individual performance	Encourage personal achievement by rewarding individual performance.
Align the interests of our executives with those of our stockholders	Incentivize and reward the creation and preservation of stockholder value.

Pay Ratio Disclosure

Under Section 953(b) of the Dodd-Frank Wall Street Reform and Consumer Protection Act, and Item 402(u) of Regulation S-K, the Company is required to provide the ratio of the annual total compensation of our Chief Executive Officer to the annual total compensation of the median employee of the Company (Pay Ratio Disclosure). For 2017, the median annual total compensation of all employees of the Company and its subsidiaries other than our CEO, was \$107,000. Our CEO's total annual compensation for 2017 for purposes of the Pay Ratio Disclosure was \$4,996,267. The ratio of the total annual compensation of our CEO to the median of all other employees was 47:1. As SEC rules permit different methodologies, exemptions, estimates and assumptions for identifying the median employee and calculating pay ratio, our Pay Ratio Disclosure may not be comparable to the pay ratio reported by other companies.

We identified the median employee by examining the 2017 total cash compensation for all individuals, excluding our CEO, who were employed by us during the 2017 calendar year (whether employed on a full-time, part-time, or seasonal basis). For such employees, we did not make any assumptions, adjustments, or estimates with respect to total cash compensation, and we did not annualize the compensation for any full-time employees that were not employed by us for all of 2017. We used the relevant exchange rate on December 31, 2017 and we excluded employees that were acquired in connection with our acquisition of Vayant in August 2017, as the acquisition occurred in the second half of the year. After identifying the median employee criteria, we calculated annual total compensation for such employee using the same methodology we use for our NEOs as set forth in the 2017 Summary Compensation Table below.

Role of Our Compensation and Leadership Development Committee

The responsibility for establishing, administering and interpreting our policies governing the compensation and benefits for our NEOs, as well as granting any share-based awards to our NEOs, lies with our Compensation and Leadership Development Committee, which consists entirely of non-employee directors. Our Compensation and Leadership Development Committee has taken the following steps to ensure that our executive compensation and benefit policies are consistent with both our compensation philosophy and our Corporate Governance Guidelines:

- solicited recommendations from an independent executive compensation consultant to evaluate our executive compensation practices and assisted in developing and implementing the executive compensation programs;
- established a practice, in accordance with the rules of the NYSE, of reviewing the performance and determining the compensation earned, paid or awarded to our Chief Executive Officer;

- established a policy, in accordance with the rules of the NYSE, to review on an annual basis the performance of our other executive officers with assistance from our Chief Executive Officer and determined what we believe to be appropriate total compensation for these executive officers; and
- our Compensation and Leadership Development Committee members attended continuing education related to compensation best practices provided by NYSE, NACD, and Equilar, among others.

Our Compensation and Leadership Development Committee considers a broad range of facts and circumstances in setting executive compensation. Among the factors considered for our executives generally in 2017, and for the NEOs in particular, are recommendations from our compensation consulting firm, Compensia, Inc. (Compensia), advice from our Chief Executive Officer, general economic and market conditions, our financial condition and operating results, our operating plan, our geographic location and the objectives of our executive compensation policies described above. The weight given to each factor differs from year to year and may differ among individual NEOs in any given year.

Our Compensation and Leadership Development Committee establishes executive compensation programs that the Compensation and Leadership Development Committee believes, based on the members' experience, is the most appropriate to achieve the goals described above. Our Compensation and Leadership Development Committee continues to evaluate our executive compensation programs on a quantitative and qualitative basis on at least a yearly basis or more frequently if circumstances dictate. Our Compensation and Leadership Development Committee expects to make new awards and adjustments to our executive compensation programs as appropriate.

Role of Management

During 2017, Mr. Reiner reviewed the performance and compensation of the NEOs, other than himself, and made recommendations as to their compensation to the Compensation and Leadership Development Committee. In making its decisions regarding executive compensation, the Compensation and Leadership Development Committee meets outside the presence of executive officers when making final decisions about each executive officer. The Chief Executive Officer is periodically present during portions of these deliberations that relate to the compensation for other executive officers. In addition, for share-based grants to employees who are not NEOs, the Compensation and Leadership Development Committee may delegate to the Chief Executive Officer the authority to make share-based awards within certain limitations on aggregate grants and specific award terms.

Role of Our Independent Compensation Consultant

The Compensation and Leadership Development Committee retained Compensia to advise the Compensation and Leadership Development Committee on executive compensation matters for 2017 due to the breadth and depth of Compensia's experience with executive compensation matters. During 2017, Compensia advised the Compensation and Leadership Development Committee on a variety of subjects such as compensation plan design and trends, pay for performance analytics, benchmarking norms, executive compensation best practices, and other related matters. Compensia reports directly to the Committee, participates in meetings as requested and communicates with the Compensation and Leadership Development Committee Chair between meetings as necessary. Compensia served as our independent compensation consultant from 2010 to 2017.

Following the results of our Say-on-Pay shareholder vote in 2017, the Compensation and Leadership Development Committee decided to reevaluate our independent compensation consultant and secure a fresh perspective on executive compensation. After considering several leading advisors, Compensation and Leadership Development Committee retained Frederic W. Cook & Co., Inc. (FW Cook) to advise the Compensation and Leadership Development Committee on executive compensation matters due to the breadth and depth of FW Cook's experience with executive compensation matters and their particular expertise in the software industry. FW Cook advised the Compensation and Leadership Development Committee on a variety of subjects such as compensation plan design and trends, pay for performance analytics, benchmarking norms, executive compensation best practices, and other related matters. FW Cook reports directly to the Committee, participates in meetings as requested and communicates with the Compensation and Leadership Development Committee Chair between meetings as necessary.

Prior to engaging each of Compensia and FW Cook, the Compensation and Leadership Development Committee reviewed each firm's qualifications, as well as their independence and any potential conflicts of interest. The Compensation and Leadership Development Committee has the sole authority to modify or approve the compensation for each of Compensia and FW Cook, determine the nature and scope of their services, evaluate their performance, and terminate their engagement and hire

replacement or additional consultants at any time. Neither Compensia or FW Cook performed any services for us in 2017 other than as serving as advisors to the Compensation and Leadership Development Committee.

Peer Group

To assist the Compensation and Leadership Development Committee in its deliberations on executive compensation, the Committee each year reviews our peer group with our compensation consultant for appropriateness based on a variety of factors including: similarities in revenue, market capitalization, relevant industries, the overlapping labor market for top management talent, our status as a publicly traded, U.S.-based firm, and various other characteristics. In late 2017, the Committee specifically focused on reconsidering peers with a founder CEO who did not appear to be paid in a manner that reflects the external pay market. As a result of this review, the Committee made the following changes to the peer group:

2016 Peer Group (Count = 18)	2017 Peer Group (Count = 17)	2018 Peer Group (Count = 16)
—	—	8x8
Aspen Tech	Aspen Tech	Aspen Tech
Bazaarvoice	Bazaarvoice	Bazaarvoice
—	—	Benefitfocus
Bottomline Tech	Bottomline Tech	Bottomline Tech
—	—	Broadsoft
Callidus Software	Callidus Software	Callidus Software
Cornerstone	Cornerstone	Cornerstone
—	HubSpot	—
Imperva	Imperva	Imperva
Jive Software	—	—
LivePerson	LivePerson	—
LogMeIn	LogMeIn	LogMeIn
—	Model N	Model N
Paylocity	Paylocity	Paylocity
Realpage (revenue above range)	—	—
—	—	RingCentral
SPS Commerce	SPS Commerce	SPS Commerce
—	—	Q2 Holdings
TubeMogul	—	—
Varonis Systems	Varonis Systems	—
VASCO Data	VASCO Data	—
—	—	Workiva
<u>Removed for 2017 due to acquisition:</u>	<u>Removed for 2018 due to acquisition:</u>	
Constant Contact	Apigee	
Demandware	Jive Software	
Marketo	TubeMogul	

With these changes, the Compensation and Leadership Development Committee examined the compensation practices of these companies, which we believe most closely approximate the size, scope and complexity of our business. The 2017 peer group was set in late 2016 and referenced for setting target compensation levels for NEOs for 2017. The 2018 peer group was established in late 2017 and referenced for setting target compensation for the hiring of Mr. Dziersk, our Executive Vice President, Worldwide Sales, and target compensation levels for NEOs for 2018, among other things.

Compensia for 2016/2017 and FW Cook for 2017/2018, each prepared a compensation analysis using data gathered from publicly available information for these peer groups. The Compensation and Leadership Development Committee used this data to compare the compensation of our NEOs to similarly positioned persons within the peer group and to determine the relative compensation for each NEO position, based on direct, quantitative comparisons of pay levels.

Components of Executive Compensation

Compensation decisions for our NEOs for 2017 were made prior to our 2017 Say-on-Pay vote in May 2017. As a result, the feedback provided by our stockholders after that vote was not taken into account for the 2017 compensation decisions described below.

Base Salaries

We use base salaries primarily to compensate and retain our NEOs for their services. Base salaries for our NEOs are reviewed on an annual basis and represent the minimum payment for a satisfactory level of individual performance as long as the executive remains employed with us. Base salary is set at the Compensation and Leadership Development Committee's discretion after taking into account the competitive landscape including the compensation practices of the companies in our selected peer groups, our business strategy, our performance goals and certain individual factors, such as position, salary history, individual performance and contribution, length of service with the Company and placement within the general base salary range offered to our NEOs.

Executive compensation activities in 2017. Based on the criteria above, the Compensation and Leadership Development Committee made no change to the base salaries for either of Messrs. Reiner or Schulz. The Committee set Mr. Dziersk's initial annual base salary at \$375,000 based on the criteria above, based on his significant previous experience leading global sales for other SaaS companies of business intelligent solutions and his expected contributions in 2018.

Cash Incentives

For 2017, we utilized a cash incentive plan for Messrs. Reiner and Schulz under which cash incentive payments could be made at the end of the quarter and after the end of each year based on our performance against our corporate objectives for each quarter and the year, respectively. We also utilized a cash incentive plan for Mr. Dziersk under which cash incentive payments could be made after the end of each year based on our performance against our corporate objectives for the fourth quarter. The cash incentive programs were intended to reward our NEOs upon the achievement of financial performance goals. Each component of each cash incentive plan had minimum threshold target and maximum levels, and operated independent of the other components in that the target incentive payment amount for each component was payable if we hit our target level for that component. Actual results between the minimum threshold, target and the maximum goal levels would be pro-rated. We use our cash incentive plans to align our NEOs' performance with our financial results and to motivate our NEOs to successfully implement our cloud strategy and execute our corresponding financial plan by achieving quarterly and annual goals that were set at the beginning of the year and remained unchanged through the end of the year.

Executive compensation activities in 2017. Our Compensation and Leadership Development Committee approved our 2017 Named Executive Officer Plan (2017 NEO Plan) for each of our NEOs in March 2017, and amended the plan in May 2017 solely to clarify certain definitions to match our public financial disclosures. The 2017 NEO Plan eliminated the annual contract value (ACV) bookings and discretionary elements from the 2016 Named Executive Officer Plan (2016 NEO Plan), retained the ARR and free cash flow elements from the 2016 NEO Plan, and added non-GAAP gross profit as a new element for 2017. ACV was eliminated because ACV from new bookings is already reflected in ARR, and ACV was, instead, replaced with the addition of non-GAAP gross profit. We believed that ARR, non-GAAP gross profit, and free cash flow were the best indicators to measure the health and trajectory of our overall cloud business at this point in our cloud transition. In order to closely tie NEO compensation to the performance of our business, the 2017 NEO Plan set target incentive payment amounts based upon achievement of quarterly and annual goals related to ARR and non-GAAP gross profit, and annual goals related to free cash flow. The weighting of the 2017 NEO Plan components is set forth in the following table:

Component Weighting	Quarterly	Annually
Non-GAAP Gross Profit ¹	20.0% (5% per Qtr)	5%
ARR ²	28% (7% per Qtr)	22%
Free Cash Flow ³	-	25.0%
Subtotal:	48%	52%
Total Incentive Opportunity	100.0%	

- (1) Non-GAAP gross profit is defined as gross profit calculated in accordance with generally accepted accounting principles, excluding the impact of stock-based compensation, severance and the amortization of acquisition-related intangibles. For a reconciliation of this non-GAAP financial measure to our results as reported under the generally accepted accounting principles in the United States (GAAP), see [Exhibit 99.1 to our Current Report on Form 8-K](#) furnished to the Securities and Exchange Commission (SEC) on February 6, 2018, which Current Report and the exhibit thereto are hereby incorporated by reference in this Proxy Statement.
- (2) ARR is used to assess the trajectory of our cloud business. ARR means, as of a specified date, the contracted recurring revenue, including contracts with a future start date, together with annualized overage fees incurred above contracted minimum transactions, and excluding perpetual and term license agreements recognized as license revenue in accordance with GAAP. ARR should be viewed independently of revenue and any other GAAP measure.
- (3) Free cash flow is a non-GAAP financial measure which is defined as net cash provided by (used in) operating activities, less additions to property, plant and equipment, purchases of other (non-acquisition-related) intangible assets and capitalized internal-use software development costs.

Payouts under the 2017 NEO Plan were based on Company performance compared to aggressive goals set for each component's target. Our primary growth-oriented performance metric is ARR and our ARR performance goal required 23% growth at target for 2017, which is more aggressive than the approximately 18% median revenue growth experienced by our 2018 peers. Payouts were made each quarter and at the end of the year for each of Messrs. Reiner and Schulz, and following the end of year for Mr. Dziersk prorated based on his start date. In addition, the Committee based Mr. Dziersk's 2017 incentive on preset targets for the fourth quarter (Q4) in 2017 for ARR and non-GAAP gross profit, and the preset target for full year free cash flow. The Compensation and Leadership Development Committee authorized the payments in February 2018 under the 2017 NEO Plan after audited results were determined for each quarter and annual performance period. The quarterly and annual target, minimum threshold and maximum for each component are set forth in the following table:

	Threshold, Target, & Maximum Goals (\$M)				
	Quarterly				Annual
Component	Q1	Q2	Q3	Q4	2017
Non-GAAP Gross Profit					
Maximum	—	—	—	—	\$111.5
Target	\$23.3	\$25.5	\$26.8	\$30.7	\$106.2
Threshold	\$22.4	\$24.5	\$25.7	\$29.4	\$102.0
ARR					
Maximum	—	—	—	—	\$153.9
Target	\$127.6	\$134.7	\$140.5	\$150.1	\$150.1
Threshold	\$125.9	\$130.8	\$135.7	\$144.3	\$144.3
Free Cash Flow					
Maximum	—	—	—	—	\$(15.2)
Target	—	—	—	—	\$(19.0)
Threshold	—	—	—	—	\$(22.0)

For the 2017 NEO Plan, the Compensation and Leadership Development Committee set the incentive pay as a percentage of the annual base salary of each of Messrs. Reiner and Schulz, based on achievement of the minimum threshold targets for each component above, as set forth in the following table:

Named Executive Officer	At Target Threshold	At Target	At Target Maximum
Andres D. Reiner	55%	110%	220%
Stefan B. Schulz	40%	80%	160%
Thomas F. Dziersek ⁽¹⁾	50%	100%	200%

(1) Reflects annualized amount of Mr. Dziersek's incentive opportunity. Mr. Dziersek's actual 2017 incentive opportunity was prorated based on his commencement of employment with the Company in October 2017.

The actual payout for 2017 performance as a percentage of the base salary of each 2017 NEO reflects actual performance against the target range as described above, and are set forth in the following table:

Named Executive Officer	Actual Payout	
	As a % of Base	As a % of Target
Andres D. Reiner	79.97%	72.7%
Stefan B. Schulz	58.16%	72.7%
Thomas F. Dziersek ⁽¹⁾	20.37%	88.5%

(1) For 2017, Mr. Dziersek's annual incentive target was prorated based on his commencement of employment with us in October 2017.

Mr. Dziersek also received a one-time sign on bonus of \$100,000 to facilitate his transition into the Company.

For 2017, the Compensation and Leadership Development Committee decided upon the target total cash compensation (base salary plus target cash incentives) for Mr. Reiner, Mr. Schulz, and Mr. Dziersek based on each individual's compensation history, recent individual performance and contribution, as well as the competitive landscape including the compensation practices of the companies in our selected peer groups, our business strategy, and placement within the peer group compensation range for each position.

Actual bonuses for our CEO in 2017 were 53% lower than his actual bonus in 2016, with no adjustment outside of the formulaic outcome driven by performance versus the goals that were set at the start of the year. We believe that the 2017 goals were aggressive based on performance benchmarking of the growth rates compared to our 2017 Peer Group as well as due to the below-target funding outcome despite the operational successes experienced during the year, which contributed to our 55% stock price increase between December 31, 2016 and March 16, 2018.

Executive compensation activities in 2018. In February 2018, our Compensation and Leadership Development Committee approved our 2018 Named Executive Officer Plan (2018 NEO Plan) for each of our NEOs. Many of the changes reflected in the 2018 NEO Plan were in response to feedback received after the 2017 Say-on-Pay vote. Compared to the 2017 NEO Plan, the 2018 NEO Plan retained the ARR and free cash flow elements, eliminated the non-GAAP gross profit metric, and added a new total revenue metric as total revenue has become an increasingly relevant measure of growth at this point in our cloud transition. Given the continued importance of ARR in measuring the growth of our cloud business, a minimum threshold was added to the plan that requires ARR to reach a certain level before any incentive is payable. The Compensation and Leadership Development Committee believes that ARR, total revenue and free cash flow are the best indicators to measure the growth and efficiency of our business at this advancing stage of our cloud transition. The 2018 NEO Plan also eliminated the quarterly component, and utilizes only annual performance periods for all measures in order to eliminate shareholder confusion on how our quarterly goals are defined. The weighting of the 2018 NEO Plan components is set forth in the following table:

2018 Annual	Threshold	Target	Maximum
ARR	25.0%	50.0%	100.0%
Total Revenue	12.5%	25.0%	50.0%
Free Cash Flow	12.5%	25.0%	50.0%
Annual Total:	50.0%	100.0%	200.0%

In setting the targets for these components, the Compensation and Leadership Development Committee believed that there was a reasonable likelihood that we could achieve the targets specified if we execute on our business plan. For the 2018 NEO Plan, the incentive payment as a percentage of the base salary for each continuing NEO remains unchanged from 2017.

Equity Awards

The Compensation and Leadership Development Committee believes that equity compensation plans are an essential tool to link the long-term interests of stockholders and employees, especially the NEOs, and serve to motivate NEOs to make decisions that will, in the long run, deliver the best returns to stockholders.

Executive compensation activities in 2017. In 2017, the Compensation and Leadership Development Committee considered the equity mix for our NEOs and believed it was in the best interests of our stockholders to grant equity awards in a mix of MSUs and RSUs to our Chief Executive Officer and adjusted the equity mix for Mr. Schulz to be 60% RSUs and 40% MSUs to better align with our peer group compensation practices. We also provided an initial equity grant to Mr. Dziersk upon joining the Company in October 2017 of 60% RSUs and 40% MSUs. RSUs granted in 2017 to our NEOs vest in four equal annual installments on January 1 of each year for Messrs. Reiner and Schulz and on October 9 of each year for Mr. Dziersk.

The Compensation and Leadership Development Committee determines the size of awards following review of competitive market data from our peer group, as well as subjective factors such as relative job scope, individual performance, tenure and experience, expected future contributions to the growth and development of the Company, Company performance, historical equity compensation awarded to an NEO, and the unvested equity position held by each NEO. These factors are reflected in the MSU and RSU grants made in January 2017 to Mr. Reiner and Mr. Schulz and in October 2017 to Mr. Dziersk.

For 2017, the value of Mr. Reiner's target equity award was based on the Company's positive results against targets in 2016 and the substantial progress made in leading the Company's cloud transition. The value of Mr. Schulz's target equity grant was based on his especially positive performance in 2017 and the direct impact of his performance on the Company's results. The value of Mr. Dziersk's target equity grant was based on his significant previous experience leading global sales for other SaaS companies of business intelligent solutions and his expected contributions to the Company.

MSUs are performance-vested units under which the actual number of shares of our Common Stock received following vesting is based on the Company's total stockholder return (TSR) in relation to the Index over a specified performance period. The MSUs awarded in January 2017 (January 2017 MSUs) to Messrs. Reiner and Schulz have a three-year performance period beginning January 2017. The MSUs awarded in October 2017 (October 2017 MSUs) to Mr. Dziersk have a three-year performance period beginning October 2017. If we under-perform the Index, the percentage at which the MSUs convert into shares of our Common Stock will be reduced from 100%, at a rate of 2.5 to 1 (2½-percentage-point reduction in the number of target units for each percentage point of under-performance), with a minimum percentage of 0%. If we outperform the Index, the percentage at which the MSUs convert to shares will be increased from 100%, at a rate of 2.5 to 1 (2½-percentage-point increase in the number of target units for each percentage point of over-performance), with a maximum percentage of 200%.

The Compensation and Leadership Development Committee believes that MSUs reward for performance and adjust the reward and the performance for overall market conditions that may have contributed to the outcome. The value realized from MSUs can differ materially from reported pay because MSUs may not vest, or may vest below target if our TSR does not sufficiently perform relative to the Index over the three-year performance measurement period. For example, neither the MSUs granted in 2014 nor January 2015 vested. These limited vesting results were caused by the decrease in the Company's stock price during the early stages of the Company's transition to a cloud company.

RSUs are intended to assist in retaining our NEOs and to reward them for sustaining and increasing the share price of our Common Stock. RSUs granted in 2017 to each of Messrs. Reiner and Schulz vest in four equal annual installments on January 1st of each year (January 2017 RSUs), and RSUs granted in 2017 to Mr. Dziersk vest in four equal annual installments on October 9 of each year (October 2017 RSUs).

PRSUs are performance vested units distinct from MSUs which vest if the average trailing closing price of the Company's Common Stock meets certain minimum stock price growth hurdles, and are intended to further align the interests of the Company's senior management with the Company's shareholders and further enhances the relationship between their pay and performance. After consulting with Compensia in 2016 on the unvested equity value remaining for Messrs. Reiner and Schulz, the Committee decided to provide a one-time grant of PRSUs (2016 PRSUs) to (a) retain our NEOs who we believe have more value in the marketplace after demonstrating success in our cloud transition, (b) reward our NEOs for creating shareholder value by executing on all key milestones during the first 15 months of our cloud transition, and (c) encourage our NEOs to create further incremental shareholder value through our cloud transition, with shareholder-friendly payouts only if our stock price

substantially appreciates and exceeds preset share price growth targets. The Committee did not grant PRSUs in 2017 and has no plan to grant PRSUs in 2018. The actual number of shares of our Common Stock issuable under 2016 PRSUs is based on our stock price performance for at least 105 calendar days prior to September 9, 2020, with 25% vesting at \$27, an additional 25% vesting at \$33, and the remaining 50% vesting at \$41 (each, an Average Per Share Closing Price). The 2016 PRSUs were partially earned in 2017 based on achieving the first of three stock price growth goals. The remaining 2016 PRSUs have not been earned yet as the applicable stock price hurdles have not been achieved. In the event of a change in control, the stock price at the time of the change in control would determine the percentage of 2016 PRSUs issued using the same price hurdles above. The following table shows the number of 2016 PRSUs that were earned during 2017 and the number that remain unearned but potentially earnable for each of our NEOs:

Named Executive Officer	PRSUs per Price Hurdle		
	Earned in 2017	Outstanding as of December 31, 2017	
	\$27/share	\$33/share	\$41/share
Andres D. Reiner	50,000	50,000	100,000
Stefan B. Schulz	15,000	15,000	30,000
Thomas F. Dziersek	—	—	—

The following table sets forth information as of December 31, 2017 with respect to compensation plans under which our equity securities are authorized for issuance. For additional information on our equity compensation plans, see Note 10 of the Notes to the Consolidated Financial Statements in our 2017 Annual Report.

Plan Category	I	II	III
	Number of securities to be issued upon exercise of outstanding options and rights	Weighted-average exercise price of outstanding options and rights	Number of securities remaining available for future issuance under plans (excluding securities listed in Column (I))
All compensation plans previously approved by security holders	3,356,030	\$ 11.39	2,348,370
All compensation plans not previously approved by security holders	—	—	—
Total	3,356,030	\$ 11.39	2,348,370

Our 2017 Plan provides for a maximum aggregate number of 2,500,000 shares that may be issued under such 2017 Plan. Our 2007 Equity Incentive Plan (2007 Plan) provided a formula for automatic increases in the number of securities available for issuance under such plan. The maximum aggregate number of securities that could have been issued under the 2007 Plan cumulatively increased by a number of shares equal to the lesser of (i) 3.5% of the number of securities issued and outstanding on the immediately preceding December 31, (ii) 900,000 shares, and (iii) an amount determined by our Board of Directors.

Executive compensation activities in 2018. In 2018, the Compensation and Leadership Development Committee reviewed the equity mix for our NEOs and believed it was in our best interests to continue to grant equity awards in an equal 50/50 mix of MSUs and RSUs to Mr. Reiner, and 60% RSUs and 40% MSUs for Messrs. Schulz and Dziersek to align with our peer group compensation practices. RSUs granted in 2018 to our NEOs vest in four equal annual installments on January 10th of each year. The MSUs awarded in 2018 (2018 MSUs) to each of our NEOs have a three-year performance period beginning February 2018. If we under-perform the Index, the percentage at which the 2018 MSUs convert into shares of our Common Stock will be reduced from 100%, at a rate of 2.5 to 1 (two and one-half-percentage-point reduction in the number of target units for each percentage point of under-performance), with a minimum percentage of 0%. If we outperform the Index, the percentage at which the 2018 MSUs convert to shares will be increased from 100%, at a rate of 2.5 to 1 (2½-percentage-point increase in the number of target units for each percentage point of over-performance), with a maximum percentage of 200%.

Other Compensation

Benefits. We provide our NEOs the following benefits, generally on the same terms as we provide our other employees:

- health, dental, travel, accident insurance and vision;
- life insurance;
- employee assistance plan;
- medical and dependent care flexible spending account;
- short-and long-term disability, accidental death and dismemberment;
- a 401(k) plan;
- an employee stock purchase plan;
- paid time off;
- sick days; and
- business-related tuition reimbursement.

We believe these benefits are consistent with companies with which we compete for employees.

401(k) Plan. We provide a tax-qualified employee savings and retirement plan (401(k) Plan) intended to qualify under Section 401(a) of the Code. Contributions, and income earned thereon, are not taxable to employees until withdrawn. Under the 401(k) Plan, employees may elect to reduce their current compensation up to the statutorily prescribed annual limit and have the amount of the reduction contributed to the 401(k) Plan. The 401(k) Plan also permits us to make matching contributions to the plan on behalf of participants. Historically, our matching contribution has been 50% of the first 6% of employee eligible compensation. We may also make discretionary contributions. In 2017, we matched 50% of each employee's contribution up to 6% of the employee's eligible income contributed to our 401(k) Plan and made no discretionary contributions.

Employee Stock Purchase Plan. We provide an employee stock purchase plan (ESPP) intended to qualify as an "employee stock purchase plan" under section 423 of the Code. At the beginning of each offering under the plan, each participant in the ESPP is granted the right to purchase (Purchase Right) through accumulated payroll deductions up to a number of shares of our Common Stock determined on the first day of the offering period. The Purchase Right is automatically exercised on the last day of the offering period unless the participant has withdrawn from participation in the ESPP prior to such date. Generally, all of our employees are eligible to participate if they are employed by us, or any participating subsidiary, for at least 20 hours per week. However, an employee may not be granted a Purchase Right if such employee immediately after the grant would own stock possessing 5% or more of the total combined voting power or value of all classes of our capital stock or that of any related corporation.

Severance Compensation and Termination Protection

We generally provide our NEOs with severance packages if they are terminated without cause (as defined in their employment agreements) or for good reason (as defined in their employment agreements) in order to attract and retain them. The amount of severance benefits is described below, and in more detail elsewhere in the section titled "*Potential Payments Upon Termination or Change of Control*" on page 43 of this Proxy Statement. The Compensation and Leadership Development Committee reviews the potential payouts to ensure their market-competitiveness in order to incentivize our NEOs to maintain focus on both daily and long-term efforts.

Our severance compensation provisions are designed to meet the following objectives:

- *Change in Control:* As part of our normal course of business, we may engage in discussions with other companies about possible collaborations and/or other ways in which the companies may work together to further our respective long-term objectives. In certain scenarios, the potential for merger or being acquired may be in the best interests of our stockholders. We provide a component of severance compensation if an NEO is terminated as a result of a change of control transaction to promote the ability of our NEOs to act in the best interests of our stockholders even though they could be terminated as a result of the transaction.
- *Termination Without Cause or For Good Reason:* If we terminate the employment of one of our NEOs "without cause" or one of our NEOs resigns for "good reason," each as defined in the applicable agreement, we are obligated to make certain payments based on the NEO's then-effective base salary. We believe this is appropriate because the terminated NEO is bound by confidentiality and non-competition provisions continuing after termination. We also believe it is beneficial to have a mutually-agreed severance package in place prior to any termination event, to avoid

disruptive conflicts and provide us with more flexibility to make a change in management if such a change is in our and our stockholders' best interests.

Employment Agreements

Andres D. Reiner. In May 2013, we entered into an amended and restated employment agreement with Mr. Reiner, our Chief Executive Officer and President. This agreement automatically renewed for an additional three-year term in May 2016, and will automatically renew for additional three-year terms unless the Company decides not to renew. The base salary payable to Mr. Reiner is subject to periodic review by our Compensation and Leadership Development Committee. In the event Mr. Reiner's employment with us is terminated by him for good reason, by us without cause or we decide not to renew his agreement, he will receive (i) his full base salary each month for the following 12 months, (ii) any unpaid bonus earned prior to the termination relating to periods preceding the date of termination, (iii) the payment of a bonus at 100% of performance targets, including discretionary components, within the bonus plan in effect as if employed by us for 12 months, (iv) an amount equal to 12 times the monthly cost of Mr. Reiner's health benefits, and (v) the acceleration of vesting of all equity awards with respect to such shares that would have vested following the date of termination. Alternatively, if Mr. Reiner's employment is terminated by us without cause, if he resigns for good reason, or we decide not to renew his agreement within six months prior to, or any time after, a change of control of the Company, he will receive (i) an amount equal to 150% of his annual salary, (ii) any unpaid bonus earned prior to the termination relating to periods preceding the date of termination, (iii) the payment of an aggregate bonus equal to 100% of performance targets, including discretionary components, within the bonus plan in effect as if employed by us for eighteen months, (iv) an amount equal to 18 times the monthly cost of Mr. Reiner's health benefits, and (v) the acceleration of vesting of all equity awards. In addition, if the surviving or acquiring entity (or its parent entity) elects not to assume, continue or substitute for the equity awards or options due under the either the 2007 Plan or 2017 Plan, all outstanding equity awards and options under each plan will vest in full and become fully exercisable. Mr. Reiner is subject to non-competition and non-solicitation restrictions during the term of his employment and for the 12-month period following the termination of his employment.

Stefan B. Schulz. In March 2015, we entered into an employment agreement with Mr. Schulz, our Executive Vice President and Chief Financial Officer. This agreement is for a three-year term and automatically renews for three-year terms unless the Company decides not to renew. The base salary payable to Mr. Schulz is subject to periodic review by our Compensation and Leadership Development Committee. In the event Mr. Schulz's employment with us is terminated by him for good reason, by us without cause, or we decide not to renew his agreement, he will receive (i) his full base salary each month for the following 12 months, (ii) any unpaid bonus earned prior to the termination relating to periods preceding the date of termination, (iii) the payment of a bonus at 100% of performance targets, including discretionary components, within the bonus plan in effect as if employed by us for 12 months, (iv) an amount equal to 12 times the monthly cost of Mr. Schulz's health benefits, and (v) to the extent that the aggregate amount paid pursuant to items (i) through (iv) is not at least \$1,000,000, the acceleration of vesting of certain equity awards to bring the total separation pay package to \$1,000,000. Alternatively, if Mr. Schulz's employment is terminated by us without cause, if he resigns for good reason, or we decide not to renew his agreement within six months prior to, or any time after, a change of control of the Company, he will receive (i) an amount equal to 150% of his annual salary, (ii) any unpaid bonus earned prior to the termination relating to periods preceding the date of termination, (iii) the payment of an aggregate bonus equal to 100% of performance targets, including discretionary components, within the bonus plan in effect as if employed by us for 18 months, (iv) an amount equal to 18 times the monthly cost of Mr. Schulz's health benefits, and (v) the acceleration of vesting of all equity awards with respect to such shares that would have vested following the date of termination. In addition, if the surviving or acquiring entity (or its parent entity) elects not to assume, continue or substitute for the equity awards or options due under the 2007 Plan or 2017 Plan, all outstanding equity awards and options under each plan will vest in full and become fully exercisable. Mr. Schulz is subject to non-competition and non-solicitation restrictions during the term of his employment and for the 12-month period following the termination of his employment.

Thomas F. Dziersk. In October 2017, we entered into an employment agreement with Mr. Dziersk, our Executive Vice President, Worldwide Sales. This agreement is for a three-year term and automatically renews for three-year terms unless the Company decides not to renew. The base salary payable to Mr. Dziersk is subject to periodic review by our Compensation and Leadership Development Committee. In the event Mr. Dziersk's employment with us is terminated by him for good reason, by us without cause, or we decide not to renew his agreement, he will receive (i) his full base salary each month for the following 12 months, and (ii) an amount equal to 12 times the monthly cost of Mr. Dziersk's health benefits. Alternatively, if Mr. Dziersk's employment is terminated by us without cause, if he resigns for good reason, or we decide not to renew his agreement within six months prior to, or any time after, a change of control of the Company, he will receive (i) an amount equal to 150% of his annual

salary, (ii) any unpaid bonus earned prior to the termination relating to periods preceding the date of termination, (iii) an amount equal to 18 times the monthly cost of Mr. Dziersk's health benefits, and (iv) the acceleration of vesting of all equity awards with respect to such shares that would have vested following the date of termination. In addition, if the surviving or acquiring entity (or its parent entity) elects not to assume, continue or substitute for the equity awards or options due under the 2017 Plan, all outstanding equity awards and options under the 2017 Plan will vest in full and become fully exercisable. Mr. Dziersk is subject to non-competition and non-solicitation restrictions during the term of his employment and for the 12-month period following the termination of his employment.

“Cause” is defined in these employment agreements as (a) a breach by our officer of his duties of confidentiality which causes a material harm to us, (b) his conviction of, or a plea of guilty or no contest to, a felony or any other crime involving dishonesty or moral turpitude under the laws of the United States; (c) continued failure to perform assigned duties or comply with any Company policy after notice and a cure period; (d) any material breach by our officer of his employment agreement or any other agreement between our officer and us after notice and a cure period; (e) any intentional wrongdoing by them that adversely affects us; and (f) any failure to cooperate in good faith with us in any governmental investigation or formal proceeding.

Each of our NEOs can resign for “good reason” and be entitled to severance. “Good reason” is defined in their employment agreements as (i) a material diminution in their authority, duties or responsibilities or the assignment of duties to them that are not materially commensurate with their position with us, other than where they are asked to assume substantially similar duties and responsibilities in a larger entity after any change of control; (ii) the relocation of their offices to more than 25 miles from their present location; (iii) a material reduction in their base salaries other than reductions which are part of a general reduction affecting all employees; (iv) our failure to provide them with similar benefits that we provide to our other employees; (v) any material breach by us of any provision of their employment agreement; or (vi) any failure by any successor corporation to assume our obligations under the NEO's employment agreement.

Executive Stock Ownership Guidelines

As part of our overall corporate governance and compensation practices, our Board of Directors adopted stock ownership guidelines for our NEOs and directors. These guidelines are designed to align our NEOs' and directors' interests with our stockholders' long-term interests by promoting long-term share ownership, which reduces the incentive for excessive short-term risk taking and further increase our NEOs' and directors' alignment with stockholder interests. These guidelines require our Chief Executive Officer to hold shares of our stock worth four times his annual salary and each other NEO is required to hold shares of our stock worth two times their annual salary. The guidelines also state that each non-employee director is required to hold shares of our stock worth five times the annual retainer for directors. Share units or unexercised options held by an NEO or director under any of our equity incentive plans are included, at 50% of their intrinsic value, in calculating the value of ownership to determine whether this minimum ownership requirement has been met. Shares held by an NEO or director under either of our equity incentive plans will continue to be included in calculating the value of ownership to determine whether this minimum ownership requirement has been met. Our NEOs must attain this ownership threshold within five years after being appointed as an NEO. Our directors must attain this ownership threshold within six years after joining our Board of Directors. As of December 31, 2017, each of our NEOs and directors were in compliance with the applicable guidelines.

Clawback Policy

Our “clawback” policy permits our Board of Directors to consider and make a decision in its sole discretion to recover, under applicable law, any incentive bonuses awarded to NEOs whose fraud or intentional misconduct significantly contributed to a restatement of financial results that led to the awarding of incentive bonuses. This “clawback” policy is designed to further link our executive compensation and our long-term performance.

Tax and Accounting Considerations

Tax Considerations

We are subject to Section 162(m) of the Code (Section 162(m)), which limits the amount that we may deduct for compensation paid to certain of our executive officers. Generally, Section 162(m) prohibits us from taking a federal income tax deduction for remuneration in excess of \$1 million paid in a taxable year to our CEO and each of our three other most highly compensated executive officers (not including the CFO for taxable years ending on or before December 31, 2017). For taxable

years ending on or before December 31, 2017, remuneration in excess of \$1 million may be deducted if, among other things, it qualifies as “performance-based compensation” within the meaning of the Code. In this regard, the compensation income realized upon the exercise of stock options and settlement of other performance-based equity awards granted under a stockholder-approved equity incentive plan generally will be deductible so long as the awards are granted by a committee whose members are non-employee directors and certain other conditions are satisfied.

Under federal tax legislation enacted on December 22, 2017 and effective for taxable years beginning on or after January 1, 2018, the exemption from the \$1 million deduction limit for performance-based compensation has been repealed, and the persons treated as covered employees subject to the deduction limit have been expanded to include our CFO, as well as our CEO and our three other most highly paid named executive officers. Further, any executive officer who was a covered employee for any taxable year beginning after December 31, 2016 will continue to be treated as a covered employee in all future years. However, the prior Section 162(m) provisions will continue to apply to remuneration paid pursuant to binding written contracts in effect on November 2, 2017 and that are not materially modified after that date.

The Compensation and Leadership Development Committee believes that its primary responsibility is to provide a compensation program to meet our stated business objectives, and accordingly the Company reserves the right to pay compensation that is not tax-deductible if it determines that such a payment is in the best interests of the Company and our stockholders.



REPORT OF THE COMPENSATION AND LEADERSHIP DEVELOPMENT COMMITTEE OF THE BOARD OF DIRECTORS

We, the Compensation and Leadership Development Committee of the Board of Directors of PROS Holdings, Inc., have reviewed and discussed the preceding Compensation Discussion and Analysis with management and FW Cook. Based on this review and discussion, we recommended to the Board of Directors, and the Board of Directors has agreed that the Compensation Discussion and Analysis be included in this Proxy Statement.

THE COMPENSATION AND LEADERSHIP DEVELOPMENT COMMITTEE OF THE BOARD OF DIRECTORS

Greg B. Petersen, Chairman
Leslie Rechan
William Russell

EXECUTIVE COMPENSATION

Summary Compensation Table

The following table presents the compensation paid to or earned by our NEOs, including our Chief Executive Officer, our Chief Financial Officer, and our Executive Vice President, Worldwide Sales during 2017, 2016 and 2015:

Name and Principal Position	Year	Salary (\$)	Bonus (\$)	Stock Awards (1) (\$)	Non-Equity Incentive Plan Compensation (\$)	All Other Compensation (2) (\$)	Total (\$)
Andres D. Reiner <i>President and Chief Executive Officer</i>	2017	\$ 525,000	\$ —	\$ 4,032,840 (3)	\$ 419,843	\$ 18,584	\$ 4,996,267
	2016	\$ 525,000	\$ —	\$ 4,696,100 (4)	\$ 887,618	\$ 20,837	\$ 6,129,555
	2015	\$ 525,000	\$ —	\$ 3,472,040 (5)	\$ 144,375	\$ 17,576	\$ 4,158,991
Stefan B. Schulz <i>Executive Vice President and Chief Financial Officer</i>	2017	\$ 365,000	\$ —	\$ 1,528,423 (7)	\$ 212,284	\$ 20,981	\$ 2,126,688
	2016	\$ 365,000	\$ —	\$ 2,320,825 (8)	\$ 448,804	\$ 19,721	\$ 3,154,350
	2015	\$ 289,198 (6)	\$ —	\$ 2,780,800 (9)	\$ 70,000	\$ 115,781 (10)	\$ 3,255,779
Thomas F. Dziersk <i>Executive Vice President, Worldwide Sales</i>	2017	\$ 85,336 (11)	\$ 100,000 (12)	\$ 2,697,901 (13)	\$ 76,377	\$ 5,418	\$ 2,965,032
	2016	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —
	2015	\$ —	\$ —	\$ —	\$ —	\$ —	\$ —

- (1) These amounts represent the aggregate grant date fair value of equity awards granted in the specified fiscal year as calculated in accordance with GAAP. For additional information about the valuation assumptions with respect to equity awards, refer to Note 10 of our financial statements in our Form 10-K for the year ended December 31, 2017, as filed with the SEC.
- (2) Represents matching contributions for each individual's 401(k) Plan contributions, life insurance premiums and health insurance. For Mr. Reiner, includes executive physical.
- (3) Represents 84,000 RSUs and 84,000 MSUs awarded to Mr. Reiner on January 20, 2017. January 2017 RSUs vest annually in one-fourth installments on January 1 of each year and have a grant date fair value of \$21.02. January 2017 MSUs vest on March 1, 2020, and have a grant date fair value of \$26.99. For additional information regarding January 2017 MSUs, see "Grants of Plan-Based Awards" below.
- (4) Represents 90,000 RSUs and 90,000 MSUs awarded to Mr. Reiner on March 24, 2016 and 200,000 PRSUs awarded to Mr. Reiner on September 9, 2016. RSUs awarded on March 24, 2016 (2016 RSUs) vest annually in one-fourth installments on March 1 of each year and have a grant date fair value of \$11.40. MSUs awarded on March 24, 2016 (2016 MSUs) are performance-vested units under which the number of shares of Common Stock received following vesting is based on our TSR in relation to the Index over the period from March 1, 2016 to March 1, 2019 (2016 MSU Performance Period), vest on March 1, 2019, and have a grant date fair value of \$14.29. 2016 PRSUs vest based on stock price performance criteria, and have a grant date fair value of \$11.92.
- (5) Represents 57,200 RSUs and 57,200 MSUs awarded to Mr. Reiner on January 23, 2015. RSUs awarded on January 23, 2015 (January 2015 RSUs) vest annually in one-fourth installments on January 1 of each year and have a grant date fair value of \$27.11. MSUs awarded on January 23, 2015 (January 2015 MSUs) are performance-vested units under which the number of shares of Common Stock received following vesting is based on our TSR in relation to the Index over a three-year period ending December 31, 2017 (January 2015 MSU Performance Period), vested on January 1, 2018, and have a grant date fair value of \$33.59.
- (6) Mr. Schulz commenced his employment with us in March 2015.
- (7) Represents 39,200 RSUs and 26,100 MSUs awarded to Mr. Schulz on January 20, 2017. January 2017 RSUs vest annually in one-fourth installments on January 1 of each year and have a grant date fair value of \$21.02. January 2017 MSUs vest on March 1, 2020, and have a grant date fair value of \$26.99. For additional information regarding January 2017 MSUs, see "Grants of Plan-Based Awards" below.
- (8) Represents 62,500 2016 RSUs and 62,500 2016 MSUs awarded to Mr. Schulz on March 24, 2016 and 60,000 2016 PRSUs awarded to Mr. Schulz on September 9, 2016. 2016 RSUs vest annually in one-fourth installments on March 1 of each year and have a grant date fair value of \$11.40. 2016 MSUs vest on March 1, 2019, and have a grant date fair value of \$14.29. 2016 PRSUs vest based on stock price performance criteria, and have a grant date fair value of \$11.92.
- (9) Represents 82,500 RSUs and 27,500 MSUs awarded on March 3, 2015. RSUs awarded on March 3, 2015 (March 2015 RSUs) vest annually in one-fourth installments on March 3 of each year and have a grant date fair value of \$24.32. MSUs awarded on March 3, 2015 (March 2015 MSUs) are performance-vested units under which the number of shares of Common Stock received following vesting is based on our TSR in relation to the Index over a three-year period ending March 2, 2018 (March 2015 MSU Performance Period), vested on March 3, 2018, and have a grant date fair value of \$33.59.
- (10) Includes one-time relocation and related costs in the amount of \$100,000 related to Mr. Schulz's relocation to Houston, Texas in connection with his employment with the Company.
- (11) Mr. Dziersk commenced his employment with us in October 2017.
- (12) Represents a one-time cash inducement award following commencement of Mr. Dziersk's employment.
- (13) Represents 59,504 RSUs and 39,669 MSUs awarded to Mr. Dziersk on October 9, 2017. October 2017 RSUs vest annually in one-fourth installments on October 9 of each year and have a grant date fair value of \$24.48. October 2017 MSUs vest on October 9, 2020, and have a grant date fair value of \$31.29. For additional information regarding October 2017 MSUs, see "Grants of Plan-Based Awards" below.

Grants of Plan-Based Awards

The following table shows all plan-based awards granted to our NEOs during 2017, including:

Name	Type of Award	Grant Date	Estimated Future Payouts Under Non-Equity Incentive Plan Awards			Estimated Future Payouts Under Equity Incentive Awards		All Other Stock Awards: Number of Shares of Stock or	Exercise or Base Price of Option Awards (\$/Sh)	Grant Date Fair value of Options and Awards (\$)
			Threshold (\$)	Target (\$)	Maximum (\$)	Target (#)	Maximum (#)			
Andres D. Reiner	RSU	1/20/2017						84,000	\$ 21.02	\$ 1,765,680
	MSU ⁽¹⁾	1/20/2017				84,000	168,000		\$ 26.99	\$ 2,267,160
	Cash incentive		\$ 288,750	\$ 577,500	\$ 1,155,000					
Stefan B. Schulz	RSU	1/20/2017						39,200	\$ 21.02	\$ 823,984
	MSU ⁽¹⁾	1/20/2017				26,100	52,200		\$ 26.99	\$ 704,439
	Cash incentive		\$ 146,000	\$ 292,000	\$ 584,000					
Thomas F. Dziersek	RSU	10/9/2017						59,504	\$ 24.48	\$ 1,456,658
	MSU ⁽²⁾	10/9/2017				39,669	79,338		\$ 31.29	\$ 1,241,243
	Cash incentive ⁽³⁾	10/6/2017	\$ 43,151	\$ 86,301	\$ 172,603					

- (1) January 2017 MSUs are performance-vested units under which the number of shares of Common Stock received following vesting is based on our TSR in relation to the Index over the period from February 28, 2017 to February 28, 2020 (January 2017 MSU Performance Period). January 2017 MSUs vest on March 1, 2020, and the maximum number of shares issuable upon vesting is 200% of the number of January 2017 MSUs initially granted based on the average price of our Common Stock relative to the Index during the January 2017 MSU Performance Period. Includes the target number of shares issuable for January 2017 MSUs at the grant date fair value per share of \$26.99.
- (2) October 2017 MSUs are performance-vested units under which the number of shares of Common Stock received following vesting is based on our TSR in relation to the Index over a three-year period ending October 9, 2020 (October 2017 MSU Performance Period). October 2017 MSUs vest on October 9, 2020, and the maximum number of shares issuable upon vesting is 200% of the number of October 2017 MSUs initially granted based on the average price of our Common Stock relative to the Index during the October 2017 MSU Performance Period. Includes the target number of shares issuable for October 2017 MSUs at the grant date fair value per share of \$31.29.
- (3) Mr. Dziersek's bonus is pro-rated to his commencement of employment with the Company on October 9, 2017.

Outstanding Equity Awards at Fiscal Year End

The following table presents the number of options to purchase shares of our Common Stock, SARs, RSUs, MSUs and PRSUs held by our NEOs as of December 31, 2017:

Name	Option Awards				Stock Awards	
	Number of securities underlying unexercised options/SARs (#) Exercisable	Number of securities underlying unexercised options/SARs (#) Unexercisable	Option/SARs exercise price (\$)	Option/SARs expiration date	Equity incentive plan awards: number of unearned shares, units or other rights that have not vested (#)	Equity incentive plan awards: market or payout value of unearned shares, units or other rights that have not vested (\$)
Andres D. Reiner	50,000	—	12.72	5/14/2018		
	20,000	—	8.68	3/9/2020		
	180,000	—	11.33	12/14/2020		
					9,225 (1)	\$ 244,001
					28,600 (2)	\$ 756,470
					57,200 (3)	\$ 1,512,940
					67,500 (4)	\$ 1,785,375
					90,000 (5)	\$ 2,380,500
					150,000 (6)	\$ 3,967,500
					84,000 (7)	\$ 2,221,800
					84,000 (8)	\$ 2,221,800
Stefan B. Schulz	—	—			41,250 (9)	\$ 1,091,063
					27,500 (10)	\$ 727,375
					46,875 (4)	\$ 1,239,844
					62,500 (5)	\$ 1,653,125
					45,000 (6)	\$ 1,190,250
					39,200 (7)	\$ 1,036,840
					26,100 (8)	\$ 690,345
Thomas F. Dzersk	—	—			59,504 (11)	\$ 1,573,881
					39,669 (12)	\$ 1,049,245

- (1) Represents the unvested portion of 36,900 RSUs awarded on February 11, 2014, which vest annually in one-fourth installments on January 1 of each year and have a grant date fair value of \$37.25.
- (2) Represents the unvested portion of January 2015 RSUs, which vest annually in one-fourth installments on January 1 of each year and have a grant date fair value of \$27.11.
- (3) Represents the number and market value, as of December 31, 2017, of January 2015 MSUs that would have been earned if the performance goals related to these awards were met at the target level at the end of the January 2015 MSU Performance Period.
- (4) Represents the unvested portion of 90,000 and 62,500 2016 RSUs awarded to Messrs. Reiner and Schulz, respectively, which vest annually in one fourth installments on March 1st of each year and have a grant date fair value of \$11.40.
- (5) Represents the number and market value, as of December 31, 2017, of 2016 MSUs that would be earned if the performance goals related to these awards were met at the target level at the end of the 2016 MSU Performance Period. The number of shares that will actually be earned will depend on our TSR during the 2016 MSU Performance Period as compared to the Index.
- (6) Represents the unvested portion of 200,000 and 60,000 2016 PRSUs awarded on September 9, 2016 to Messrs. Reiner and Schulz, respectively. 2016 PRSUs vest if the average trailing closing price of the Company's Common Stock meets certain minimum performance hurdles for at least 105 calendar days prior to September 9, 2020, with 25% vesting at \$27, an additional 25% vesting at \$33, and the remaining 50% vesting at \$41.
- (7) Represents the unvested portion of January 2017 RSUs, which vest annually in one-fourth installments on January 1 of each year and have a grant date fair value of \$21.02.
- (8) Represents the number and market value, as of December 31, 2017, of January 2017 MSUs that would be earned if the performance goals related to these awards were met at the target level at the end of the January 2017 MSU Performance Period. The number of shares that will actually be earned will depend on our TSR during the January 2017 RSU Performance Period as compared to the Index.
- (9) Represents the unvested portion of March 2015 RSUs, which vest annually in one-fourth installments on March 3 of each year and have a grant date fair value of \$24.32.
- (10) Represents the number and market value, as of December 31, 2017, of March 2015 MSUs that would be earned if the performance goals related to these awards were met at the target level at the end of the March 2015 MSU Performance Period. The number of shares that will actually be earned depend on our TSR for the period from March 3, 2015 and March 2, 2018 as compared to the Index.
- (11) Represents the unvested portion of October 2017 RSUs, which vest annually in one-fourth installments on October 9 of each year and have a grant date fair value of \$24.48.
- (12) Represents the number and market value, as of December 31, 2017, of October 2017 MSUs that would be earned if the performance goals related to these awards were met at the target level at the end of the October 2017 MSU Performance Period. The number of shares that will actually be earned depend on our TSR for the period from October 9, 2017 and October 9, 2020 as compared to the Index.

Option Exercises and Equity Awards Vested

The following table presents information on the exercises of stock options and vesting of PRSUs, RSUs and MSUs for our NEOs during the year ended December 31, 2017:

Name	Option Awards		Stock Awards		
	Number of shares acquired on exercise ⁽¹⁾ (#)	Value realized on exercise (\$) ⁽²⁾	Number of shares acquired on RSU vesting ⁽³⁾ (#)	Number of shares acquired on PRSU vesting ⁽⁴⁾ (#)	Value realized on vesting ⁽⁵⁾ (\$)
Andres D. Reiner	150,000	\$ 1,826,633	72,275	50,000	\$ 3,065,108
Stefan B. Schulz	—	—	36,250	15,000	\$ 1,276,288
Thomas F. Dziersk	—	—	—	—	—

- (1) Represents the exercise of options
- (2) Represents the value realized upon exercise of options
- (3) Represents the vesting of RSUs
- (4) Represents the vesting of PRSUs
- (5) Represents the value realized upon vesting of RSUs and PRSUs

Potential Payments Upon Termination of Employment or Change of Control

The following table represents amounts payable at, following, or in connection with the events described below, assuming that such events occurred on December 31, 2017 for each of the NEOs:

Name	Potential Payment on		
	Voluntary Termination or Termination for Cause (\$)	Involuntary Termination (Without Cause) or Termination by NEO for Good Reason (\$)	Involuntary Termination (Without Cause) or Termination by NEO for Good Reason on Change of Control (\$)
Andres D. Reiner			
Severance ⁽¹⁾	\$ —	\$ 1,102,500	\$ 1,653,750
Bonus ⁽²⁾	\$ —	\$ 281,245	\$ 281,245
Health Benefits ⁽³⁾	\$ —	\$ 22,992	\$ 34,489
Accelerated Equity	\$ —	\$ 5,007,646	\$ 15,090,386
Total	\$ —	\$ 6,414,384	\$ 17,059,870
Stefan B. Schulz			
Severance ⁽¹⁾	\$ —	\$ 657,000	\$ 985,500
Bonus ⁽²⁾	\$ —	\$ 142,205	\$ 142,205
Health Benefits ⁽³⁾	\$ —	\$ 18,339	\$ 27,508
Accelerated Equity	\$ —	\$ 182,456	\$ 3,367,746
Total	\$ —	\$ 1,000,000	\$ 4,522,959
Thomas F. Dziersk			
Severance ⁽¹⁾	\$ —	\$ 375,000	\$ 1,125,000
Bonus ⁽²⁾	\$ —	\$ 76,377	\$ 76,377
Health Benefits ⁽³⁾	\$ —	\$ 19,114	\$ 28,671
Accelerated Equity	\$ —	\$ —	\$ 2,623,126
Total	\$ —	\$ 470,491	\$ 3,853,174

- (1) Reflects then current base monthly salary for 12 months for termination without cause, and 18 months for termination without cause upon change of control, and in each case, payable on normal payroll cycles. For Messrs. Reiner and Schulz, also reflects the payment of a bonus at 100% of performance targets, including the discretionary components, within the bonus plan in effect as if employed by the Company for 12 months for termination without cause, and for 18 months for termination without cause on change of control.
- (2) Reflects 2017 earned but unpaid bonus.
- (3) Reflects health benefits as made generally available to employees for 12 months for termination without cause, and for 18 months for termination without cause on change of control.



PROPOSAL TWO

NON-BINDING ADVISORY VOTE ON EXECUTIVE COMPENSATION

As required pursuant to Section 14A of the Exchange Act, we are providing our stockholders with the opportunity to vote to approve, on an advisory or non-binding basis, the compensation of our NEOs as disclosed in this Proxy Statement in accordance with SEC rules. We currently conduct this advisory vote on an annual basis and expect to conduct the next advisory vote at our Annual Meeting to be held in 2019.

As described in the "Executive Summary" and "Compensation Discussion and Analysis" section of this Proxy Statement, our executive compensation program is designed to attract, retain, and motivate talented individuals with the executive experience and leadership skills necessary for us to manage our business and meet our long-term objectives. We seek to provide executive compensation that is competitive with companies that are similar to us. We also seek to provide near-term and long-term financial incentives that reward well-performing executives when strategic corporate objectives designed to increase long-term stockholder value are achieved. We believe that executive compensation should include base salary, cash incentives and equity awards. We also believe that our executive officers' base salaries should be set at levels relative to comparable companies, and cash and equity incentives should generally be set at levels that give executives the opportunity to achieve above-average total compensation reflecting above-average Company performance. In particular, our executive compensation philosophy is to promote long-term value creation for our stockholders by rewarding improvement in selected financial metrics and by using equity incentives. *Please see our "Compensation Discussion and Analysis" on page 23 of this Proxy Statement and related compensation tables for detailed information about our executive compensation programs, including information about the fiscal year 2017 compensation of our NEOs.*

This vote is advisory and therefore not binding. However, the Compensation and Leadership Development Committee values the opinions of our stockholders and to the extent there is any significant vote against the NEO compensation as disclosed in this Proxy Statement, we will consider those stockholders' concerns, and the Compensation and Leadership Development Committee will evaluate whether any actions are necessary to address those concerns.

Note that because the advisory vote on executive compensation occurs well after the beginning of the compensation year, in most cases it may not be feasible to change any executive compensation program in consideration of any one year's advisory vote on executive compensation.

Vote Required

The affirmative vote of a majority of the outstanding shares of our Common Stock entitled to vote and present in person or represented by proxy at the Annual Meeting is required for advisory approval of this proposal. A properly executed proxy marked "ABSTAIN" with respect to this matter is considered entitled to vote, and thus will have the effect of a vote against this matter.

In accordance with Delaware law, abstentions will be counted for purposes of determining both whether a quorum is present at the Annual Meeting and the total number of shares represented and voting on this proposal. While broker non-votes will be counted for purposes of determining the presence or absence of a quorum, broker non-votes will not be counted for purposes of determining the number of shares represented and voting with respect to the particular proposal on which the broker has expressly not voted and, accordingly, will not affect the approval of this proposal.

THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS VOTING "FOR" THE APPROVAL OF THE COMPENSATION OF OUR NAMED EXECUTIVE OFFICERS AS DISCLOSED IN THIS PROXY STATEMENT.

DIRECTOR COMPENSATION

The Board of Directors has approved a compensation structure for non-employee directors consisting of an equity award, annual cash retainer, and for certain positions, a supplemental cash retainer(s). All cash retainers are paid on a quarterly basis. In 2017, each non-employee member of our Board of Directors received 6,310 RSUs which vested in full on January 1, 2018. Each non-employee member of our Board of Directors received an annual cash retainer of \$35,000 in 2017. The non-executive chairman of our Board of Directors received a supplemental retainer of \$50,000 in 2017. In addition, each non-employee director serving as a chair or member of a standing committee of our Board of Directors received the following supplemental cash retainer(s):

Committee Role	Audit Committee (\$)	Compensation and Leadership Development Committee (\$)	Nominating and Corporate Governance Committee (\$)
Member	\$ 15,000	\$ 15,000	\$ 7,500
Chair	\$ 30,000	\$ 20,000	\$ 10,000

We also reimburse our directors for reasonable out-of-pocket expenses incurred in connection with (i) their attendance at our Board of Directors, committee meetings, and other Company meetings, and (ii) director continuing education programs, including participation in the National Association of Corporate Directors (NACD), of which the Company is a member.

2017 Director Compensation Table

The following table sets forth the compensation paid to our non-employee directors for service on our Board during 2017. Compensation for Andres D. Reiner our President and Chief Executive Officer is set forth in the "Summary Compensation" table on page 40 of this Proxy Statement. Mr. Reiner does not receive any compensation for his services as a director.

Name	Fees Earned or Paid in Cash (\$)	Restricted Stock Units (\$ (1))	Total (\$)
Ellen Keszler	\$ 57,500	\$ 136,044	\$ 193,544
Greg B. Petersen	\$ 70,000	\$ 136,044	\$ 206,044
Leslie Rechan	\$ 57,500	\$ 136,044	\$ 193,544
William Russell	\$ 110,000	\$ 136,044	\$ 246,044
Timothy V. Williams	\$ 72,500	\$ 136,044	\$ 208,544
Mariette M. Woestemeyer	\$ 35,000	\$ 136,044	\$ 171,044
Ronald F. Woestemeyer	\$ 35,000	\$ 136,044	\$ 171,044

- (1) These amounts represent the aggregate grant date fair value of equity awards granted for such director's services in 2017 as calculated in accordance with GAAP. For additional information about the valuation assumptions with respect to equity awards, refer to Note 10 of our financial statements in our Annual Report on Form 10-K for the year ended December 31, 2017, as filed with the SEC. The January 3, 2017 grant of RSUs awarded to all non-employee directors vested in full on January 1, 2018 and had a grant date fair value of \$21.56.

The following table presents the aggregate number of outstanding RSUs and stock option awards held by our non-employee directors as of December 31, 2017:

Name	Restricted Stock Units (#) (1)	Stock Option Awards (#) (2)
Penny Herscher ³	—	—
Ellen Keszler	6,310	30,000
Greg B. Petersen	6,310	—
Leslie Rechan	6,310	—
William Russell	6,310	—
Timothy V. Williams	6,310	—
Mariette M. Woestemeyer	6,310	—
Ronald F. Woestemeyer	6,310	—

- (1) Represents RSUs granted on January 3, 2017, which fully vested on January 1, 2018, under the 2017 director compensation policy, for all non-employee directors. Each RSU represents the contingent right to receive one share of Common Stock.
- (2) Represents options to purchase 30,000 shares of our Common Stock granted on August 21, 2008 which previously vested and are immediately exercisable.
- (3) Ms. Herscher joined our Board of Directors in January 2018.

SECURITY OWNERSHIP

The following tables set forth information regarding beneficial ownership of our Common Stock for each person known to own beneficially more than 5% of our outstanding Common Stock; each director and director nominee; and each of our NEOs named in the Summary Compensation table, both individually and as a group. Applicable percentage of ownership is based on 32,588,924 shares of our Common Stock outstanding as of the Record Date, unless otherwise noted below, together with applicable options for each stockholder. Beneficial ownership includes shares of Common Stock that the stockholder has a right to acquire within 60 days of the Record Date through the exercise of any option or other right. Unless otherwise indicated, the principal address of each of the stockholders below is c/o PROS Holdings, Inc., 3100 Main Street, Suite 900, Houston, Texas 77002.

Principal Shareholders	Shares Beneficially Owned	Percentage
Brown Capital Management, LLC ⁽¹⁾	4,880,236	14.9%
Ronald F. and Mariette M. Woestemeyer ⁽²⁾	3,870,801	11.8%
Riverbridge Partners, LLC ⁽³⁾	2,505,848	7.6%
Conestoga Capital Advisors, LLC ⁽⁴⁾	1,927,134	5.9%
Daruma Capital Management LLC ⁽⁵⁾	1,882,401	5.7%
BlackRock, Inc. ⁽⁶⁾	1,714,104	5.2%

- (1) Information regarding Brown Capital Management, LLC (Brown Capital) is based solely upon a Schedule 13G/A filed by Brown Capital with the SEC on February 14, 2018, which indicates that Brown Capital beneficially owned 4,880,836 shares of our Common Stock as of December 31, 2017, with sole voting power with respect to 2,621,288 shares of our Common Stock and sole dispositive power with respect to 4,880,236 shares of our Common Stock. The address of Brown Capital is 1201 N. Calvert Street, Baltimore, MD 21202.
- (2) Includes 3,870,801 shares held by various trusts for the benefit of certain family members.
- (3) Information regarding Riverbridge Partners LLC (Riverbridge) is based solely upon a Schedule 13G/A filed by Riverbridge with the SEC on January 29, 2018, which indicates that Riverbridge beneficially owned 2,505,848 shares of our Common Stock as of December 31, 2017, with sole voting power with respect to 1,692,663 shares of our Common Stock and sole dispositive power with respect to 2,505,848 shares of our Common Stock. The address of Riverbridge is 80 South Eighth St., Suite 1200, Minneapolis, MN 55402.
- (4) Information regarding Conestoga Capital Advisors, LLC (Conestoga) is based solely upon a Schedule 13G filed by Conestoga with the SEC on January 17, 2018, which indicates that Conestoga beneficially owned 1,927,134 shares of our Common Stock as of December 31, 2017, with sole voting power with respect to 1,726,786 shares of our Common Stock and sole dispositive power with respect to 1,927,134 shares of our Common Stock. The address of Conestoga is 550 E. Swedesford Road, Suite 120, Wayne, PA 19087.
- (5) Information regarding Daruma Capital Management, LLC (Daruma) is based solely upon a Schedule 13G filed by Daruma on February 14, 2018, which indicates that Daruma beneficially owned 1,882,401 shares of our Common Stock as of December 31, 2017, with shared voting power with respect to 808,762 shares of our Common Stock and shared dispositive power with respect to 1,882,401 shares of our Common Stock. The address of Daruma is 626 King Avenue, Bronx, NY 10464.
- (6) Information regarding BlackRock, Inc. (BlackRock) is based solely upon a Schedule 13G filed by BlackRock with the SEC on February 1, 2018, which indicates that BlackRock beneficially owned 1,714,104 shares of our Common Stock as of December 31, 2017, with sole voting power with respect to 1,668,654 shares of our Common Stock and sole dispositive power with respect to 1,714,104 shares of our Common Stock. The address of BlackRock is 55 East 52nd Street, New York, NY 10055.

Name of Beneficial Owner	Shares Beneficially Owned ¹	Percentage
Named Executive Officers		
Andres D. Reiner ²	670,074	2.0 %
Stefan B. Schulz	86,883	*
Thomas F. Dzersk	—	*
Non-Employee Directors and Director Nominees		
Penelope Herscher	—	*
Ellen Keszler ³	92,477	*
Greg B. Petersen	97,543	*
Leslie Rechan	30,644	*
William Russell	120,977	*
Timothy V. Williams	102,477	*
Mariette M. Woestemeyer ⁴	3,870,801	11.8 %
Ronald F. Woestemeyer ⁴	3,870,801	11.8 %
All NEOs, directors and director nominees as a group	5,071,876	15.4%

* Represents less than 1% of the outstanding shares of Common Stock.

- (1) Includes shares held and stock options, RSUs, PRSUs and stock appreciation rights (SARs) exercisable within 60 days of the Record Date.
- (2) Includes 215,000 shares issuable pursuant to stock options and SARs that are immediately exercisable or exercisable within 60 days of the Record Date.
- (3) Includes 30,000 shares issuable pursuant to stock options which are immediately exercisable.
- (4) Mr. and Mrs. Woestemeyer jointly beneficially own an aggregate of 3,870,801 shares, which include shares held by various trusts for the benefit of certain family members.

SECTION 16(a) BENEFICIAL OWNERSHIP REPORTING COMPLIANCE

Section 16(a) of the Exchange Act requires each of our directors and NEOs, among others, to file with the SEC an initial report of ownership and reports of changes in ownership of Common Stock of the Company. Such persons are required by SEC regulations to furnish us with copies of all such filings. Based on a review of the copies of such forms in our possession, and on written representations from reporting persons, we believe that during 2017, all of our NEOs and directors filed the required reports on a timely basis under Section 16(a).

CERTAIN RELATIONSHIPS AND RELATED PARTY TRANSACTIONS

Since January 1, 2017, there has not been (nor is there currently proposed), any transaction or series of similar transactions to which we were or are a party in which the amount involved exceeded or exceeds \$120,000 and in which any of our directors, executive officers, holders of more than 5% of any class of our voting securities, or any member of the immediate family of any of the foregoing persons, had or will have a direct or indirect material interest, other than compensation arrangements with directors and executive officers, and the transactions described below:

Relationships with Management, Founders and Investors

Ownership. Ronald F. Woestemeyer and Mariette Woestemeyer, who each serve on our Board of Directors, jointly hold more than 5% of our Common Stock.

Indemnification agreements. We have entered into indemnification agreements with each of our current directors and officers. These agreements require us, among other things, to indemnify these individuals to the fullest extent permitted under Delaware law against liabilities that may arise by reason of their service to us, and to advance expenses incurred as a result of any proceeding against them as to which they could be indemnified. We also intend to enter into indemnification agreements with our future directors and officers.

Employment arrangements. We have entered into employment agreements with each of our executive officers, which address, among other things, the terms of their employment, such as base salary, severance payments and payment on a change in control.

Family relationships. Mr. Rob Reiner, who serves as our Chief Technology Officer is the brother of Andres Reiner, our CEO. All compensation paid to Mr. R. Reiner has been approved by our Compensation and Leadership Development Committee, which reviews and approves all compensation for our NEOs and any family members who are employees.

Procedures for Related Party Transactions

Under our Code of Business Conduct and Ethics, our employees and officers are discouraged from entering into any transaction that may cause a conflict of interest. In addition, they must report any potential conflict of interest, including related party transactions, to their managers or our compliance officer who then reviews and summarizes the proposed transaction for our Audit Committee. Pursuant to its charter, our Audit Committee must then approve any related party transactions, including those transactions involving our directors. In approving or rejecting such proposed transactions, the Audit Committee considers the relevant facts and circumstances available and deemed relevant to the Audit Committee, including the material terms of the transactions, risks, benefits, costs, availability of other comparable services or products and, if applicable, the impact on a director's independence. Our Audit Committee will approve only those transactions that, in light of known circumstances, are in, or are not inconsistent with, our best interests, as our Audit Committee determines in the good faith exercise of its discretion.



REPORT OF THE AUDIT COMMITTEE OF THE BOARD OF DIRECTORS

The Audit Committee operates under a written charter adopted by the Board of Directors, a current copy of which is available under Corporate Governance in the Investor Relations section of our website at www.PROS.com. The Audit Committee reviews and assesses the adequacy of its charter at least annually and, when appropriate, recommends changes to the Board to reflect the evolving role of the Audit Committee. The Audit Committee is composed of non-employee directors who meet the independence and financial literacy requirements of the NYSE and additional, heightened independence criteria applicable to members of the Audit Committee under SEC and NYSE rules. The Audit Committee currently consists of Timothy V. Williams (Chairman), Greg B. Petersen and Ellen Keszler. Our Board of Directors has determined that each of the members of the Audit Committee are each an “Audit Committee financial expert” as is currently defined under SEC regulations and the rules of the NYSE.

Primary Responsibilities

The Audit Committee oversees the Company’s accounting and financial reporting processes on behalf of the Board of Directors, and assists the Board in fulfilling its oversight responsibility relating to the integrity of the Company’s financial statements and the financial reporting process, the systems of internal accounting and financial controls, and the annual independent audit of the Company’s financial statements. The Audit Committee also oversees the independent auditors’ qualifications and independence. The Company’s management has the primary responsibility for preparing the Company’s financial statements, for maintaining effective internal control over financial reporting, and for assessing the effectiveness of internal control over financial reporting.

Oversight of Independent Auditors

The Audit Committee engaged PricewaterhouseCoopers LLP (PwC) as our independent auditors for the year ended December 31, 2017. In its meetings with our independent auditors, the Audit Committee asks them to address, and discusses their responses to, several questions that the Audit Committee believes are relevant to its oversight. The Audit Committee also discussed with the independent auditors those matters required to be discussed by the auditors with the Audit Committee under the rules adopted by the Public Company Accounting Oversight Board (PCAOB). The Audit Committee received the written disclosures and the letter from the independent auditors required by applicable requirements of the PCAOB regarding the independent auditors’ communication with the Audit Committee concerning independence, and has discussed with the independent auditors their independence.

2017 Audited Financial Statements

In its oversight role, the Audit Committee relies on the work and assurances of the Company’s management. In fulfilling its oversight responsibilities in 2017, the Audit Committee reviewed and discussed with management the Company’s consolidated financial statements for the fiscal year ended December 31, 2017, including a discussion of, among other things, the quality of the Company’s accounting principles, the reasonableness of significant estimates and judgments, and the clarity of disclosures in the Company’s financial statements.

The Audit Committee has (1) reviewed and discussed the audited financial statements with management, (2) discussed with PwC, our independent registered public accounting firm, the matters required to be discussed by the statement on Auditing Standards No. 61, as amended (AICPA, Professional Standards, Vol. 1. AU Section 380), as adopted by the Public Company Accounting Oversight Board in Rule 3200T, (3) received the written disclosures and the letter from the independent accountant required by applicable requirements of the Public Company Accounting Oversight Board regarding the independent accountant’s communications with the Audit Committee concerning independence, and has discussed with the independent accountant the independent accountant’s independence, and (4) considered with the independent auditors whether the provision of non-audit services provided by them to the Company during 2017 was compatible with their independence. Based upon these discussions and reviews, the Audit Committee recommended to our Board of Directors, and the Board has approved, that the audited financial statements be included in our Annual Report on Form 10-K for the fiscal year ended December 31, 2017 and filed with the SEC.

THE AUDIT COMMITTEE OF THE BOARD OF DIRECTORS

Timothy V. Williams, Chairman

Ellen Keszler

Greg B. Petersen

INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM FEES

The Audit Committee has adopted a policy for the pre-approval of services performed by our independent registered public accounting firm. Under this policy, each year the Audit Committee pre-approves the audit engagement terms and fees and may also pre-approve detailed types of audit-related and permitted tax services, subject to certain dollar limits, to be performed during the year. All other permitted non-audit services are required to be pre-approved by the Audit Committee on an engagement-by-engagement basis.

The following table summarizes the aggregate fees in 2017 billed for professional services rendered to us by PwC in 2017 and 2016. A description of these various fees and services follows the table:

	2017	2016
Audit fees	\$ 2,058,773	\$ 1,434,387
Audit-related fees	—	—
Tax fees	31,000	140,000
All other fees	1,919	1,919
Total fees	<u>\$ 2,091,692</u>	<u>\$ 1,576,306</u>

Fees Billed by PricewaterhouseCoopers, LLP

Audit fees. The aggregate fees billed to us by PwC in connection with the annual audit of our financial statements, reviews of our financial statements included in quarterly reports on Form 10-Q, consents related to documents filed with the SEC and comfort letters, were \$2,058,773 and \$1,434,387 for the years ended December 31, 2017 and 2016, respectively. The increase in audit fees in 2017 primarily related to additional procedures required in connection with the adoption of Accounting Standards Update No. 2014-09, "Revenue from Contracts with Customers (Topic 606)", as amended, effective in the first quarter of 2018, purchase price allocation and audit impact of the Vayant acquisition as well as audit and comfort letter procedures associate with our convertible debt offering.

Audit-related fees. Audit-related fees consist of fees for professional services that are reasonably related to the performance of the audit or review of the Company's financial statements. This category may include fees related to due diligence related to mergers and acquisitions, accounting and financial reporting consultations and research necessary to comply with generally accepted audit standards. There were no audit-related fees billed for the years ended December 31, 2017 and 2016.

Tax fees. The aggregate tax fees billed to us by PwC related to tax compliance, tax advice and tax planning, and were \$31,000 and \$140,000 for the years ended December 31, 2017 and 2016, respectively. The higher fees in 2016 primarily related to one-time tax projects for the period.

All other fees. The other fees consist of subscription fees for an accounting and auditing research tool.

Audit Committee Approval of Services

The Audit Committee is authorized by its charter to pre-approve all auditing and permitted non-audit services to be performed by our independent registered public accounting firm. The Audit Committee reviews and approves the independent registered public accounting firm's retention to perform attest services, including the associated fees. The Audit Committee also evaluates other known potential engagements of the independent registered public accounting firm, including the scope of the proposed work and the proposed fees, and approves or rejects each service, taking into account whether the services are permissible under applicable law and the possible impact of each non-audit service on the independent registered public accounting firm's independence from management. At subsequent meetings, the Audit Committee receives updates on services actually provided by the independent registered public accounting firm, and management may present additional services for approval. The Audit Committee has delegated to the chairman of the Audit Committee the authority to evaluate and approve engagements on behalf of the Audit Committee in the event that a need arises for pre-approval between Audit Committee meetings. If the Chairman approves any such engagements, he reports that approval to the full Audit Committee at its next meeting. During fiscal year 2017, all such services were pre-approved in accordance with the procedures described above.

Our Audit Committee has reviewed the fees described above and believes that such fees are compatible with maintaining the independence of PwC.



PROPOSAL THREE

RATIFICATION OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM APPOINTMENT

The Audit Committee has selected the independent registered public accounting firm of PwC to audit our consolidated financial statements for the fiscal year ending December 31, 2018. We have determined to submit the selection of auditors to stockholder ratification, even though it is not required by our governing documents or Delaware law. If the selection of PwC as our independent auditors is not ratified by our stockholders, our Audit Committee will reconsider, but might not change, its selection. Notwithstanding the selection and ratification, the Audit Committee, in its discretion, may appoint a different independent registered public accounting firm at any time, if it believes doing so would be in the best interests of us and our stockholders.

PwC has audited our financial statements annually since 2002. Representatives of PwC are expected to be present at the Annual Meeting with the opportunity to make a statement if they desire to do so and are expected to be available to respond to appropriate questions.

Vote Required

Approval of the ratification of the appointment of PwC as our independent registered public accounting firm requires the affirmative vote of the holders of at least a majority of the outstanding shares of our Common Stock entitled to vote and present or represented at the Annual Meeting. A properly executed proxy marked “ABSTAIN” with respect to this matter is considered entitled to vote and thus, will have the effect of a vote against this matter.

In accordance with Delaware law, abstentions will be counted for purposes of determining both whether a quorum is present at the Annual Meeting and the total number of shares represented and voting on this proposal. While broker non-votes will be counted for purposes of determining the presence or absence of a quorum, broker non-votes will not be counted for purposes of determining the number of shares represented and voting with respect to the particular proposal on which the broker has expressly not voted and, accordingly, will not affect the approval of this proposal.

THE BOARD OF DIRECTORS UNANIMOUSLY RECOMMENDS VOTING “FOR” THE RATIFICATION OF THE APPOINTMENT OF PRICEWATERHOUSECOOPERS LLP AS OUR INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM FOR THE FISCAL YEAR ENDING DECEMBER 31, 2018.



STOCKHOLDERS PROPOSALS

Stockholders may present proposals for action at meetings of stockholders only if they comply with the rules established by the SEC, applicable Delaware law and [our amended and restated bylaws](#), as contained in the Current Report on Form 8-K filed with the SEC on August 21, 2013 (Bylaws). No stockholder proposals were received for consideration at the Annual Meeting.

Stockholders interested in submitting a proposal for inclusion in our proxy materials and for consideration at the 2019 annual meeting of our stockholders (2019 Annual Meeting) may do so by following the procedures set forth in Rule 14a-8 under the Exchange Act, as amended. To be eligible for inclusion in such proxy materials, stockholder proposals must be received by our Corporate Secretary no later than December 31, 2018.

Under our Bylaws, for any stockholder proposal or director nomination that is not submitted for inclusion in the next year's proxy statement but instead is proposed to be presented directly at our 2019 Annual Meeting, the stockholder must provide us written notice not later than the close of business on the later of the ninetieth day prior to our 2019 Annual Meeting or the tenth day following the date on which public announcement of the date of the 2019 Annual Meeting is first made. Any such notice for director nominations must satisfy the requirements specified in Article II, Section 2.15(b) of our Bylaws. Any such notice for other stockholder proposals (other than director nomination) must satisfy the requirements specified in Article I, Section 1.10(b) of our Bylaws. In the absence of such notice meeting the above requirements, a stockholder shall not be entitled to present any business at our 2019 Annual Meeting.

Notwithstanding the above, in the event that the number of directors to be elected at an annual meeting of stockholders is increased and there is no public announcement by the Company naming the nominees for the additional directorships at least 100 days prior to the first anniversary of the date of the Company's previous year's annual meeting of stockholders, a stockholder's notice shall also be considered timely, but only with respect to nominees for the additional directorships, if it is delivered to the Corporate Secretary at our principal executive offices not later than the close of business on the 10th day following the day on which such public announcement is first made by the Company. In the event the Company calls a special meeting of stockholders for the purpose of electing one or more directors to the Board of Directors, any such stockholder may nominate a person(s), for election to such positions as are specified in the Company's notice of meeting, if the stockholder's notice is delivered to the Corporate Secretary at our principal executive offices not earlier than the 90th day prior to such special meeting and not later than the close of business on the later of the 60th day prior to such special meeting or the 10th day following the day on which public announcement is first made of the date of the special meeting and of the nominees proposed by our Board of Directors to be elected at such meeting.

EXPENSES AND SOLICITATION

We will bear the expense of soliciting proxies in the enclosed form. In addition, we might reimburse banks, brokerage firms, and other custodians, nominees and fiduciaries representing beneficial owners of our Common Stock, for their expenses in forwarding soliciting materials to those beneficial owners. Proxies may also be solicited by our directors, officers or employees, personally or by telephone, telegram, facsimile or other means of communication. We do not intend to pay additional compensation for doing so.

NO INCORPORATION BY REFERENCE OF CERTAIN PORTIONS OF THIS PROXY STATEMENT

Notwithstanding anything to the contrary set forth in any of our filings made under the Securities Act of 1933, as amended, or the Exchange Act, as amended, that might incorporate information in this Proxy Statement, neither the Audit Committee Report nor the Compensation and Leadership Development Committee Report is to be incorporated by reference into

any such filings as provided by SEC regulations. In addition, this Proxy Statement includes certain website addresses intended to provide inactive, textual references only. The information on these websites shall not be deemed part of this Proxy Statement.

OTHER MATTERS

The Board of Directors knows of no other matters to be submitted at the Annual Meeting. If any other matters properly come before the Annual Meeting, the persons appointed in the enclosed proxy intend to vote the shares represented thereby in accordance with their best judgment on such matters, under applicable laws.

The Board of Directors
PROS HOLDINGS, INC.

March 30, 2018

PROS HOLDINGS, INC.
3100 MAIN STREET, 9TH FLOOR
HOUSTON, TX 77002

VOTE BY INTERNET - www.proxyvote.com

Use the Internet to transmit your voting instructions and for electronic delivery of information up until 11:59 P.M. Eastern Time on May 10, 2018. Have your proxy card in hand when you access the web site and follow the instructions to obtain your records and to create an electronic voting instruction form.

ELECTRONIC DELIVERY OF FUTURE PROXY MATERIALS

If you would like to reduce the costs incurred by PROS Holdings, Inc. in mailing proxy materials, you can consent to receiving all future proxy statements, proxy cards and annual reports electronically via e-mail or the Internet. To sign up for electronic delivery, please follow the instructions above to vote using the Internet and, when prompted, indicate that you agree to receive or access proxy materials electronically in future years.

VOTE BY PHONE - 1-800-690-6903

Use any touch-tone telephone to transmit your voting instructions up until 11:59 P.M. Eastern Time on May 10, 2018. Have your proxy card in hand when you call and then follow the instructions.

VOTE BY MAIL

Mark, sign and date your proxy card and return it in the postage-paid envelope we have provided or return it to Vote Processing, c/o Broadridge, 51 Mercedes Way, Edgewood, NY 11717.

TO VOTE, MARK BLOCKS BELOW IN BLUE OR BLACK INK AS FOLLOWS:

KEEP THIS PORTION FOR YOUR RECORDS
DETACH AND RETURN THIS PORTION ONLY

THIS PROXY CARD IS VALID ONLY WHEN SIGNED AND DATED.

The Board of Directors recommends you vote FOR the following:

For All ☐ Withhold All ☐ For All Except ☐

To withhold authority to vote for any individual nominee(s), mark "For All Except" and write the number(s) of the nominee(s) on the line below.

1. Election of Directors

Nominees

01 Penelope Herscher 02 Leslie Rechan 03 William Russell

The Board of Directors recommends you vote FOR proposals 2 and 3.

2 To conduct an advisory vote on executive compensation.

For Against Abstain
☐ ☐ ☐

3 To ratify the appointment of PricewaterhouseCoopers LLP as the independent registered public accounting firm of PROS Holdings, Inc. for the fiscal year ending December 31, 2018.

☐ ☐ ☐

NOTE: Such other business as may properly come before the meeting or any adjournment thereof will be voted at the proxies' discretion. The Board of Directors recommends a vote IN FAVOR OF the directors listed above, IN FAVOR OF the advisory vote on executive compensation and IN FAVOR OF the appointment of PricewaterhouseCoopers LLP. This Proxy, when properly executed, will be voted as specified. If no specification is made, the Proxy will be voted IN FAVOR OF the directors listed above, IN FAVOR OF advisory vote on executive compensation and IN FAVOR OF the appointment of PricewaterhouseCoopers LLP.

For address change/comments, mark here.
(see reverse for instructions)

Yes No ☐

Please indicate if you plan to attend this meeting

☐ ☐

Please indicate if you wish to view meeting materials electronically via the Internet rather than receiving a hard copy. Please note that you will continue to receive a proxy card for voting purposes only.

Yes No
☐ ☐

Please sign exactly as your name(s) appear(s) hereon. When signing as attorney, executor, administrator, or other fiduciary, please give full title as such. Joint owners should each sign personally. All holders must sign. If a corporation or partnership, please sign in full corporate or partnership name, by authorized officer.

Signature (Joint Owners) Date

Signature [PLEASE SIGN WITHIN BOX] Date

Important Notice Regarding the Availability of Proxy Materials for the Annual Meeting: The Notice & Proxy Statement, Annual Report are available at www.proxyvote.com

PROS HOLDINGS, INC.
THIS PROXY IS SOLICITED ON BEHALF OF THE BOARD OF DIRECTORS
ANNUAL MEETING OF STOCKHOLDERS
MAY 11, 2018

The stockholder(s) hereby appoint(s) Stefan B. Schulz and Damian W. Olthoff, or each of them, as proxies, each with the power to appoint his substitute, and hereby authorize(s) them to represent and to vote, as designated on the reverse side of this ballot, all of the shares of Common Stock of PROS Holdings, Inc. that the stockholder(s) is/are entitled to vote at the Annual Meeting of Stockholders to be held at 8:00 a.m. CDT on May 11, 2018, at 3100 Main Street, 9th Floor, Houston, TX 77002, and any adjournment or postponement thereof.

Such shares shall be voted as indicated with respect to the proposals listed on the reverse side hereof and the proxies' discretion on such other matters as may properly come before the meeting or any adjournment thereof.

The Board of Directors recommends a vote **IN FAVOR OF** the directors listed on the reverse side, **IN FAVOR OF** the advisory vote on executive compensation and **IN FAVOR OF** the appointment of PricewaterhouseCoopers LLP. If no specification is made, this Proxy will be voted **IN FAVOR OF** the election of directors listed on the reverse side of this proxy card, **IN FAVOR OF** the advisory vote on executive compensation and **IN FAVOR OF** the appointment of PricewaterhouseCoopers LLP.

Address change/comments:

(If you noted any Address Changes and/or Comments above, please mark corresponding box on the reverse side.)

Continued and to be signed on reverse side



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

Form 10-K

(MARK ONE)

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

For the fiscal year ended December 31, 2017

OR

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

For the transition period from _____ **to** _____

Commission File Number 001-33554



PROS HOLDINGS, INC.

(Exact Name of Registrant as Specified in Its Charter)

Delaware

(State or Other Jurisdiction of
Incorporation or Organization)

76-0168604

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

3100 Main Street, Suite 900, Houston, Texas

(Address of Principal Executive Offices)

77002

(Zip code)

Registrant's telephone number, including area code: (713) 335-5151

Securities Registered Pursuant to Section 12(b) of the Act:

Title of Each Class

Common Stock, par value \$0.001 per share

Name of Each Exchange on Which Registered

New York Stock Exchange

Securities Registered Pursuant to Section 12(g) of the Act:

None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act.

Yes ☐ No ☒

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Exchange Act.

Yes ☐ No ☒

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 website, if any, every Interactive Data File required to be submitted and posted pursuant to Rule 405 of Regulation S-T (§232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit and post such files).

Yes ☒ No ☐

Indicate by check mark if disclosure of delinquent filers pursuant to Item 405 of Regulation S-K (§229.405 of this chapter) is not contained herein, and will not be contained, to the best of registrant's knowledge, in definitive proxy or information statements incorporated by reference in Part III of this Form 10-K or any amendment to this Form 10-K.

☐

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

Large Accelerated Filer ☐

Accelerated Filer ☒

Non-Accelerated Filer ☐ (do not check if a smaller reporting company) Smaller Reporting Company ☐

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

The aggregate market value of voting and non-voting common equity held by non-affiliates of the registrant was approximately \$597.8 million as of June 30, 2017 based upon the closing price for the registrant's of the common stock on the New York Stock Exchange. This determination of affiliate status was based on publicly filed documents and is not necessarily a conclusive determination for other purposes.

As of February 12, 2018, there were outstanding 32,255,997 shares of common stock, par value \$0.001, of the registrant.

DOCUMENTS INCORPORATED BY REFERENCE

Portions of the registrant's Proxy Statement relating to its 2018 Annual Stockholders Meeting, to be filed within 120 days of the end of the fiscal year ended December 31, 2017, are incorporated by reference into Part III of this Annual Report on Form 10-K.

PROS Holdings, Inc.
Annual Report on Form 10-K
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For the Year Ended December 31, 2017

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SIGNIFICANT RELATIONSHIPS REFERENCED IN THIS ANNUAL REPORT

The terms "PROS," "we," "us," and "our" refer to PROS Holdings, Inc., a Delaware corporation, and all of its subsidiaries that are consolidated in conformity with the generally accepted accounting principles in the United States of America ("GAAP").

CAUTIONARY STATEMENT REGARDING FORWARD LOOKING STATEMENTS

This Annual Report on Form 10-K contains certain statements that may be deemed to be "forward-looking statements" that anticipate results based on our estimates, assumptions and plans that are subject to uncertainty. These statements are made subject to the safe-harbor provisions of the Private Securities Litigation Reform Act of 1995, Section 27A of the Securities Act of 1933, as amended (the "Securities Act"), and Section 21E of the Securities Exchange Act of 1934, as amended (the "Exchange Act"). All statements in this report not dealing with historical results or current facts are forward-looking and are based on estimates, assumptions and projections. Statements which include the words "believes," "seeks," "expects," "may," "should," "intends," "likely," "targets," "plans," "anticipates," "estimates," or the negative version of those words and similar statements of future or forward-looking nature identify forward-looking statements. The forward-looking statements made herein are only made as of the date hereof, and we undertake no obligation to publicly update such forward-looking statements whether as a result of new information, future events or otherwise.

Numerous important factors, risks and uncertainties affect our operating results, including, without limitation, those contained in this report, and could cause our actual results to differ materially, from the results implied by these or any other forward-looking statements made by us or on our behalf. There can be no assurance that future results will meet expectations. You should pay particular attention to the important risk factors and cautionary statements described in the section of this report entitled "Risk Factors". You should also carefully review the cautionary statements described in the other documents we file from time to time with the Securities and Exchange Commission ("SEC"), specifically all Quarterly Reports on Form 10-Q and Current Reports on Form 8-K. Information contained on our website is not part of this report.

Part I

Item 1. *Business*

Overview

PROS is a cloud software company powering the shift to modern commerce by helping companies create personalized and frictionless buying experiences for their customers. Fueled by artificial intelligence, machine learning and proven science, our solutions make it possible for companies to price, configure and sell their products and services in an omnichannel environment with speed, precision and consistency. Our customers benefit from decades of data science expertise infused into our purpose-built industry solutions. We also provide professional services to implement our software solutions.

We were incorporated in Texas in 1985. We reincorporated as a Delaware corporation in 1998. In 2002, we reorganized as a holding company in Delaware. Our principal executive offices are located at 3100 Main Street, Suite 900, Houston, Texas 77002. We report as one operating segment with our Chief Executive Officer acting as our chief operating decision maker. Our telephone number is (713) 335-5151. Our website is www.pros.com. Our website and the information contained therein or connected thereto are not intended to be incorporated into this Annual Report on Form 10-K.

Our Industry

Data-driven decision making is an important driver of business performance. Intense global competition, market volatility and rising costs put pressure on companies to simultaneously drive top-line and bottom-line results. In response to these pressures, we believe companies are increasingly focused on modern commerce software solutions that leverage prescriptive analytics to accelerate the process of converting prospects to customers using data science-based decision-making technology. We also believe that market forces, including increasingly complex business models, uncertain demand for products and services, volatile costs, and exponentially increasing enterprise and market data, will accelerate the demand for software solutions that align critical sales, pricing and revenue management processes to help increase visibility, business agility and customer engagement. We believe the market for solutions that address the needs for companies to improve top-line and bottom-line financial results simultaneously is a large and growing opportunity that spans most major industries.

Our Solutions

PROS modern commerce solutions offer what we believe is a holistic approach to improving revenue and profit

performance by helping companies create personalized and frictionless buying experiences for their customers. Our selling and pricing solutions leverage artificial intelligence designed to accelerate the process of converting prospects to customers, using data science-based decision-making technology. Our solutions are designed to enable companies to move pricing and revenue management strategies to leveraging scaled data-driven pricing strategies that are formulated to help increase profit margins by driving profit expansion and protecting against profit erosion. These data-driven insights help identify which customers and prospects of a company are most likely to buy, and what offers and price points are most likely to result in a closed deal. These insights leverage data science based on a company's historic customer transactions, market and other data to uncover customer buying patterns and preferences. This data science embedded in our solutions provides our customers with predictive and prescriptive guidance on key business decisions that drive growth and profitability, including product mix optimization, price forecasting, price optimization, product configuration recommendations, cross-sell and upsell recommendations, attrition detection, and willingness-to-pay. Our solutions also help to increase visibility, business agility and customer engagement by aligning critical sales, pricing and revenue management processes. As a result, our solutions make it easier for companies to configure the correct product(s), set the right price and get a quote into the hands of a customer faster.

We offer our solutions as Software-as-a-Service ("SaaS"). Our subscription services enable our customers to implement, access and use our software on the PROS cloud via an internet connection. We believe our cloud solutions allow our customers to reduce their initial investment in third-party software, hardware, and administration requirements over traditional enterprise software, and also allow smaller customers to cost-effectively leverage our enterprise class infrastructure, infrastructure management, security and other best practices. In addition, as we manage all updates and upgrades of software deployed on the PROS cloud on behalf of our customers, we are able to provide our customers with our latest product innovations in a more uniform way. Over time, we expect that this model will require us to support fewer old versions of our software solutions, which would allow our product development team to focus more effort on creating innovative enhancements to our existing products and developing new products. We offer both single-tenant and multi-tenant solutions under our SaaS model generally via three-year subscriptions with pricing generally based on the number of users, data volume and revenue managed by our software.

Before 2015, we primarily offered perpetual license solutions to our customers. For perpetual licenses, our customers received the perpetual right to use our software. Our license agreements provided customers with the right to use licensed solutions within a specific license scope, including but not limited to revenue, geography, users, and business unit. The vast majority of our software license customers also purchased software maintenance and support, generally for an initial period of two years, then annual renewals thereafter. Software maintenance and support include unspecified software updates and enhancements on a when-and-if-available basis, maintenance releases, and patches released during the term of the support period.

Our high-performance software architecture supports real-time, high-volume transaction processing and enables us to handle the processing and database requirements of sophisticated enterprise customers, including those who need to respond to their customers with sub-second electronic response requirements. We provide standardized configurations of our software based on the industries we serve and offer professional services to configure these solutions to meet the specific needs of each customer. Our software solutions operate in large, complex and demanding information technology environments.

PROS modern commerce software solutions enable companies across the many industries that we service to improve top-line and bottom-line financial results simultaneously by aligning sales, pricing, product, demand and availability. Our cloud solutions, which enable our customers to provide a consistent buyer experience across channels, include SellingPRO, PricingPRO and RevenuePRO.



PROS CLOUD

SELLINGPRO

DEAL DESK

SMART CPQ

ECOMMERCE

OPPORTUNITY DETECTION

PRICINGPRO

CONTROL

GUIDANCE

REVENUEPRO

PASSENGER REVENUE
MANAGEMENT

GROUP SALES OPTIMIZER

REAL TIME
DYNAMIC PRICING

SHOPPING

MERCHANDISING

Solutions for Selling

Our SellingPRO solutions are comprised of a broad set of configuration, quoting and eCommerce capabilities with data science-driven, actionable insights to deliver sales proposals through prescriptive selling actions, pricing and offer guidance designed to convert more of the right deals at the right price, and with greater speed, accuracy, scale and consistency across all of the customer's sales channels. SellingPRO includes the following editions:

- SellingPRO Deal Desk edition provides deal analytics to a customer's sales team to quickly analyze a large volume of complex opportunities and instantly create proposals with prescriptive products, services, terms and pricing. SellingPRO Deal Desk edition also simplifies deal approval processes and accelerates responsiveness by automating quote generation and approval workflows.
- SellingPRO Smart CPQ edition integrates PROS data science-driven price guidance with a customer's existing CRM solution to enable sales teams to quickly create accurate and highly-customized offers for each customer.
- SellingPRO eCommerce edition provides offer and pricing guidance through a personalized and consistent customer experience across sales channels including but not limited to customer partner internet portals and eCommerce websites. SellingPRO eCommerce edition also enables companies to efficiently reach new sales markets and add new sales channels from a single product and configuration repository.
- SellingPRO Opportunity Detection edition applies artificial intelligence and machine learning to analyze transaction activity, uncover buying behavior trends and identify new opportunities. Using techniques such as outlier detection, churn forecasting and clustering algorithms, it finds inconsistent, declining and gap purchasing behaviors at the product level for each customer. These sales opportunity recommendations are then presented to each sales rep in an easy-to-use interface in their familiar CRM environment for instant evaluation and action.

Solutions for Pricing

Our PricingPRO solutions deliver insight into pricing practices, enhances control over pricing execution and provides prescriptive pricing recommendations to the sales team. PricingPRO includes the following editions:

- PricingPRO Control edition helps companies centralize all pricing strategies and execution to create a single source of pricing information, manage and enforce pricing policies, quickly change pricing strategies and eliminate pricing errors.
- PricingPRO Guidance edition provides data science-driven, market-based pricing and offer guidance to help sales teams confidently negotiate pricing on each deal.

Solutions for Revenue Management

Our RevenuePRO solutions are a set of integrated software solutions that enable enterprises in the travel industry, including the airline, hotel and cruise industries, to drive revenue and profit-maximizing business strategies through the application of advanced forecasting, optimization technologies and decision-support capabilities. These big data solutions provide businesses the tools and processes to help maximize revenue and profitability; quickly adapt to changing market conditions and business objectives; differentiate customers by market and sales channel; effectively conduct real-time negotiations; monitor pricing and revenue management performance; and increase customer loyalty by providing the right products and services to the right customer at the right time. Our RevenuePRO suite of products include the following editions:

- RevenuePRO Passenger Revenue Management edition manages passenger demand with either leg- or segment-based revenue management.
- RevenuePRO Group Sales Optimizer edition manages the airline group booking process by determining optimal group availability and pricing.
- RevenuePRO Real-Time Dynamic Pricing™ edition determines optimal availability based on real-time evaluations and provides real-time availability and pricing to distribution channels, and keeps rules, fares and other data synchronized and deployable across multiple data centers.
- RevenuePRO Shopping edition is an airfare pricing and shopping engine that delivers fast, accurate and comprehensive flight search results.
- RevenuePRO Merchandising edition helps airlines to increase conversion and revenues per passenger by selling extra baggage, legroom and other services dynamically. Airlines can upsell at any time in the customer journey using rich content for a superior shopping experience across direct distribution channels.

Technology

Software Architecture. Our software architecture is based on open standards such as Java, C/C++, HTML5, JavaScript, XML, and HTTP. We have created a component-based design in a service-oriented architecture to develop a flexible, layered framework. This framework supports parallel and independent evolution and innovation in technologies and product features.

Micro-services Architecture. A comprehensive web services interface is at the heart of our architecture. This interface enables extension onto other platforms and the creation of rich integrated solutions. It is also the foundation of our initiative to bring our solutions to the enterprise software and devices that many businesses are already using.

Embedded Science. Our robust science-based capabilities such as forecasting, optimization, segmentation, and price guidance allow us to leverage the deep expertise and research of our science and research group in our solutions. These capabilities are industry-independent and are validated using our proprietary verification and testing processes.

Configuration vs. Custom Coding. Our solutions can be configured to meet each customer's business needs through configuration rather than custom code. The configuration capabilities define both a business layer (including definition of user workflows, executive dashboards, analytics views, calculations, approval processes and alerts), as well as a data layer that permits configuration of data structures, including hierarchical dimensions, pricing levels and measures. Much of the configuration can be performed by a business user without information technology personnel involvement. We maintain configurations allowing our customers to use the latest version of our solutions.

Scalability. We leverage modern big data technologies such as MapReduce and Hadoop®, NoSQL databases such as Cassandra and MongoDB®, and in-memory and column-oriented data stores to scale to large data volumes and high user request rates. The scalability of our software solutions has been tested and validated in conjunction with third-party vendors.

Data Integration. The data needed to execute and optimize sales, quoting, pricing, rebate and revenue management functionality typically resides in multiple sources, such as a company's enterprise resource planning ("ERP"), supply chain management ("SCM"), customer relationship management ("CRM"), reservations and inventory systems, and/or industry-specific transaction systems. In addition, productivity tools such as spreadsheets and external market data sources are common. Our data integration capabilities utilize web services and file-based data interfacing to bring data from disparate sources together into a single cohesive database, both in real time and through scheduled batch tasks. We also provide certified content for integration with SAP as well as integration development services using industry standard tools.

User Interface. Our technology provides a rich, browser-based interface that supports both local and remote users. This interface supports a wide variety of interactive charts and other data views, and provides a comprehensive data security model based on user role and scope of responsibility. We also offer capabilities for multiple mobile devices, tablets, CRM systems, and client applications.

Cloud Infrastructure. Our SaaS solutions are fully architected, scaled and managed by PROS to meet enterprise-class data demands. We currently deliver our solutions from enterprise cloud computing platform providers, including Microsoft Azure and IBM Softlayer, as well as from secure co-location data centers operated by third parties. Our infrastructure is designed to achieve high levels of security, scalability, performance and availability. We provide a highly secure computing environment as well as high application availability.

Subscription Services

Our subscription services generally provide customers access to our software within a cloud-based IT environment that we manage and offer to customers on a subscription basis and allow our customers to benefit from our latest cloud solutions, reduce infrastructure, installation, and ongoing administration requirements. We historically also offered cloud-based services to allow existing customers who previously purchased licenses to our software to have access to that software within a cloud-based IT environment that we manage. This allows those customers to reduce infrastructure and ongoing administration requirements as an alternative to their on-premise deployment of our software. We generally offer these services via 24 to 60 month contracts with pricing based on the data volumes, number of users and service levels requested.

Sales and Marketing

We sell and market our software solutions primarily through our direct global sales force and indirectly through resellers and systems integrators. Our sales force is organized by our target markets of the manufacturing, distribution, and services industries, including automotive and industrial, business-to-business ("B2B") services, cargo, chemicals and energy, consumer goods, insurance, food and beverage, healthcare, high tech, and travel. Our sales force is responsible for the worldwide sale of our solutions to new and existing customers, and works in concert with our solutions personnel for selling and providing solution demonstrations to new customers.

Our marketing activities consist of a variety of programs designed to generate sales leads and build awareness of our solutions. We host conferences for sales, pricing, and revenue management professionals, host informational web seminars and participate in and sponsor other industry and trade conferences and organizations.

Professional Services

We provide software-related professional services, including implementation and configuration services, consulting and training.

Implementation and Configuration

Our software solution implementations have a standardized and tested implementation process developed through years of experience implementing our software solutions in global enterprises across multiple industries. Our professional services team works closely with our customers to develop an integrated project plan to help them accelerate time to value. Pursuant to these plans, we provide configuration services related to our solutions. We also assist customers in loading and validating data and supporting organizational activities to assist our customers' transition from awareness of their pricing challenges to adoption of pricing excellence best practices. In addition to our own internal professional services team, we also work with a team of globally diverse partners who have been certified to implement our software.

Strategic Services

Our strategic services include discovery and insight consulting to analyze a customer's current pricing processes and data, identifying and prioritizing specific high-value pricing opportunities, and recommending pricing best practices and strategic pricing services. We also offer change management, pricing process redesign, pricing organizational design, opportunity assessment and performance management consulting. These strategic services enhance our partnerships with our customers and help them achieve their specific pricing goals.

Training

We offer training to both our customers and partners to increase the knowledge and skills to deploy and use the full functionality of our software solutions. We offer an array of live and virtual classroom training, as well as tailored, private on-site classroom training. Our courses include training on all aspects of our software solutions, from introductory on-demand mini-courses to multi-day hands-on deep technical classroom sessions.

Maintenance and Support

We offer ongoing maintenance and support services for our software solutions using a global model to support our customers across major geographies. Maintenance enrollment entitles a customer to solicit support through a web-based interface which allows the customer to submit and track issues, access our online knowledge base and receive unspecified upgrades, maintenance releases and bug fixes during the term of the support period on a when-and-if-available basis. In addition, our customer support personnel responds to customer issues using an escalation process that prioritizes reported issues based on a defined set of severity levels, as well as assists customers in deploying our standard releases for each software solution by providing release web seminars and documentation. Maintenance fees are an important source of recurring revenue, and we invest significant resources in providing these services. Revenue from maintenance and support services comprised 41%, 45%, and 38% of our total revenue in 2017, 2016 and 2015, respectively. We expect our maintenance revenue will decrease over time as a result of existing customers migrating from our on-premise solutions to our cloud solutions and customers purchasing fewer licenses to our software as a result of our cloud strategy.

Customers

We sell our software solutions to customers across many industries, including manufacturing, distribution, and services industries, including automotive and industrial, B2B services, cargo, chemicals and energy, consumer goods, insurance, food and beverage, healthcare, high tech, and travel. Our customers are generally large global enterprises, although we also have customers that are much smaller in scope of operations. In each of 2017, 2016 and 2015, we had no single customer that accounted for 10% or more of revenue.

International Operations

We are a global company that conducts sales, sales support, professional services, product development and support, and marketing around the world. Our headquarters is located in Houston, Texas, and we also have additional field operations through our operating subsidiaries in Australia, Bulgaria, Canada, France, Germany, Ireland, United Arab Emirates, United Kingdom and the United States. We conduct development activities predominantly in Bulgaria, France and the U.S., and also utilize third-party contractors in Bolivia, Colombia and India. We plan to continue to expand our operations in international locations to meet the strategic objectives of our business.

Approximately 63%, 63%, and 62% of our total revenue came from customers outside the U.S. for the years ended December 31, 2017, 2016 and 2015, respectively. Our business, financial condition and results of operations could be adversely impacted by factors, including currency fluctuations or regulatory, political, social and economic developments or instability in the foreign jurisdictions in which we operate. *For additional financial information about geographic areas, see Note 15 of the Notes to the Consolidated Financial Statements.*

Seasonality

Historically, we have experienced a higher volume of transactions in the quarter ended December 31, which is our fourth fiscal quarter, and to a lesser extent, during other fiscal quarters. However, our transition to cloud strategy has moderated, and may continue to moderate, our historical seasonality trends.

Competition

The markets for our products and services are competitive, fragmented and rapidly evolving. For example, we have seen consolidation in the quoting software market with large vendors acquiring smaller quoting companies as they attempt to provide end-to-end solutions to drive sales and profit. Today, we are increasingly competing in a sales ecosystem with competitors that all aim to drive effectiveness and efficiency in selling, although we believe no single company has an offering that matches the integrated capabilities of our solutions. We face collective competition from a number of larger and smaller companies. For example, Vendavo and Zilliant compete against the pricing management features of our revenue and profit realization solutions. Others, such as Apttus, Oracle, and Salesforce.com compete against the quoting features of our revenue and profit realization

solutions. Yet others, such as Sabre Airline Solutions, Amadeus and AirRM, compete against a portion of our revenue management solutions in the airline industry. Several large enterprise application providers, such as JDA Software and SAP, have developed offerings that include limited pricing and revenue management functionality. Our solutions also compete with custom solutions developed internally by businesses, which require some combination of manual processes, external consultants, spreadsheets and internally-developed software tools.

The number of companies that we compete with has increased in recent years as we expanded into adjacent technologies. We believe our customers consider the following factors when evaluating our solutions versus competitive solutions:

- customer base;
- industry domain expertise;
- breadth and depth of product and service offerings;
- ability to offer integrated high-value solutions;
- domain management best practices expertise and delivery;
- ability for users to configure the solution to their needs;
- depth of expertise in data and pricing science;
- real-time solutions;
- return on investment, total cost of ownership, and time-to-value;
- product architecture, functionality, performance, reliability and scalability;
- services and customer support quality;
- size and quality of partner ecosystem;
- existing customer relationships; and
- vendor viability.

We believe that none of our competitors can provide all of the functionality needed to support an organization interested in optimizing sales growth through data science-driven pricing, quoting and revenue management. Our competitors generally compete on price and by bundling their applications with other enterprise applications, and we expect that this will continue in the future. We distinguish ourselves from these vendors through our long history of providing software solutions incorporating data science, machine learning, and/or artificial intelligence, the breadth and depth of the functionality we offer, the robust integration and configuration capabilities of our solutions, and our proven ability to provide high-value dynamic science-based optimization software to our global customer base across multiple industries. In the future, we believe our competition will continue to increase as more companies move into our market segment and as we expand into adjacent market segments.

Intellectual Property and Other Proprietary Rights

Our success and ability to compete is dependent in part on our ability to develop and maintain the proprietary aspects of our technology and operate without infringing upon the proprietary rights of others. Due to the rapidly changing nature of applicable technologies and current limitations in U.S. patent law, we believe that for the improvement of existing solutions and development of new solutions, reliance upon trade secrets and unpatented proprietary know-how are generally more advantageous for us than patent and trademark protection. We also rely on a combination of trade secrets, confidentiality procedures, contractual provisions, patents, trademarks, copyrights and other similar measures to protect our proprietary information.

Research and Development

We believe our software innovation is the foundation of our business and accordingly have made, and continue to make significant investments in research and development for the enhancement of existing products and services and the development of new products and services. We also believe that our long-term investment in artificial intelligence and machine learning of pricing and revenue management differentiates us from our competitors. We are committed to continuing to further development of these high-value solutions as evidenced by our continued investment in research and development. In fiscal 2017, 2016 and 2015, we incurred expenses of \$56.0 million, \$52.8 million and \$46.8 million, respectively, in research and development to enhance our existing portfolio of solutions and to develop new solutions. Our research and development expenses include costs associated with our product management, product development and science and research groups. We conduct research and development activities predominantly in the U.S. and to a lesser extent in Bulgaria and France.

We employ scientists, most of whom are Ph.D.s, to advance sales, pricing, and revenue management technology and its implementation in our software solutions. These scientists have specialties including, but not limited to, operations research, management science, statistics, econometrics, and computational methods. Our scientists regularly interact with our customers, product development, sales, marketing, and professional services staff to help keep our science efforts relevant to real-world demands.

Employees

As of December 31, 2017, we had 1,066 full-time personnel, which included 934 employees and 132 outsourced personnel. We have not experienced any work stoppages and consider our employee relations to be good.

Website

We maintain a website at www.pros.com. No information on our website is incorporated by reference herein. We make available, free of charge through our website, our Annual Report on Form 10-K, Quarterly Reports on Form 10-Q, Current Reports on Form 8-K, including exhibits thereto, and any amendments to those reports filed or furnished pursuant to Section 13(a) or 15(d) of the Exchange Act, as soon as reasonably practicable after the reports are electronically filed with or furnished to the SEC. Our reports that are filed with, or furnished to, the SEC are also available at the SEC's website at www.sec.gov. You may also read and copy any materials we file with the SEC, free of charge, at the SEC's Public Reference Room at 100 F Street, N.E., Washington, DC 20549. You may obtain information on the operation of the Public Reference Room by calling the SEC at 1-800-SEC-0330.

Annual CEO Certification

Pursuant to Section 303A.12(a) of the New York Stock Exchange ("NYSE") Listed Company Manual, we submitted to the NYSE an annual certification signed by our Chief Executive Officer certifying that he was not aware of any violation by us of NYSE corporate governance listing standards on June 8, 2017.

Item 1A. Risk Factors

We operate in a dynamic environment that involves numerous risks and uncertainties. The following section describes some of the risks that may adversely affect our business, financial condition or results of operations, and the trading price of our common stock; these risks are not necessarily listed in terms of their importance or level of risk.

Risks relating to our business and industry

If our security measures are breached and unauthorized access is obtained to a customer's data, our data or our IT systems, our solutions may be perceived as not being secure, customers may curtail or stop using our solutions and/or we may incur significant legal and financial exposure and liabilities.

Our solutions and services involve the storage, and to a more limited extent, the transmission of our customers' proprietary information. Despite the implementation of security measures and third-party security attestations, these systems may still be vulnerable to data theft, computer viruses, malicious software programs, programming errors, attacks by third parties or similar disruptive problems, and could result in someone obtaining unauthorized access to our customers' data or our data, including our intellectual property and other confidential business information, or our IT systems. Because the techniques used to compromise systems change frequently and may not be recognized until launched, we may be unable to anticipate these techniques or to implement adequate preventative measures. In addition, the costs to prevent, eliminate or alleviate security vulnerabilities, computer viruses, malicious software programs, and other attacks by third parties are significant. Our efforts to address these problems may not be successful and could result in interruptions, delays, cessation of service and loss of existing or potential customers. We cannot predict the extent, frequency or impact of these problems on us. Any security breach could result in a loss of confidence in the security of our solutions and services, damage our reputation, negatively impact our future sales, disrupt our business, increase our information security costs, and lead to indemnity obligations, legal liability and other costs.

We depend on third-party data centers and other unrelated service providers and any disruption in these operations could impair the delivery of our service and negatively affect the market for our cloud solutions.

Our cloud products are dependent upon third-party hardware, software and cloud hosting vendors, including Microsoft Azure and IBM Softlayer, all of which must inter-operate for end users to achieve their computing goals. We utilize third-party data center hosting facilities, cloud platform providers, and other service providers to host and deliver our subscription services as well as for our own business operations. While we control and generally have exclusive access to our servers and all of the components of our network that are located in our external data centers, we do not control the operation of these facilities and they are vulnerable to damage or interruption from earthquakes, floods, fires, power loss, telecommunications failures and similar events. They may also be subject to security incidents, break-ins, sabotage, intentional acts of vandalism and similar misconduct. Despite our failover capabilities, standard protocols and other precautions taken at these facilities, the occurrence of a natural disaster or an act of terrorism, a decision to close the facilities without adequate notice or other unanticipated problems at these facilities could result in lengthy interruptions in our service.

In addition, these providers have no obligation to renew their agreements with us on commercially reasonable terms, or at all. If we are unable to renew these agreements on commercially reasonable terms, or if one of our data center operators is acquired, we may be required to transfer our servers and other infrastructure to new data center facilities, and we may incur significant costs and possible service interruption in connection with doing so. Any interruptions or delays in these hosted services, or security or privacy breaches, could damage our reputation, negatively impact our future sales, disrupt our business, and lead to legal liability and other costs.

Furthermore, certain of our applications are essential to our customers' ability to price their products or services. Any interruption in our service may affect the availability, accuracy or timeliness of pricing information and as a result could damage our reputation, cause our customers to terminate their use of our solutions, require us to issue service credits to our customers, require us to indemnify our customers against certain losses, and prevent us from gaining additional business from current or future customers.

Expanding and evolving data privacy laws and regulations could impact our business and expose us to increased liability.

We provide our cloud software solutions globally, including in countries that have more stringent regulations than the U.S., including regulations relating to data privacy and the unauthorized use of, or access to, and retention of commercial and personal information. These data protection laws may be inconsistent across jurisdictions, and are subject to interpretation, particularly in the EU, where the regulatory framework for privacy is actively evolving and is likely to remain uncertain for the

foreseeable future. For example, the EU General Data Protection Regulation ("GDPR") becomes effective in May 2018, and imposes new requirements regarding the handling of personal data. The GDPR and other changes in laws or regulations, which enhance protection of certain types of data, could increase our cost of providing our products and services, limit us from offering certain solutions in certain jurisdictions, and could impact our new technology innovation related to artificial intelligence and machine learning. In addition, our cloud software solutions store data on behalf of our customers, and if our customers fail to comply with contractual obligations or applicable laws, it could result in litigation or reputational harm to us. Any inability to adequately address privacy concerns, even if unfounded, or to comply with more complex and numerous privacy or data protection laws, regulations and privacy standards, could result in liability to us, damage our reputation, inhibit sales of our solutions and could harm our business, financial condition and results of operations.

Our cloud offerings bring other business and operational risks compared to our legacy on-premises software.

The enterprise cloud computing market is less mature than the market for on-premise enterprise software, and may not be as broadly accepted as on-premise software in the enterprise market, particularly given that customers use our software for important aspects of their business. Prospects and customers may be reluctant or unwilling to use a cloud-based solution due to cost, security, privacy or other concerns, which could delay our sales cycles if we need to educate customers about our cloud solutions. In addition, any errors, defects, disruptions in service or other performance problems could hurt our reputation, may damage our customers' businesses, our customers could elect to not renew, delay or withhold payment to us, we could lose future sales, or customers may make other claims against us, which could harm our subscription revenues, result in an increase in our provision for doubtful accounts, increase collection cycles for our accounts receivable or lead to the expense and risk of litigation.

While we plan to increase our focus on migrating our legacy on-premises software customers to our latest cloud solutions in 2018, our existing customers who purchased licenses to our software may have invested substantial personnel and financial resources in our legacy software, and although we intend to continue to support our perpetual license customers. If our migration efforts are not successful, our internal development and customer support teams could find it increasingly difficult and costly to support both traditional software installed by customers and software delivered as a service.

We are experiencing reduced revenues and corresponding cash flow without a corresponding decrease in expenses as a result of our cloud strategy, which may continue for longer than we expect.

We expect our expenses to exceed our revenues and cash flow in the near term as we continue to make investments as part of our cloud strategy, particularly in new product development, security, privacy and cloud operations. Our ability to return to profitability depends on our ability to: continue to drive subscription sales, develop enhancements to our existing products and develop new products, build our sales and marketing and product development organizations, successfully execute our marketing and sales strategies, enter into and maintain beneficial channel relationships, appropriately manage our expenses, and identify and acquire companies or assets at attractive valuations. If we are not able to execute on these actions and grow our revenue and corresponding cash flows to offset these expected costs, our business may not grow as we anticipate, our operating results could be adversely affected and we may continue to incur net losses, on a GAAP basis, in the future. Additionally, operating margins on our cloud-only products may be lower than those we have achieved on our more mature products, and our new initiatives may not generate sufficient revenue and cash flows to recoup our investments in them. If any of these events were to occur, it could adversely affect our business, results of operations and financial condition.

We are a multinational corporation, which subjects us to increased risks that may adversely affect our operating results.

The majority of our revenues are derived from our customers outside the U.S. For the years ended December 31, 2017, 2016 and 2015, approximately 63%, 63% and 62% of our total revenue, respectively, was derived from outside the U.S. To date, the majority of our sales have been denominated in U.S. dollars, although the majority of our expenses that we incur in our international operations are denominated in local currencies. To date, we have not used risk management techniques or "hedged" the risks associated with fluctuations in foreign currency exchange rates. Consequently, our results of operations and financial condition, including our revenue and operating margins, are subject to losses from fluctuations in foreign currency exchange rates.

Our operations outside the U.S. are subject to risks inherent in doing business internationally, requiring resources and management attention, and may subject us to new or larger levels of regulatory, economic, foreign currency exchange, tax and political risks. We have customers in over 55 countries internationally, which we service through our operations in the U.S. as well as from the United Kingdom, France, Bulgaria, Germany, Canada, Ireland and Australia (through wholly-owned subsidiaries). We expect our international operations to continue to grow. Among the risks we believe are most likely to affect us with respect to our international sales and operations are:

- economic conditions in various parts of the world;

- differing labor and employment regulations, especially in the European Union, where labor laws are generally more advantageous to employees as compared to the U.S., including hourly wage and overtime regulations and employee termination restrictions or related costs;
- multiple, conflicting and changing data privacy laws and regulations that result in increased complexity and costs;
- the difficulty of managing and staffing our international operations and the increased travel, infrastructure and legal compliance costs associated with multiple international locations;
- different and more stringent data protection, privacy and other laws, including data localization requirements;
- unexpected changes in regulatory requirements;
- less favorable intellectual property laws;
- new and different sources of competition;
- costs of compliance and penalties for noncompliance with foreign laws and laws applicable to companies doing business in foreign jurisdictions;
- multiple, conflicting and changing tax laws and regulations that may affect both our international and domestic tax liabilities and result in increased complexity and costs;
- availability of broadband and network connectivity required for certain of our products;
- difficulties in enforcing contracts and collecting accounts receivable, especially in developing countries; and
- tariffs and trade barriers, import and export controls and other regulatory or contractual limitations on our ability to sell or develop our solutions in certain foreign markets.

If we continue to expand our business globally, our success will depend, in large part, on our ability to anticipate and effectively manage these and other risks associated with our international operations. Our failure to manage any of these risks successfully could harm our international operations and reduce our international sales, adversely affecting our business, operating results and financial condition.

As we expand our software product portfolio, we could face increased competition as part of entering new markets.

The market for our products is competitive, and we expect competition to continue to increase in the future as we expand our product portfolio and features. We may not compete successfully against future potential competitors, especially those with significantly greater financial resources or brand name recognition. For example, we compete with sales enablement, configure-price-quote, revenue management, and through PROS Travel Commerce (formerly Vayant), we now compete with airline shopping and merchandising software. Large companies in these spaces may have advantages over us because of their greater brand name recognition, larger customer bases, broader product portfolios, larger distribution channels, or greater financial, technical and marketing resources. As a result, they may be able to adapt more quickly to new or emerging technologies and changes in customer requirements.

If our new products and product enhancements do not achieve sufficient market acceptance, our results of operations and competitive position could suffer.

We spend substantial amounts of time and money to enhance our existing products, as well as to research and develop new products. We introduce new products and incorporate additional features, improve functionality or add other enhancements to our existing products in order to meet our customers' demands. Our new products or enhancements could fail to attain sufficient market acceptance for many reasons, including:

- delays in introducing new, enhanced or modified products;
- defects, errors or failures in any of our products;
- inability to operate effectively with the networks of our prospective customers;
- inability to protect against new types of attacks or techniques used by hackers;
- negative publicity about the performance or effectiveness of our network security products;
- reluctance of customers to purchase products based on open source software; and
- disruptions or delays in the availability and delivery of our products.

If our new products or enhancements do not achieve adequate acceptance in the market, our competitive position could be impaired, our revenue could be diminished and the effect on our operating results may be particularly acute because of the significant research and development, marketing, sales and other expenses we incurred in connection with the new product.

We focus primarily on sales, pricing and revenue management software, and if the markets for this software develop more slowly than we expect, our business could be harmed.

We derive most of our revenue from providing our solutions for selling, pricing and revenue management, implementation services and ongoing customer support. The sales and pricing market is evolving rapidly, and it is uncertain whether this software will achieve and sustain high levels of demand and market acceptance. Our success would depend on the willingness of businesses to use sales and pricing software in the manufacturing, distribution and services industries, including automotive and industrial, B2B services, cargo, chemicals and energy, consumer goods, insurance, food and beverage, healthcare, high tech, and travel.

Some businesses may be reluctant or unwilling to implement sales and pricing software for a number of reasons, including failure to understand the potential returns of improving their processes and lack of knowledge about the potential benefits that such software may provide. Some businesses may elect to improve their pricing processes through solutions obtained from their existing enterprise software providers, whose solutions are designed principally to address functional areas other than pricing. These enterprise solutions may appeal to customers that wish to limit the number of software vendors on which they rely and the number of different types of solutions used to run their businesses.

If businesses do not embrace the benefits of sales and pricing software, the sales and pricing software market may not continue to develop or may develop more slowly than we expect, either of which would significantly and adversely affect our revenue and operating results. Because the sales and pricing software market is developing and the manner of its development is difficult to predict, we may make errors in predicting and reacting to relevant business trends, which could harm our operating results.

We are subject to a lengthy sales cycle and delays or failures to complete sales may harm our business and cause our revenue and operating income to decline in the future.

While our sales cycle times have improved since we shifted to a cloud strategy in 2015 relative to our prior historical averages, our sales cycle may take several months to over a year. To sell our solutions successfully and obtain an executed contract, we often have to educate our potential customers about the benefits of our solutions. We expend substantial resources during our sales cycles with no assurance that a sale may ultimately result. The length of each individual sales cycle depends on many factors, a number of which we cannot control, including the customer's internal evaluation and approval process requirements as well as the customer's budget constraints. Any unexpected lengthening of the sales cycle or failure to secure anticipated orders could negatively affect our revenue. Furthermore, a delay in our ability to obtain a signed agreement or to complete certain contract requirements in a particular quarter could materially reduce our bookings in that quarter. Any significant failure to generate revenue or delays in recognizing revenue after incurring costs related to our sales or services process could also have a material adverse effect on our business, financial condition and results of operations.

Failure to sustain our historical renewal rates and pricing would adversely affect our future revenue and operating results.

Our subscription agreements are typically for an initial term of three years, and maintenance and support agreements are typically for an initial term of two years. Our customers have no obligation to renew their subscriptions for our services after the expiration of their initial term, and some customers elect not to renew. Historically, maintenance and support revenue has represented a significant portion of our total revenue, including approximately 41%, 45% and 38% of our total revenue for the years ended December 31, 2017, 2016 and 2015, respectively. Subscription revenue has represented an increasingly significant portion of our total revenue, including approximately 36%, 25% and 17% of our total revenue for the years ended December 31, 2017, 2016 and 2015, respectively.

We cannot provide assurance that we will be able to accurately predict future customer renewal rates. Our customers' renewal rates may decline or fluctuate as a result of a number of factors, including their level of satisfaction with our services, our ability to continue to regularly add functionality, the reliability (including uptime) of our subscription services, the prices of our services, the actual or perceived information security of our systems and services, mergers and acquisitions affecting our customer base, reductions in our customers' spending levels, or declines in customer activity as a result of economic downturns or uncertainty in financial markets. If our customers choose not to renew their subscription, maintenance and support agreements with us on favorable terms or at all, our business, operating results and financial condition could be harmed. Our opportunity for future growth is also affected by our ability to sell additional features and services to our current customers, which depends on a number of

factors, including our customers' satisfaction with our products and services, the prices of our solutions and general economic conditions. If our efforts to cross-sell and upsell to our customers are unsuccessful, the rate at which our business grows might decline.

We might not generate increased business from our customers, which could limit our revenue in the future.

We sell our software solutions to both new customers and existing customers. Many of our existing customers initially purchase our software solutions for a specific business segment or a specific geographic location within their organization and later purchase additional software solutions for the same or other business segments and geographic locations within their organization. These customers might not choose to make additional purchases of our software solutions or to expand their existing software solutions to other business segments. In addition, as we deploy new applications and features for our software solutions or introduce new software solutions, our current customers could choose not to purchase these new offerings. If we fail to generate additional business from our existing customers, our revenue could grow at a slower rate or even decrease.

Competition from vendors of sales, pricing, revenue management and configure-price-quote solutions as well as from companies internally developing their own solutions could adversely affect our ability to sell our solutions and could result in pressure to price our solutions in a manner that reduces our margins and harms our operating results.

The sales, pricing, revenue management and configure-price-quote software market is competitive, fragmented and rapidly evolving. Our software solutions compete with both solutions developed internally by businesses as well as those solutions offered by competitors. We believe our principal competition consists of sales, pricing, revenue management and configure-price-quote software vendors, including a number of vendors that provide portions of such software for specific industries; as well as large enterprise application providers that have developed offerings that include sales, pricing, revenue management and configure-price-quote functionality.

We expect additional competition from other established and emerging companies to the extent the sales, pricing, revenue management and configure-price-quote software market continues to develop and expand. We also expect competition to increase as a result of the entrance of new competitors in the market and industry consolidation, including through a merger or partnership of two or more of our competitors or the acquisition of a competitor by a larger company. A number of our current and potential competitors have larger installed bases of users, longer operating histories, broader distribution and greater name recognition than we have. In addition, many of these companies have significantly greater resources than we have. As a result, these companies may be able to respond more quickly to new or emerging technologies and changes in customer demands, and devote greater resources to the development, promotion and sale of their products.

Competition could seriously impede our ability to sell our software solutions and services on terms favorable to us. We do not know how our competition could set prices for their products. Businesses may internally develop solutions, rather than invest in commercially-available solutions. Our current and potential competitors may develop and market new technologies that render our existing or future solutions obsolete, unmarketable or less competitive. In addition, if these competitors develop solutions with similar or superior functionality to our solutions, or if they offer solutions with similar functionality at a substantially lower price than our solutions, we may need to decrease the prices for our solutions in order to remain competitive. If we are unable to maintain our current solutions, services and maintenance pricing due to competitive pressures, our margins could be reduced and our operating results could be adversely affected. We cannot provide assurance that we would be able to compete successfully against current or future competitors or that competitive pressures could not materially and adversely affect our business, financial condition and operating results.

Any unauthorized, and potentially improper, actions of our personnel could adversely affect our business, operating results and financial condition.

The recognition of our revenue depends on, among other things, the terms negotiated in our contracts with our customers. Our personnel may act outside of their authority and negotiate additional terms without our knowledge. We have implemented policies to help prevent and discourage such conduct, but there can be no assurance that such policies would be followed. For instance, in the event that our sales personnel negotiate terms that do not appear in the contract and of which we are unaware, whether such additional terms are written or verbal, we could be prevented from recognizing revenue in accordance with our plans. Furthermore, depending on when we learn of unauthorized actions and the size of the transactions involved, we may have to restate revenue for a previously reported period, which could seriously harm our business, operating results and financial condition.

We recently completed our third acquisition, and in the future may continue to enter into acquisitions that may be difficult to integrate, fail to achieve our strategic objectives, disrupt our business, dilute stockholder value or divert management attention.

In August 2017, we completed our third acquisition with the purchase of Vayant Travel Technologies Inc. ("Vayant"). The purchase of Vayant has required and will continue to require significant management time and attention during the acquisition and integration process. In the future we may continue to acquire other businesses, technologies and products that we intend to complement our existing business, solutions, services and technologies. We cannot provide assurance that the acquisitions we have made or may make in the future could provide us with the benefits or achieve the results we anticipated when entering into the transaction. Acquisitions are typically accompanied by a number of risks, including:

- difficulties in integrating the operations and personnel of the acquired companies;
- difficulties in maintaining acceptable standards, controls, procedures and policies, including integrating financial reporting and operating systems, particularly with respect to foreign and/or public subsidiaries;
- disruption of ongoing business and distraction of management;
- inability to maintain relationships with customers of the acquired business;
- impairment of relationships with employees and customers as a result of any integration of new management and other personnel;
- difficulties in incorporating acquired technology and rights into our solutions and services;
- unexpected expenses resulting from the acquisition; and
- potential unknown liabilities associated with the acquisition.

In addition, we may incur debt, acquisition-related costs and expenses, restructuring charges and write-offs as a result of acquisitions. Acquisitions may also result in goodwill and other intangible assets that are subject to impairment tests, which could result in future impairment charges.

We may enter into negotiations for acquisitions that are not ultimately consummated. Those negotiations could result in diversion of management time and significant out-of-pocket costs. If we fail to evaluate and execute acquisitions successfully, we may not be able to achieve our anticipated level of growth and our business and operating results could be adversely affected.

If our goodwill or amortizable intangible assets become impaired, then we could be required to record a significant charge to earnings.

Under GAAP, we review our goodwill and amortizable intangible assets for impairment when events or changes in circumstances indicate the carrying value may not be recoverable. GAAP requires us to test for goodwill impairment at least annually. Factors that may be considered a change in circumstances indicating that the carrying value of our goodwill or amortizable intangible assets may not be recoverable include declines in stock price, market capitalization or cash flows and slower growth rates in our industry. We could be required to record a significant charge to earnings in our financial statements during the period in which any impairment of our goodwill or amortizable intangible assets were determined, negatively impacting our results of operations.

Any downturn in sales to our target markets could adversely affect our operating results.

Our success is highly dependent upon our ability to sell our software solutions to customers in the manufacturing, distribution and services industries, including automotive and industrial, B2B services, cargo, chemicals and energy, consumer goods, insurance, food and beverage, healthcare, high tech and travel. If we are unable to sell our software solutions effectively to customers in these industries, we may not be able to grow our business. It is uncertain whether our software solutions may achieve and sustain the levels of demand and market acceptance that we anticipate. Such uncertainty is attributable to, among other factors, the following:

- it may be more difficult than we currently anticipate to implement our software solutions in certain verticals within our target industries;
- it may be more difficult than we currently anticipate to increase our customer base in our target industries; and
- our limited experience implementing our software solutions in certain verticals within our target industries.

Our revenue growth has historically been derived from customers in many major industries. Our revenue growth is highly dependent upon continued growth of market acceptance in these industries, and there can be no assurance our solutions may

achieve or sustain widespread acceptance among customers in these industries. Failure to expand market acceptance of our solutions or maintain sales in these industries could adversely affect our operating results and financial condition.

Certain of our software solutions require implementation projects that are subject to significant risks and delays, which if any occurred could negatively impact the effectiveness of our software, resulting in harm to our reputation, business and financial performance.

The implementation of certain our software solutions involves complex, large-scale projects that require substantial support operations, significant resources and reliance on factors that are beyond our control. For example, the success of our implementation projects is heavily dependent upon the quality of data used by our software solutions, and the commitment of customers' resources and personnel to the projects. We may not be able to correct or compensate for weaknesses or problems in data, or any lack of our customers' commitment and investment in personnel and resources. If we are unable to successfully manage the implementation of our software solutions such that those products do not meet customer needs or expectations, we may become involved in disputes with our customers and our business, reputation and financial performance may be significantly harmed. If an implementation project for a large customer or a number of customers is substantially delayed or canceled, our ability to recognize the associated revenue and our operating results could be adversely affected.

If our executives and other key personnel are unable to effectively manage our business, or if we fail to attract additional qualified sales, marketing, professional services, product development and other personnel, our revenue and operating results could be adversely affected.

Our future success depends upon the performance and service of our executive officers and other key sales, marketing, development, science and professional services staff. The failure of our executives and key personnel to effectively manage our business or the loss of the services of our executive officers and other key personnel would harm our operations. In addition, our future success could depend in large part on our ability to attract and retain a sufficient number of highly qualified sales, marketing, professional services, product development and other personnel, and there can be no assurance that we may be able to do so. We have continued to add a significant number of new personnel to support our continued growth, and their ability to learn our business and manage it effectively could be important to our continued growth and expansion. In addition, given the highly sophisticated data science included in our solutions, the pool of data scientists and software developers qualified to work on our solutions is limited. The implementation of certain of our software solutions requires highly-qualified personnel, and hiring and retaining such personnel to support our growth may be challenging. Competition for such qualified personnel is intense, and we compete for these individuals with other companies that have greater financial, technical, marketing, service and other resources than we do. If our key personnel are unable to effectively manage our business, or if we fail to attract additional qualified personnel, our operating results could be adversely affected.

If we cannot maintain our corporate culture, we could lose the innovation, teamwork and passion that we believe contribute to our success, and our business may be harmed.

If we cannot maintain our corporate culture, we could lose the innovation, teamwork and passion that we believe contribute to our success, and our business may be harmed. We invest substantial time and resources in building and maintaining our culture. Any failure to preserve our culture could negatively affect our future success, including our ability to retain and recruit personnel and to effectively pursue our strategic objectives.

We incurred indebtedness by issuing the 2019 and 2047 convertible notes, and our debt repayment obligations may adversely affect our financial condition and cash flows from operations in the future.

In June 2017, we issued \$106.3 million principal amount of 2.0% convertible senior notes ("2047 Notes") due June 1, 2047, unless earlier redeemed, purchased or converted in accordance with their terms prior to such date. Each holder of the 2047 Notes has the right to require us to repurchase for cash, such holder's 2047 Notes on June 1, 2022 on the terms set forth in the note indenture. Interest is payable semi-annually in arrears on June 1 and December 1 of each year. In December 2014, we issued \$143.8 million principal amount of 2.0% convertible senior notes ("2019 Notes" and collectively with the 2047 Notes, the "Notes") due December 1, 2019, unless earlier purchased or converted. Interest is payable semi-annually in arrears on June 1 and December 1 of each year.

Our indebtedness could have important consequences because it may impair our ability to obtain additional financing in the future for working capital, capital expenditures, acquisitions and general corporate or other purposes, and a portion of our cash flows from operations may have to be dedicated to repaying the principal beginning in 2019 or earlier if necessary. Our ability to meet our debt obligations will depend on our future performance, which will be affected by financial, business, economic, regulatory and other factors. We cannot control many of these factors. Our future operations may not generate sufficient cash to enable us to

repay our debt. If we fail to make a payment on our debt, we could be in default on such debt. If we are at any time unable to pay our indebtedness when due, we may be required to renegotiate the terms of the indebtedness, seek to refinance all or a portion of the indebtedness or obtain additional financing. There can be no assurance that, in the future, we will be able to successfully renegotiate such terms, that any such refinancing would be possible or that any additional financing could be obtained on terms that are favorable or acceptable to us.

Certain of our projects are accounted for on a percentage-of-completion method as well as fixed-fee arrangements and are based on our use of estimates, which if inaccurate, could reduce our revenue and profitability.

Timing of our revenue recognition on our contractual arrangements varies based on the nature of the performance obligations in each contract and the associated contract terms. For projects accounted for on a percentage-of-completion method, the effort required to complete our implementation may be difficult to estimate, as the length of the implementation depends on the number of software solutions purchased and the scope and complexity of the customer's deployment requirements. Similarly, we may price implementation arrangements on a fixed-fee basis. If we underestimate the amount of effort required to implement our software solutions under these fixed-fee arrangements, our profitability could be reduced. Moreover, if the actual costs of completing the implementation exceed the agreed upon fixed price, we could incur a loss on the arrangement. If we are unable to accurately estimate the overall total man-days required to implement our software solutions, such inaccuracies could result in estimated project costs exceeding contracted revenue, could also have a material effect on the timing of our revenue recognition, and could adversely impact our quarterly or annual operating results.

Changes in accounting principles or standards, or in the way they are applied, could result in unfavorable accounting charges or effects and unexpected financial reporting fluctuations, and could adversely affect our reported operating results.

We prepare our consolidated financial statements in conformity with GAAP. These principles are subject to interpretation by the SEC and various bodies formed to interpret and create appropriate accounting principles and guidance. A change in existing principles, standards or guidance, in particular those related to revenue recognition, can have a significant effect on our reported results, may retroactively affect previously reported results, could cause unexpected financial reporting fluctuations, and may require us to make costly changes to our operational processes and accounting systems.

The Financial Accounting Standards Board ("FASB") is currently working with the International Accounting Standards Board ("IASB") to converge certain accounting principles and to facilitate more comparable financial reporting between companies that are required to follow GAAP and those that are required to follow International Financial Reporting Standards ("IFRS"). These projects may result in different accounting principles under GAAP, which may have a material impact on the way in which we report financial results in areas including, but not limited to, principles for recognizing revenue, lease accounting, and financial statement presentation.

In addition, the SEC may make a determination in the future regarding the incorporation of IFRS into the financial reporting system for U.S. companies. Changes in accounting principles from GAAP to IFRS, or to converged accounting principles, may have a material impact on our financial statements and may retroactively affect the accounting treatment of previously reported transactions.

If we fail to develop or acquire new functionality to enhance our existing software solutions, we may not be able to grow our business and it could be harmed.

The sales, pricing, revenue management, shopping and merchandising software markets are characterized by:

- rapid technological developments;
- newly emerging and changing customer requirements; and
- frequent solution introductions, updates and functional enhancements.

We must introduce enhancements to our existing software solutions in order to meet our business plan, maintain or improve our competitive position, keep pace with technological developments, satisfy increasing customer requirements and increase awareness of software for sales, pricing, configure-price-quote, revenue management, shopping and merchandising generally and of our modern commerce software solutions in particular. Any new functionality we develop may not be introduced in a timely manner and may not achieve market acceptance sufficient to generate material revenue. Furthermore, certain of our competitors could be heavily investing in research and development, and may develop and market new solutions that may compete with, and may reduce the demand for, our software solutions. We cannot provide assurance that we could be successful in developing or otherwise acquiring, marketing and selling new functionality, or delivering updates and upgrades that meet changing industry

standards and customer demands. In addition, we may experience difficulties that could delay or prevent the successful development, marketing and selling of such functionality. If we are unable to develop or acquire new functionality, enhance our existing software solutions or adapt to changing industry requirements to meet market demand, we may not be able to grow our business and our revenue and operating results would be adversely affected.

In addition, because our software solutions are intended to operate on a variety of technology platforms, we must continue to modify and enhance our software solutions to keep pace with changes in these platforms, as well as develop and maintain relationships with platform providers. Any inability of our software solutions to operate effectively with existing or future platforms, or our inability to develop or maintain relationships with significant platform providers, could reduce the demand for our software solutions, result in customer dissatisfaction and limit our revenue.

Defects or errors in our software solutions could harm our reputation, impair our ability to sell our solutions and result in significant costs to us.

Our software solutions are complex and may contain undetected defects or errors. Several of our solutions have recently been developed and may therefore be more likely to contain undetected defects or errors. In addition, we frequently develop enhancements to our software solutions that may contain defects. We have not suffered significant harm from any defects or errors to date. We have in the past issued, and may in the future need to issue, corrective releases of our solutions to correct defects or errors, but we may not be able to detect and correct any such defects or errors before the final implementation of our software solutions. The occurrence of any defects or errors could result in:

- delayed market acceptance and lost sales of our software solutions;
- delays in payment to us by customers;
- damage to our reputation;
- diversion of our resources;
- legal claims, including product liability claims, against us;
- increased maintenance and support expenses; and
- increased insurance costs.

Our agreements with our customers typically contain provisions designed to limit our liability for defects and errors in our software solutions and damages relating to such defects and errors, but these provisions may not be enforced by a court or otherwise effectively protect us from legal claims. Our liability insurance may not be adequate to cover all of the costs resulting from these legal claims. Moreover, we cannot provide assurance that our current liability insurance coverage would continue to be available on acceptable terms. In addition, the insurer may deny coverage on any future claims. The successful assertion against us of one or more large claims that exceeds available insurance coverage, or the occurrence of changes in our insurance policies, including premium increases or the imposition of large deductible or co-insurance requirements, could have a material adverse effect on our business and operating results. Furthermore, even if we prevail in any litigation, we are likely to incur substantial costs and our management's attention may be diverted from our operations.

Intellectual property litigation and infringement claims may cause us to incur significant expense or prevent us from selling our software solutions.

Our industry is characterized by the existence of a large number of patents, trademarks and copyrights, and by frequent litigation based on allegations of infringement or other violations of intellectual property rights. A third-party may assert that our technology violates its intellectual property rights, or we may become the subject of a material intellectual property dispute. Sales, pricing, configure-price-quote, revenue management, shopping and merchandising solutions may become increasingly subject to infringement claims as the number of such commercially available solutions increases and the functionality of these solutions overlaps. In addition, changes in patent laws in the U.S. may affect the scope, strength and enforceability of our patent rights or the nature of proceedings which may be brought by us related to our patent rights. Future litigation may involve patent holding companies or other adverse patent owners who have no relevant product revenue and against whom our own potential patents may therefore provide little or no deterrence. Regardless of the merit of any particular claim that our technology violates the intellectual property rights of others, responding to such claims may require us to:

- incur substantial expenses and expend significant management efforts to defend such claims;
- pay damages, potentially including treble damages, if we are found to have willfully infringed such parties' patents or copyrights;
- cease making, selling or using products that are alleged to incorporate the intellectual property of others;
- distract management and other key personnel from performing their duties for us;
- enter into potentially unfavorable royalty or license agreements in order to obtain the right to use necessary technologies; and
- expend additional development resources to redesign our solutions.

Any licenses required as a result of litigation under any patent may not be made available on commercially acceptable terms, if at all. In addition, some licenses may be nonexclusive, and therefore our competitors may have access to the same technology licensed to us. If we fail to obtain a required license or are unable to design around a patent, we may be unable to effectively develop or market our solutions, which could limit our ability to generate revenue or maintain profitability.

Contract terms generally obligate us to defend and hold our customers harmless, and to a lesser extent to indemnify our customers for their use of the intellectual property associated with our software or for other third-party products that are incorporated into our solutions and that infringe the intellectual property rights of others. If we are unable to resolve our legal obligations by settling or paying an infringement claim or a related indemnification claim as described above, we may be required to compensate our customers under the contractual arrangement with such customers. Our intellectual property defense and indemnification obligations are generally contractually either capped at a very high amount or not capped at all.

If we fail to protect our proprietary rights and intellectual property adequately, our business and prospects may be harmed.

Our success could depend in part on our ability to protect our proprietary methodologies and intellectual property. We rely upon a combination of trade secrets, confidentiality policies, nondisclosure and other contractual arrangements, and patent, copyright and trademark laws to protect our intellectual property rights. We cannot, however, be certain that steps we take to protect our proprietary rights could prevent misappropriation of our intellectual property, or the development and marketing of similar and competing products and services by third parties.

We rely, in some circumstances, on trade secrets to protect our technology. Trade secrets, however, are difficult to protect. In addition, our trade secrets may otherwise become known or be independently discovered by competitors, and in such cases, we could not assert such trade secret rights against such parties. We seek to protect our proprietary technology and processes, in part, by confidentiality agreements with our employees, consultants, customers, scientific advisors and other contractors. These agreements may be breached, and we may not have adequate remedies for any such breach. To the extent that our employees, consultants or contractors use intellectual property owned by others in their work for us, disputes may arise as to the rights in related or resulting know-how and inventions.

The patent position of technology-oriented companies, including ours, is generally uncertain and involves complex legal and factual considerations. The standards that the U.S. Patent and Trademark Office use to grant patents are not always applied predictably or uniformly and can change. Accordingly, we do not know the degree of future protection for our proprietary rights or the breadth of claims allowed in any patents that may be issued to us or to others. Our patents may not contain claims sufficiently broad to protect us against third parties with similar technologies or products, or provide us with any competitive advantage. Moreover, our patents and any patent for which we have licensed or may license rights may be challenged, narrowed, invalidated or circumvented. If our patents are invalidated or otherwise limited, other companies may be better able to develop products that compete with ours, which could adversely affect our competitive business position, business prospects and financial condition.

Any patent application we submit may not result in an issued patent. Patent applications in the U.S. are typically not published until at least 18 months after filing or in some cases not at all, and publications of discoveries in industry-related literature lag behind actual discoveries. We cannot be certain that we were the first to invent the technologies claimed in any pending patent applications or that we were the first to file for patent protection. Additionally, the process of obtaining patent protection is expensive and time-consuming, and we may not be able to prosecute all necessary or desirable patent applications at a reasonable cost or in a timely manner. As a result, we may not be able to obtain adequate patent protection.

In addition, despite our efforts to protect our proprietary rights, unauthorized parties may be able to obtain and use information that we regard as proprietary. The issuance of a patent does not guarantee that it is valid or enforceable. As such, even if we obtain patents, they may not be valid or enforceable against third parties. In addition, the issuance of a patent does not

guarantee that we have a right to practice the patented invention. Third parties may have blocking patents that could be used to prevent us from marketing or practicing our potentially patented products. As a result, we may be required to obtain licenses under these third-party patents. If licenses are not available to us on acceptable terms, or at all, we may not be able to make and sell our software solutions and competitors would be more easily able to compete with us.

We use open source software in our solutions that may subject our software solutions to general release or require us to re-engineer our solutions, which may cause harm to our business.

We use open source software in our solutions and may use more open source software in the future. From time to time, there have been claims challenging the ownership of open source software against companies that incorporate open source software into their products. As a result, we could be subject to lawsuits by parties claiming ownership of what we believe to be open source software. Some open source licenses contain requirements that we make available source code for modifications or derivative works we create based upon the open source software and that we license such modifications or derivative works under the terms of a particular open source license or other license granting third parties certain rights of further use. If we combine our proprietary software solutions with open source software in a certain manner, we could, under certain of the open source licenses, be required to release the source code of our proprietary software solutions. In addition to risks related to license requirements, usage of open source software can lead to greater risks than use of third-party commercial software, as open source licensors generally do not provide warranties or controls on origin of the software. In addition, open source license terms may be ambiguous and many of the risks associated with usage of open source cannot be eliminated, and could, if not properly addressed, negatively affect our business. If we were found to have inappropriately used open source software, we may be required to seek licenses from third parties in order to continue offering our software, to re-engineer our solutions, to discontinue the sale of our solutions in the event re-engineering cannot be accomplished on a timely basis or take other remedial action that may divert resources away from our development efforts, any of which could adversely affect our business, operating results and financial condition.

We utilize third-party software that we incorporate into our software solutions, and impaired relations with these third parties, defects in third-party software or a third party's inability or failure to enhance their software over time could adversely affect our operating performance and financial condition.

We incorporate and include third-party software into our software solutions. If our relations with any of these third parties are impaired, or if we are unable to obtain or develop a replacement for the software, our business could be harmed. The operation of our solutions could be impaired if errors occur in the third-party software that we utilize. It may be more difficult for us to correct any defects in third-party software because the software is not within our control. Accordingly, our business could be adversely affected in the event of any errors in this software. There can be no assurance that these third parties may continue to invest the appropriate levels of resources in their products and services to maintain and enhance the capabilities of their software.

Catastrophic events may disrupt our operations.

Our headquarters are located in Houston, Texas, from which we base our operations, and we conduct business in other domestic and international locations. We also rely on our network and third-party infrastructure and enterprise applications for our sales, marketing, development, operational support, and hosted services. Although we have contingency and business continuity plans in effect for natural disasters or other catastrophic events (including terrorist attacks, power loss, telecommunications failure, cyber-attacks and hurricanes), these events could disrupt our operations. Even though we carry business interruption insurance and typically have provisions in our contracts that protect us in certain events, we might suffer losses as a result of business interruptions that exceed the coverage available under our insurance policies or for which we do not have coverage. Any natural disaster or other catastrophic event could create a negative perception in the marketplace, delay our product innovations, or lead to lengthy interruptions in our services, breaches of data security, and losses of critical data, all of which could have an adverse effect on our operating results.

We incur significant costs as a result of operating as a public company, and our management is required to devote substantial time to compliance initiatives.

As a public company, we incur significant legal, accounting and other expenses. The Sarbanes-Oxley Act of 2002 ("Sarbanes-Oxley") and the Dodd-Frank Wall Street Reform and Consumer Protection Act (the "Dodd-Frank Act"), and rules currently proposed or subsequently implemented by the SEC and NYSE impose heightened requirements on public companies. Our management and other personnel devote a substantial amount of time to these compliance initiatives. We may also need to hire additional personnel to support our compliance requirements. Moreover, these rules and regulations increase our legal and financial costs and make some activities more time-consuming.

If we fail to continue to maintain internal controls over financial reporting in accordance with Section 404 of the Sarbanes-Oxley Act, our market price may be adversely affected.

Section 404 of the Sarbanes-Oxley Act requires our management to assess the effectiveness of our internal control over financial reporting and to provide a report by our registered independent public accounting firm addressing the effectiveness of our internal control over financial reporting. If we are unable to continue to assert that our internal controls over financial reporting are effective, or if a material weakness is identified in our internal controls over financial reporting, or if we are unable to implement internal controls over financial reporting for our acquisitions, our financial results may be adversely affected and we could lose investor confidence in the reliability of our financial statements. Accordingly failure to maintain effective controls over financial reporting may have an adverse effect on the market price of our common stock.

Risks relating to ownership of our common stock, the 2019 Notes and 2047 Notes

Market volatility may affect our stock price and the value of your investment.

The market price for our common stock, and the software industry generally, has been and is likely to continue to be volatile. Volatility could make it difficult to trade shares of our common stock at predictable prices or times. Many factors could cause the market price of our common stock to be volatile, including the following:

- variations in our quarterly or annual operating results;
- decreases in market valuations of comparable companies;
- fluctuations in stock market prices and volumes;
- decreases in financial estimates by equity research analysts;
- announcements by our competitors of significant contracts, new solutions or enhancements, acquisitions, distribution partnerships, joint ventures or capital commitments;
- departure of key personnel;
- changes in governmental regulations and standards affecting the software industry and our software solutions;
- sales of common stock or other securities by us in the future;
- damages, settlements, legal fees and other costs related to litigation, claims and other contingencies;
- deterioration of the general U.S. and global economic condition; and
- other risks described elsewhere in this section.

In the past, securities class action litigation often has been initiated against a company following a period of volatility in the market price of the company's securities. If class action litigation is initiated against us, we may incur substantial costs and our management's attention could be diverted from our operations. All of these factors could cause the market price of our stock to decline, and you may lose some or all of your investment.

Historically, shares of our common stock have been relatively illiquid and trading of our shares could adversely affect the market price of our common stock.

Our common stock has historically been thinly traded, and we have a relatively small public float. Our common stock may be less liquid than the stock of companies with a broader public ownership. In addition, sales of a large volume of our common stock by us or our current or future stockholders, or the perception that sales could occur, may also have a significant impact on its trading price.

Our directors, executive officers, and certain significant stockholders hold a significant portion of our outstanding shares.

Our directors and executive officers collectively control approximately 16% of our issued and outstanding common shares, and together with certain significant stockholders, including investment funds associated with Brown Capital Management, D.F. Dent & Company, Riverbridge Partners, Conestoga Capital Advisors, Daruma Capital Management and BlackRock, control approximately 64% of our issued and outstanding common shares. In the event that these stockholders each independently decided to vote for or against matters requiring stockholder approval, they could influence such matters in ways that may not align with your specific interests as a stockholder, including the election of directors and approval of significant corporate transactions. This

concentration of ownership could affect the market price of our shares if there is a sale by this group of stockholders, and could also have the effect of delaying or preventing a change in control of us even if such change of control could be beneficial to you as a stockholder.

If equity research analysts cease to publish research or reports about us or if they issue unfavorable commentary or downgrade our common stock, the price of our common stock could decline.

The trading market for our common stock relies in part on the research and reports that equity research analysts publish about us and our business. The price of our stock could decline if one or more equity research analysts downgrade our stock or if those analysts issue other unfavorable commentary or cease publishing reports about our business.

Anti-takeover provisions in our Certificate of Incorporation and Bylaws and under Delaware law could make an acquisition of us, more difficult and may prevent attempts by our stockholders to replace or remove our current management.

Our Certificate of Incorporation and Bylaws and Section 203 of the Delaware General Corporation Law contain provisions that might enable our management to resist a takeover of our company. These provisions include the following:

- the division of our board of directors into three classes to be elected on a staggered basis, one class each year;
- a prohibition on actions by written consent of our stockholders;
- the elimination of the right of stockholders to call a special meeting of stockholders;
- a requirement that stockholders provide advance notice of any stockholder nominations of directors or any proposal of new business to be considered at any meeting of stockholders;
- a requirement that a supermajority vote be obtained to amend or repeal certain provisions of our certificate of incorporation; and
- the ability of our board of directors to issue preferred stock without stockholder approval.

In addition, because we are incorporated in Delaware, we are governed by the provisions of Section 203 of the Delaware General Corporation Law, which limits the ability of stockholders owning in excess of 15% of our outstanding voting stock to merge or combine with us. Although we believe these provisions collectively provide for an opportunity to obtain higher bids by requiring potential acquirors to negotiate with our board of directors, they would apply even if an offer were considered beneficial by some stockholders. In addition, these provisions may frustrate or prevent any attempts by our stockholders to replace or remove our current management by making it more difficult for stockholders to replace members of our board of directors, which is responsible for appointing the members of our management.

We do not intend to pay dividends on our common stock in the foreseeable future.

We do not currently anticipate paying any cash dividends on our common stock in the foreseeable future. We currently anticipate that we will retain all of our available cash, if any, for use as working capital, repayment of debt and for other general corporate purposes. Any payment of future dividends would be at the discretion of our board of directors and would depend upon, among other things, our earnings, financial condition, capital requirements, level of indebtedness, statutory and contractual restrictions applying to the payment of dividends and other considerations that the board of directors deems relevant.

The accounting method for convertible debt securities that may be settled in cash, such as the 2019 Notes and 2047 Notes, could have a material effect on our reported financial results.

In May 2008, FASB, issued FASB Staff Position No. APB 14-1, Accounting for Convertible Debt Instruments That May Be Settled in Cash Upon Conversion (Including Partial Cash Settlement), which has subsequently been codified as Accounting Standards Codification 470-20, Debt with Conversion and Other Options, which we refer to as ASC 470-20. Under ASC 470-20, an entity must separately account for the liability and equity components of the convertible debt instruments (such as the Notes) that may be settled entirely or partially in cash upon conversion in a manner that reflects the issuer's economic interest cost. The effect of ASC 470-20 on the accounting for the Notes is that the equity component is required to be included in the additional paid-in capital section of stockholders' equity on our consolidated balance sheet and the value of the equity component would be treated as original issue discount for purposes of accounting for the debt component of the Notes. As a result, we will be required to record a greater amount of non-cash interest expense in current periods presented as a result of the amortization of the discounted carrying value of the Notes to their face amount over the term of the Notes. We will report lower net income in our financial results because ASC 470-20 will require interest to include both the current period's amortization of the debt discount and the instrument's coupon interest, which could adversely affect our reported or future financial results, the trading price of our common stock and

the trading price of the Notes. In addition, under certain circumstances, convertible debt instruments (such as the Notes) that may be settled entirely or partly in cash are currently accounted for utilizing the treasury stock method, the effect of which is that any shares issuable upon conversion of the Notes are not included in the calculation of diluted earnings per share except to the extent that the conversion value of the Notes exceeds their principal amount. Under the treasury stock method, for diluted earnings per share purposes, the transaction is accounted for as if the number of shares of common stock that would be necessary to settle such excess, if we elected to settle such excess in shares, are issued. We cannot be sure that the accounting standards in the future will continue to permit the use of the treasury stock method. If we are unable to use the treasury stock method in accounting for the shares issuable upon conversion of the Notes, then our diluted earnings per share would be adversely affected.

Item 1B. *Unresolved Staff Comments*

None.

Item 2. *Properties*

Our headquarters are located in Houston, Texas, where we lease approximately 98,000 square feet of office space. We also lease a number of smaller regional offices, including, but not limited to London, England; Toulouse, France; Sofia, Bulgaria; and San Francisco, California, which range from 3,000 to 23,000 square feet. We believe our existing facilities are sufficient for our current needs. We may add new facilities and expand our existing facilities as we add employees, and we believe that suitable additional or substitute space will be available as needed to accommodate any such expansion of our operations.

Item 3. *Legal Proceedings*

In the ordinary course of our business, we may be involved in various legal proceedings and claims. The outcomes of these matters are inherently unpredictable. We are not currently involved in any outstanding litigation that we believe, individually or in the aggregate, will have a material adverse effect on our business, results of operations or financial condition.

Item 4. *Mine Safety Disclosures*

Not applicable.

Part II

Item 5. Market for Registrant's Common Equity, Related Stockholders Matters and Issuer Purchases of Equity Securities

Market information, holders and dividends

Our common stock is listed on the NYSE under the symbol "PRO". The following table sets forth the high and low prices for shares of our common stock, as reported by the NYSE for the periods indicated.

	Price Range of Common Stock	
	Low	High
Year ended December 31, 2017		
First Quarter	\$ 20.56	\$ 24.28
Second Quarter	\$ 22.51	\$ 29.87
Third Quarter	\$ 23.41	\$ 29.47
Fourth Quarter	\$ 22.45	\$ 28.29
Year ended December 31, 2016		
First Quarter	\$ 9.28	\$ 22.20
Second Quarter	\$ 10.74	\$ 17.53
Third Quarter	\$ 17.06	\$ 22.79
Fourth Quarter	\$ 20.76	\$ 25.55

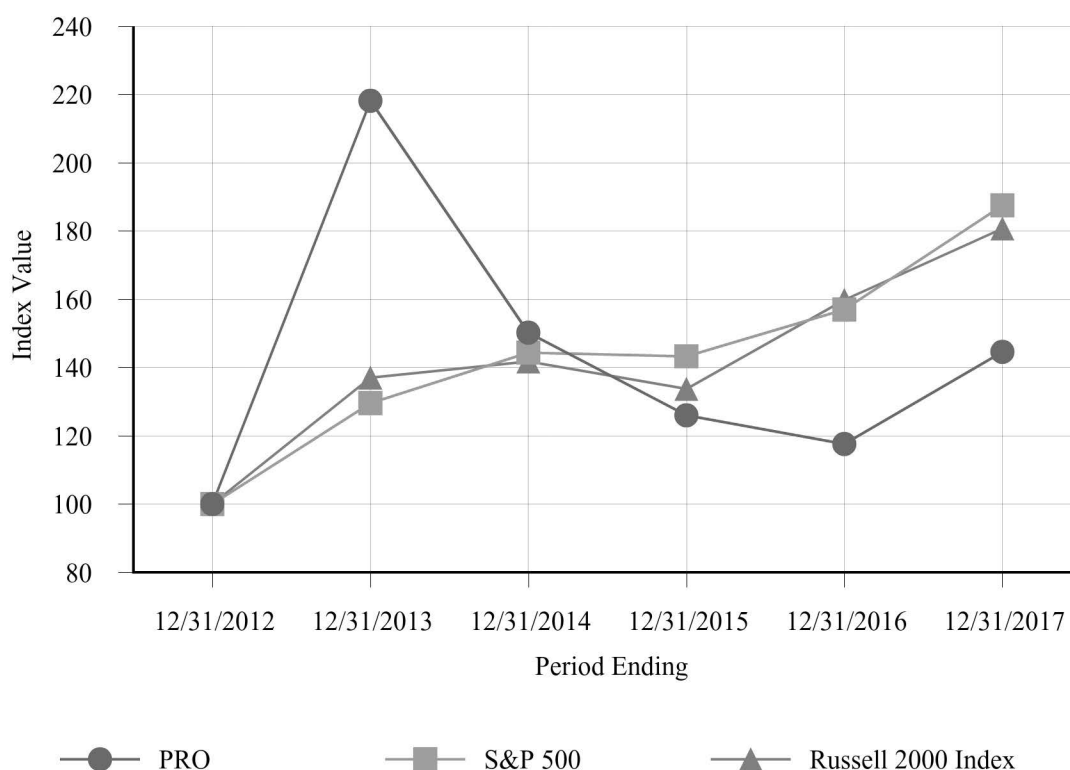
On February 12, 2018 there were 55 stockholders of record of our common stock. Since 2007, we have not declared or paid any dividends on our common stock. We currently expect to retain all remaining available funds and any future earnings for use in the operation and development of our business. Accordingly, we do not anticipate declaring or paying cash dividends on our common stock in the foreseeable future.

Performance graph

The following performance graph and related information shall not be deemed "soliciting material" or to be "filed" with the SEC, nor shall such information be incorporated by reference into any future filing under the Securities Act or Exchange Act, except to the extent that we specifically incorporate it by reference into such filing.

The graph below presents a five-year comparison of the relative investment performance of our common stock, the Standard & Poor's 500 Stock Index ("S&P 500"), and the Russell 2000 Index for the period commencing on December 31, 2012, and ending December 31, 2017. The graph is presented pursuant to the SEC rules and is not meant to be an indication of our future performance.

Comparison of Cumulative Total Return



- (1) The graph assumes that \$100 was invested on December 31, 2012, in our common stock, the S&P 500 and the Russell 2000 Index and further assumes all dividends were reinvested. No cash dividends have been paid on our common stock for the periods presented above.

	12/31/2013	12/31/2014	12/31/2015	12/31/2016	12/31/2017
PRO	\$ 218.15	\$ 150.25	\$ 125.97	\$ 117.66	\$ 144.61
S&P 500	\$ 129.60	\$ 144.36	\$ 143.31	\$ 156.98	\$ 187.47
Russell 2000 Index	\$ 137.00	\$ 141.84	\$ 133.74	\$ 159.78	\$ 180.79

Issuer purchase of equity securities

On August 25, 2008, we announced that the Board of Directors authorized a stock repurchase program for the purchase of up to \$15.0 million of our common stock. Under the board-approved repurchase program, share purchases may be made from time to time in the open market or through privately negotiated transactions depending on market conditions, share price, trading volume and other factors, and such purchases, if any, will be made in accordance with applicable insider trading and other securities laws and regulations. These repurchases may be commenced or suspended at any time or from time to time without prior notice.

During 2017, we did not make any purchases of our common stock under this program. As of December 31, 2017, \$10.0 million remains available under the stock repurchase program.

Recent sales of unregistered securities

There were no unregistered sales of equity securities for the year ended December 31, 2017.

Item 6. Selected financial data

The following selected consolidated financial data presented under the captions "Selected consolidated statement of operations data" and "Selected consolidated balance sheet data" are derived from our Consolidated Financial Statements. The selected consolidated financial data set forth below should be read in conjunction with, and is qualified by reference to, "Management's Discussion and Analysis of Financial Condition and Result of Operations" and our Consolidated Financial Statements and the related notes included elsewhere in this report. As presented in the table, amounts are in thousands (except per share data).

	Year Ended December 31,				
	2017	2016	2015	2014	2013
Selected consolidated statement of operations data:					
Total revenue	\$ 168,816	\$ 153,276	\$ 168,246	\$ 185,829	\$ 144,837
Gross profit	100,250	89,923	106,836	127,743	101,702
(Loss) Income from operations	(64,943)	(65,398)	(55,497)	(22,407)	3,538
Net (loss) income	(77,926)	(75,225)	(65,811)	(37,551)	3,446
Net (loss) income attributable to common stockholders	\$ (77,926)	\$ (75,225)	\$ (65,811)	\$ (36,644)	\$ 3,446
Net (loss) income attributable to common stockholders per share:					
Basic	(2.46)	(2.47)	(2.23)	(1.27)	0.12
Diluted	(2.46)	(2.47)	(2.23)	(1.27)	0.11
Weighted average number of shares:					
Basic	31,627	30,395	29,578	28,915	28,004
Diluted	31,627	30,395	29,578	28,915	30,114
Selected consolidated balance sheet data:					
Cash and cash equivalents, unrestricted	\$ 160,505	\$ 118,039	\$ 161,770	\$ 161,019	\$ 44,688
Working capital	100,031	76,936	124,571	151,903	72,127
Total assets	288,683	227,654	263,211	300,125	179,828
Long-term obligations	233,637	134,327	121,443	112,740	3,523
Total stockholders' equity	\$ (46,979)	\$ (3,394)	\$ 55,414	\$ 98,999	\$ 111,303

Item 7. Management's discussion and analysis of financial condition and results of operations

Overview

PROS is a cloud software company powering the shift to modern commerce by helping companies create personalized and frictionless buying experiences for their customers. Fueled by artificial intelligence, machine learning and proven science, our solutions make it possible for companies to price, configure and sell their products and services in an omnichannel environment with speed, precision and consistency. Our customers benefit from decades of data science expertise infused into our industry solutions. We also provide professional services to implement our software solutions.

Executive Summary

In 2017, we reached several key milestones in our cloud transformation efforts while continuing to enable our customers to leverage our data science driven solutions to help them compete in modern commerce. In 2017, we returned to year-over-year revenue growth. In the fourth quarter of 2017, our subscription revenue exceeded maintenance revenue for the first time, and we also generated positive free cash flow again. Other notable items for the year included:

- Subscription revenue increased 59% in 2017 over 2016;
- Recurring revenue, which consists of maintenance and subscription revenue, grew by 22% in 2017 over 2016;
- Annualized Recurring Revenue ("ARR") was \$160.6 million as of December 31, 2017, up 31% year-over-year;
- Extended PROS modern commerce leadership position in the travel industry by introducing shopping, pricing and merchandising solutions through the acquisition of Vayant Travel Technologies, Inc. ("Vayant") based in Sofia, Bulgaria;
- Released numerous new innovations enabling modern commerce, including the introduction of Opportunity Detection, to help uncover trends in buying behavior and identify new sales opportunities, the introduction of Monet™, PROS artificial intelligence analyst that delivers data science-driven insights in PROS solutions, and the launch of PROS next-generation Guidance solution, providing customers with an unprecedented level of transparency and self-service capabilities in the PROS cloud;
- Attained ISO/IEC 27001: 2013 certification, underscoring our commitment to customers by achieving the industry's most rigorous requirements for cloud security, data privacy, governance, and compliance; and
- Successfully completed a private offering of \$106.3 million aggregate principal amount at maturity of convertible senior notes due 2047.

ARR is one of our key performance metrics to assess the health and trajectory of our overall business. ARR should be viewed independently of revenue, deferred revenue and any other GAAP measure as ARR is a performance metric and is not intended to be combined with any of these items. ARR is defined as contracted recurring revenue, including contracts with a future start date, together with annualized overage fees incurred above contracted minimum transactions, and excludes license agreements recognized as license revenue in accordance with GAAP. Total ARR as of December 31, 2017 was \$160.6 million, up from \$122.2 million as of December 31, 2016.

Cash used in operating activities was \$25.3 million for the year ended December 31, 2017, as compared to \$14.3 million for the year ended December 31, 2016, primarily due to a change in working capital as a result of a decrease in accrued payroll and other employee benefits, and an increase in our prepaid assets arising from payments for cloud infrastructure. We expect our operating activities to provide cash in future years as we accumulate more annual subscription accounts.

Free cash flow is another key metric to assess the strength of our business. Free cash flow is a non-GAAP financial measure which is defined as net cash provided or used by operating activities, less additions to property, plant and equipment, purchases of other (non-acquisition-related) intangible assets and capitalized internal-use software development costs. We believe free cash flow may be useful to investors and other users of our financial information in evaluating the amount of cash generated by our business operations. Free cash flow use for the year ended December 31, 2017 was \$29.5 million, compared to \$24.3 million for the year ended December 31, 2016. The following is a reconciliation of free cash flow to the most comparable GAAP measure, net cash used in operating activities:

	Year Ended December 31,	
	2017	2016
Net cash used in operating activities	\$ (25,313)	\$ (14,345)
Purchase of property and equipment	(1,286)	(7,241)
Purchase of intangible asset	(125)	(1,625)
Capitalized internal-use software development costs	(2,797)	(1,048)
Free Cash Flow	<u>\$ (29,521)</u>	<u>\$ (24,259)</u>

Financial Performance Summary

Recurring revenue, which is comprised of our subscription and maintenance revenue, accounted for 77% of our total revenue for the year ended December 31, 2017. Total recurring revenue was \$129.9 million for the year ended December 31, 2017 as compared to \$106.7 million for the year ended December 31, 2016, an increase of approximately \$23.2 million, or 22%, as a result of the transition of our business toward subscription services.

Total revenue for the year ended December 31, 2017, increased approximately \$15.5 million to \$168.8 million from \$153.3 million for the year ended December 31, 2016, representing a 10% increase. This increase in total revenue was primarily attributable to an increase of 59% in subscription revenue, which was expected as we continue to transition the business toward subscription services.

Total deferred revenue was \$95.2 million as of December 31, 2017, as compared to \$79.7 million as of December 31, 2016, an increase of \$15.5 million, or 19%, primarily due to an increase in our subscription deferred revenue. Recurring deferred revenue, which includes both subscription and maintenance deferred revenue, was \$80.3 million as of December 31, 2017 and increased 30% as compared to December 31, 2016.

Revenue by geography

The following geographic information is presented for the years ended December 31, 2017, 2016 and 2015. PROS categorizes geographic revenues based on the location of our customer's headquarters.

	Year Ended December 31,					
	2017		2016		2015	
	Revenue	Percent	Revenue	Percent	Revenue	Percent
United States of America	\$ 63,097	37%	\$ 56,774	37%	\$ 63,754	38%
Europe	51,273	30%	44,655	29%	47,514	28%
The rest of the world	54,446	32%	51,847	34%	56,978	34%
Total revenue	<u>\$ 168,816</u>	100%	<u>\$ 153,276</u>	100%	<u>\$ 168,246</u>	100%

Acquisitions

On August 3, 2017, we acquired Vayant, a privately held company based in Sofia, Bulgaria, for total cash consideration, net of cash acquired, of approximately \$34.1 million. Vayant is a cloud software company that provides advanced shopping, merchandising and inspirational travel solutions. The acquisition of Vayant strengthens our modern commerce solutions for the travel industry and positions us to deliver greater value to our travel customers through an end-to-end offer optimization solution designed to help travel companies deliver personalized offers and expanded choices that drive loyalty and growth.

Acquisitions are an element of our long-term corporate strategy. We believe future acquisitions could strengthen our competitive position, enhance the products and services that we can offer to customers, expand our customer base, grow our revenues and increase our overall value.

Financing activities

In June 2017, we issued \$106.3 million in aggregate principal amount of 2.0% convertible senior notes due June 1, 2047, unless repurchased, redeemed or converted in accordance with their terms prior to such date. Interest is payable semiannually in arrears on June 1 and December 1 of each year, commencing on December 1, 2017.

Backlog

Backlog represents deferred revenue on our consolidated balance sheet together with expected future billings that are contractually committed under our existing agreements that we have not yet been able, contractually, to invoice. Deferred revenue consists of billings made and payments received in advance of revenue recognition for our services pursuant to contractual commitments under our existing customer agreements, and does not represent the total contract value of existing multi-year agreements. To the extent future invoicing is determined to be certain, we consider that future invoicing to be included in our non-cancelable backlog. As of December 31, 2017, we had backlog of approximately \$275.6 million, as compared to backlog of approximately \$215.4 million as of December 31, 2016. Approximately \$154.7 million of our backlog as of December 31, 2017 was not reasonably expected to be recognized as revenue during fiscal year 2018.

We have aligned our backlog definition with the concepts and requirements of Accounting Standards Update No. 2014-09, "Revenue from Contracts with Customers (Topic 606)" ("ASU 2014-09") in anticipation of the upcoming adoption of the new revenue standard in the first quarter of 2018. Backlog previously reported as of December 31, 2016 was \$251 million, which included assumptions around maintenance renewals.

Backlog varies from period to period based upon the timing and duration of customer agreements and customer renewals, and changes in foreign currency fluctuations and therefore may not be a meaningful indicator of future revenue to be recognized in any particular period.

Income Taxes

On December 22, 2017 the United States enacted the Tax Cuts and Jobs Act (the "Act"). The Act significantly changes U.S. corporate income tax laws by, among other things, reducing the U.S. corporate income tax rate to 21% effective January 1, 2018 and creating a territorial tax system with a one-time mandatory repatriation tax on previously deferred foreign earnings of U.S. subsidiaries. The provisions of the Act are not expected to have a significant impact on our effective tax rate due to the full valuation allowance on our net deferred tax asset position in the U.S. *See Note 11 of our Notes to Consolidated Financial Statements for additional information.*

Factors Affecting Our Performance

Key factors and trends that have affected and we believe will continue to affect our operating results include:

- *Cloud Transition.* In 2015, we began our transition to a cloud business to help accelerate adoption of our solutions and drive recurring revenue. The implementation of this cloud strategy has resulted in more sales of subscription-based solutions and very few licenses since that time and we expect this trend to continue. This increase in the sales of subscription-based solutions has resulted in an increase in our subscription revenue, and deferred more of our revenue recognition to later periods than we experienced prior to 2015. We also expect that over time, additional sales of our cloud-based solutions will result in a decrease in our maintenance and support revenue, particularly as existing customers migrate from our on-premise solutions to our cloud solutions.
- *B2B Buying Preferences Driving Technology Adoption.* B2B buyers are increasingly demanding the same type of buying experience that they enjoy as consumers. For example, buyers increasingly prefer to buy online when they have already decided what to buy, and often prefer not to interact with a sales representative as their primary source of research. In response, we believe that businesses are increasingly looking to modernize their sales process by adopting technologies which provide frictionless, real-time, and personalized experiences across sales channels. We believe we are uniquely positioned to help power these experiences with our machine learning and data science solutions that help provide dynamic, personalized offers and pricing with consistency across sales channels.
- *Continued Investments.* We are focused on creating awareness for our solutions, expanding our customer base and growing our recurring revenues. While we incurred losses in 2017, we believe our market is large and underpenetrated and therefore we intend to continue investing to grow our recurring revenue and support our long-term initiatives. We plan to continue to invest in product development to enhance our existing technologies and develop new applications and technologies. In addition, we plan to continue to expand our ability to sell our subscription offerings globally through investments in sales, marketing, cloud support, security and infrastructure.
- *Sales Mix Impacts Revenue Recognition Timing.* The mix of the software applications in which our customer subscribes can affect our financial performance in a given period due to our determination if the professional services have stand-alone value. Professional services deemed to have stand-alone value are accounted for separately from subscription

services and typically recognized as the services are performed. Where we determine the professional services do not have stand-alone value, we treat the transaction as a single element, the professional services revenue is deferred until the customer commences use of the subscription services, and the professional services revenue is recognized over the remaining term of the arrangement. If more of our professional services are determined not to have stand-alone value, this would result in a deferral of services revenue and services revenue recognized over a longer period of time, which would have a negative near-term financial impact.

Description of Key Components of our Operating Results

Revenue

We derive our revenues primarily from recurring revenue, which includes subscription and maintenance and support services. Recurring revenues accounted for 77% of our total revenue in 2017.

Subscription services. Subscription services fees are generally recognized ratably as revenue over the customer contract term. Our subscription contracts typically have a term of two to five years and are non-cancellable. We generally invoice our customers annually in advance. Amounts that have been invoiced are initially recorded as deferred revenue.

For our subscription services that include professional services, we evaluate the nature and scope to determine if the professional services have stand-alone value. If we determine the professional services have stand-alone value, the subscription services are accounted for separately from the professional services and the subscription services revenue recognition commences when the customer has access to the application. If we determine the professional services do not have stand-alone value, we treat the transaction as a single element, the subscription services and professional services revenue is deferred until the customer commences use of the subscription services, and recognized over the remaining term of the arrangement.

Maintenance and support. Maintenance and support revenue includes post-implementation customer support provided to our customers who purchased perpetual software licenses and the right to unspecified software updates and enhancements on a when-and-if-available basis. We recognize revenue from maintenance and support arrangements ratably over the period in which the services are provided.

License. We derive our license revenue from the sale of perpetual licenses. License revenue is recognized either upon software delivery or together with the professional services over time using the percentage-of-completion method or completed contract method.

Professional services. Professional services revenues are generally recognized as the services are rendered for time and material contracts, or on a proportional performance basis for fixed price contracts. The majority of our professional services contracts are on a time and materials basis.

For our subscription services that include professional services, we evaluate the nature and scope to determine whether the professional services have stand-alone value. Professional services deemed to have stand-alone value are accounted for separately from subscription services and typically recognized as the services are performed. If we determine the professional services do not have stand-alone value, we treat the transaction as a single element, the professional services revenue is deferred until the customer commences use of the subscription services, and the professional services revenue is recognized over the remaining term of the arrangement.

Cost of revenue

Cost of subscription. Cost of subscription includes those costs related to supporting our subscription services, principally (a) personnel costs, which include our employees, third-party contractors and noncash share-based compensation expense, (b) expenses related to operating our cloud infrastructure, (c) amortization of capitalized software for internal use, and (d) an allocation of depreciation, amortization of intangibles, facilities and information technology ("IT") support costs, including data center costs, and other costs incurred in providing subscription services to our customers.

Cost of maintenance and support. Cost of maintenance and support consists largely of personnel related expenses and an allocation of depreciation, amortization of intangibles, facilities and IT support costs and other costs incurred in providing maintenance and support services to our customers.

Cost of license. Cost of license consists of third-party fees for our licensed software and an allocation of the amortization of intangibles.

Cost of services. Cost of services includes those costs related to professional services and implementation of our solutions, principally (a) personnel costs, which include our employees and employee benefits, third-party contractors and noncash share-based compensation expense, (b) billable and non-billable travel, (c) amortization of capitalized software for internal use, and (d) an allocation of depreciation, facilities and IT support costs and other costs incurred in providing professional services to our customers. Cost of providing professional services may vary from quarter to quarter depending on a number of factors, including the amount of professional services required to implement and configure our solutions.

Operating expenses

Selling and marketing. Selling and marketing expenses principally consist of (a) personnel costs, which include our employees and employee benefits, third-party contractors, sales commissions related to selling and marketing personnel and noncash share-based compensation expense (b) sales and marketing programs such as lead generation programs, company awareness programs, conferences, hosting and participation in industry trade shows, and other sales and marketing programs, (c) travel and other out-of-pocket expenses, (d) amortization expenses associated with acquired intangible assets, and (e) an allocation of depreciation, facilities and IT support costs and other costs.

General and administrative. General and administrative expenses consist primarily of expenditures for executive, accounting and finance, legal, IT and human resources support functions. General and administrative expenses principally consist of (a) personnel costs, which include our employees and employee benefits, third-party contractors and noncash share-based compensation expense, (b) travel and other out-of-pocket expenses, (c) accounting, legal and other professional fees, and (d) an allocation of depreciation, facilities and IT support costs and other costs.

Research and development. Research and development expenses principally consist of (a) personnel costs, which include our employees and employee benefits and third-party contractors, which are comprised of software developers, scientists and product managers working on enhancements of existing solutions, the development of new solutions, scientific research, quality assurance and testing and noncash share-based compensation expense and (b) an allocation of depreciation, facilities and IT support costs and other costs.

Results of operations

Comparison of year ended December 31, 2017 with year ended December 31, 2016

Revenue:

(Dollars in thousands)	For the Year Ended December 31,					
	2017		2016		Variance \$	Variance %
	Amount	Percentage of total revenue	Amount	Percentage of total revenue		
Subscription	\$ 60,539	36%	\$ 38,158	25%	\$ 22,381	59 %
Maintenance and support	69,408	41%	68,565	45%	843	1 %
Total subscription, maintenance and support	129,947	77%	106,723	70%	23,224	22 %
License	5,562	3%	11,814	7%	(6,252)	(53)%
Services	33,307	20%	34,739	23%	(1,432)	(4)%
Total revenue	<u>\$ 168,816</u>	100%	<u>\$ 153,276</u>	100%	<u>\$ 15,540</u>	10 %

Subscription revenue. Subscription revenue increased primarily due to an increase in the number of subscriptions purchased by new and existing customers, with the total number of customers generating subscription revenue increasing by 36% for the year ended December 31, 2017. The increase in subscription revenue also included \$3.3 million from our acquisition of Vayant. We expect our subscription revenue will continue to increase as we focus on subscription-based sales and phase out license offerings. We continued to invest in customer programs and initiatives which helped keep our attrition rate fairly consistent as compared to the prior year. Our ability to maintain consistent customer attrition rates will play a role in our ability to continue to grow our subscription revenue.

Maintenance and support. The modest increase in maintenance and support revenue was principally a result of the timing of certain cash collections. While, we continued to invest in customer programs and initiatives which helped keep our attrition rate consistent as compared to the prior year, we expect that over time, our plan to sell fewer licenses and more cloud-based solutions will result in a decrease in our maintenance and support as existing customers migrate from our on-premise solutions to

our cloud solutions. We also expect to increase our focus on migrating our legacy on-premises software customers to our latest cloud solutions in 2018, which if successful, would further decrease maintenance revenue.

License revenue. License revenue decreased primarily due to the completion of several large perpetual license projects related to agreements executed prior to our cloud transition, and our strategy to sell fewer licenses and more subscription services, resulting in lower future license revenue and higher subscription services revenue.

Services revenue. Services revenue declined primarily as a result of large customer implementations completed in 2016 and fewer similar large implementations completed in 2017. The decrease was also due to lower levels of professional services required on our new subscription sales as well as on certain subscription contracts where subscription and services revenue is deferred until the customer commences use of the subscription because the professional services were deemed to not have stand-alone value. Services revenue varies from period to period depending on different factors, including the level of professional services required to implement our solutions, the timing of services revenue recognition on certain subscription contracts and any additional professional services requested by our customers during a particular period.

Cost of revenue and gross profit.

(Dollars in thousands)	For the Year Ended December 31,					
	2017		2016		Variance \$	Variance %
	Amount	Percentage of total revenue	Amount	Percentage of total revenue		
Cost of subscription	\$ 27,858	17%	\$ 17,379	11%	\$ 10,479	60 %
Cost of maintenance and support	11,693	7%	13,681	9%	(1,988)	(15)%
Total cost of subscription, maintenance and support	39,551	23%	31,060	20%	8,491	27 %
Cost of license	282	—%	246	—%	36	15 %
Cost of services	28,733	17%	32,047	21%	(3,314)	(10)%
Total cost of revenue	\$ 68,566	41%	\$ 63,353	41%	\$ 5,213	8 %
Gross profit	\$ 100,250	59%	\$ 89,923	59%	\$ 10,327	11 %

Cost of subscription. Cost of subscription increased primarily as a result of a \$9.7 million increase in infrastructure cost to support our current and anticipated subscription customer base, and includes \$2.5 million related to the acquisition of Vayant. The remaining increase of \$0.8 million was related to personnel cost to support our subscription customer base, which included \$0.2 million related to the Vayant acquisition. Our subscription gross profit percentage was 54% for each of the years ended December 31, 2017 and 2016.

Cost of maintenance and support. The cost of maintenance and support declined primarily due to a decrease in personnel cost mainly due to efficiencies in employee related costs. Maintenance and support gross profit percentages for the years ended December 31, 2017 and 2016, were 83% and 80%, respectively.

Cost of license. Cost of license consists of third-party fees for licensed software and remained relatively consistent year-over-year. License gross profit percentages for the years ended December 31, 2017 and 2016, were 95% and 98%, respectively.

Cost of services. The decrease in cost of services was generally commensurate with our decline in services revenue, and was primarily attributable to decreases in both personnel cost for our software implementations of \$2.7 million, and in overhead expenses of \$0.6 million. Services gross profit percentages for the years ended December 31, 2017 and 2016, were 14% and 8%, respectively. Services gross profit percentages vary period to period depending on different factors, including the level of professional services required to implement our solutions, our effective man-day rates and the utilization of our professional services personnel. We plan to add additional employees in our professional services organization to support our anticipated growth in the number of customers purchasing our subscription services.

Gross profit. The increase in overall gross profit for the year ended December 31, 2017 was principally attributable to an increase of 10% in total revenue as compared to the same period in 2016.

Operating expenses:

(Dollars in thousands)	For the Year Ended December 31,					
	2017		2016		Variance \$	Variance %
	Amount	Percentage of total revenue	Amount	Percentage of total revenue		
Selling and marketing	\$ 68,116	40%	\$ 63,980	42%	\$ 4,136	6%
General and administrative	40,336	24%	38,537	25%	1,799	5%
Research and development	56,021	33%	52,804	34%	3,217	6%
Acquisition-related	720	—%	—	—%	720	—%
Total operating expenses	<u>\$ 165,193</u>	<u>98%</u>	<u>\$ 155,321</u>	<u>101%</u>	<u>\$ 9,872</u>	<u>6%</u>

Selling and marketing. Our personnel cost increased by \$2.1 million primarily due to our continued investments in sales and marketing as we focus on adding new customers and increasing penetration within our existing customer base. This was partially offset by a decrease of \$1.2 million in severance expense associated with the change in employment status of our former Chief Operating Officer in July 2016. In addition, there was an increase of \$3.2 million in non-personnel cost, which included \$1.1 million intangible amortization related to our acquisition of Vayant, an increase of \$0.8 million for sales and marketing events, an increase of \$0.7 million in travel expenses, an increase of \$0.5 million of recruiting expense, and an increase of \$0.1 million for facility and other overhead expense.

General and administrative expenses. The increase in general and administrative expenses was primarily attributable to an increase of \$2.1 million in noncash share-based compensation expense and \$0.7 million of personnel and other general and administrative costs related to our acquisition of Vayant. This increase was partially offset by a decrease of \$0.4 million in our use of contract labor, a decrease of \$0.4 million in other overhead expenses, and a decrease of \$0.2 million in bad debt expense.

Research and development expenses. Personnel cost increased \$3.4 million, which included \$1.0 million related to our acquisition of Vayant. Personnel cost increased primarily due to our continued investment in headcount to develop new and improve existing technologies, partially offset by an \$1.5 million increase in capitalized internal-use software development costs. The remaining increase of \$1.3 million was attributable to non-personnel cost and related overhead expenses associated with higher personnel cost.

Acquisition-related expenses. Acquisition-related expenses were \$0.7 million for the year ended December 31, 2017 consisting primarily of advisory, legal, accounting and other professional fees, and retention bonuses related to our acquisition and integration of Vayant.

Other income (expense), net:

(Dollars in thousands)	For the Year Ended December 31,					
	2017		2016		Variance \$	Variance %
	Amount	Percentage of total revenue	Amount	Percentage of total revenue		
Convertible debt interest and amortization	\$ (13,218)	(8)%	\$ (9,319)	(6)%	\$ (3,899)	42 %
Other income (expense), net	\$ 384	— %	\$ (38)	— %	\$ 422	(1,111)%

Convertible debt interest and amortization. Convertible debt interest and amortization expense for each of the years ended December 31, 2017 and 2016 relates to coupon interest and amortization of debt discount and issuance costs attributable to our 2019 Notes and our 2047 Notes. The increase in convertible debt interest and amortization primarily relates to our 2047 Notes issued in June 2017.

Other income (expense), net. Other income (expense), net increased during the year ended December 31, 2017, primarily due to the higher impact of movements in foreign currency exchange rates during the period.

Income tax provision:

(Dollars in thousands)	For the Year Ended December 31,		Variance \$	Variance %
	2017	2016		
Effective tax rate	— %	(1)%	n/a	1 %
Income tax provision	\$ 149	\$ 470	\$ (321)	(68)%

Our tax provision for the year ended December 31, 2017 primarily consisted of foreign taxes and state taxes not based on income.

Our 2017 and 2016 effective tax rates had an unusual relationship to pretax loss from operations as a result of the presence of a valuation allowance on our net deferred tax assets. Our income tax provisions in 2017 and 2016 only included foreign taxes and state taxes not based on pre-tax income, resulting in an effective tax rate of 0% and (1)%, respectively. The difference between the effective tax rates and the federal statutory rate of 34% for the years ended December 31, 2017 and 2016 was primarily due to the increase in our valuation allowance of \$5.9 million and \$26.6 million, respectively.

On December 22, 2017 the United States enacted the Tax Cuts and Jobs Act. The Act significantly changes U.S. corporate income tax laws by, among other things, reducing the U.S. corporate income tax rate to 21% effective January 1, 2018 and creating a territorial tax system with a one-time mandatory repatriation tax on previously deferred foreign earnings of U.S. subsidiaries. See Note 11 of our Notes to Consolidated Financial Statements for additional information.

As of December 31, 2017 and 2016, we had a valuation allowance on our net deferred tax assets of \$74.2 million and \$69.0 million, respectively. The increase was principally attributed to an additional valuation allowance recorded on our current year's tax loss and increases in our noncash share-based compensation of \$39.9 million partially offset by a downward adjustment to our valuation allowance related to global tax reform of \$34.0 million.

Comparison of year ended December 31, 2016 with year ended December 31, 2015

Revenue:

	For the Year Ended December 31,					
	2016		2015			
(Dollars in thousands)	Amount	Percentage of total revenue	Amount	Percentage of total revenue	Variance \$	Variance %
Subscription	\$ 38,158	25%	\$ 28,989	17%	\$ 9,169	32 %
Maintenance and support	68,565	45%	63,666	38%	4,899	8 %
Total subscription, maintenance and support	106,723	70%	92,655	55%	14,068	15 %
License	11,814	8%	32,716	19%	(20,902)	(64)%
Services	34,739	23%	42,875	25%	(8,136)	(19)%
Total revenue	\$ 153,276	100%	\$ 168,246	100%	\$ (14,970)	(9)%

Subscription revenue. Subscription revenue increased primarily due to an increase in the number of subscriptions purchased by new and existing customers, with the total number of customers generating subscription revenue increasing 16% for the year ended December 31, 2016.

Maintenance and support. The increase in maintenance and support revenue was principally a result of an increase in maintenance from our existing customers.

License revenue. Our license revenue depends on the amount of perpetual licenses sold in the period, as well as the timing of revenue recognition. As a result of our cloud strategy, we sold fewer perpetual licenses and experienced a corresponding decrease in license revenue, which included a decrease of \$13.2 million in license revenue recognized on a percentage of completion basis, and \$7.7 million in license revenue recognized upon software delivery.

Services revenue. Services revenue declined primarily as a result of several customer implementations completed in 2015 or early 2016 with significant professional services. Services revenue also declined due to lower levels of professional services required for our new subscription sales, as well as professional services revenue on certain subscription contracts which was deferred until the customer commences use of the subscription services because the professional services were deemed not to have stand-alone value.

Cost of revenue and gross profit:

(Dollars in thousands)	For the Year Ended December 31,					
	2016		2015		Variance \$	Variance %
	Amount	Percentage of total revenue	Amount	Percentage of total revenue		
Cost of subscription	\$ 17,379	11%	\$ 12,786	8%	\$ 4,593	36 %
Cost of maintenance and support	13,681	9%	12,173	7%	1,508	12 %
Total cost of subscription, maintenance and support	31,060	20%	24,959	15%	6,101	24 %
Cost of license	246	—%	304	—%	(58)	(19)%
Cost of services	32,047	21%	36,147	21%	(4,100)	(11)%
Total cost of revenue	\$ 63,353	41%	\$ 61,410	37%	\$ 1,943	3 %
Gross profit	\$ 89,923	59%	\$ 106,836	63%	\$ (16,913)	(16)%

Cost of subscription. Cost of subscription increased primarily as a result of a \$4.1 million increase in infrastructure costs and a \$0.5 million increase in personnel costs to support our current and anticipated future subscription customer base. Our subscription gross profit percentage for the years ended December 31, 2016 and 2015, was 54% and 56%, respectively.

Cost of maintenance and support. Cost of maintenance and support increased primarily due to an increase in personnel cost to support our current customer base. Maintenance and support gross margins for the years ended December 31, 2016 and 2015 were 80% and 81%, respectively.

Cost of license. Cost of license consists of third-party fees for licensed software and remained relatively consistent year over year. License gross profit percentages for the years ended December 31, 2016 and 2015, were 98% and 99%, respectively.

Cost of services. Cost of services decreased primarily due to a decrease in personnel costs used in our software implementations of \$4.0 million and a decrease in other overhead expenses of \$0.1 million. Services gross profit percentages for the years ended December 31, 2016 and 2015, were 8% and 16%, respectively.

Gross profit. The decrease in overall gross profit for the year ended December 31, 2016 was principally attributable to a decrease of 9% in total revenue and an increase of 3% in total cost of revenue as compared to the same period in 2015.

Operating expenses:

(Dollars in thousands)	For the Year Ended December 31,					
	2016		2015		Variance \$	Variance %
	Amount	Percentage of total revenue	Amount	Percentage of total revenue		
Selling and marketing	\$ 63,980	42%	\$ 74,146	44%	\$ (10,166)	(14)%
General and administrative	38,537	25%	38,517	23%	20	— %
Research and development	52,804	34%	46,780	28%	6,024	13 %
Impairment charges	—	—%	2,890	2%	(2,890)	(100)%
Total operating expenses	\$ 155,321	101%	\$ 162,333	96%	\$ (7,012)	(4)%

Selling and marketing expenses. The decrease in selling and marketing expenses was primarily attributable to a decrease of \$4.7 million in noncash share-based compensation expense primarily related to the cancellation of certain equity awards associated with the change in employment status of our former Chief Operating Officer, a \$2.8 million decrease in sales commissions as a result of capitalizing more sales commissions, a \$1.5 million decrease in marketing event costs, a \$1.3 million decrease in intangible amortization expense, a \$1.2 million decrease in travel expenses and a \$0.3 million decrease in other overhead expenses. The decrease was partially offset by a \$1.6 million increase in personnel costs.

General and administrative expenses. General and administrative expenses remained overall unchanged for the year ended December 31, 2016 as compared to the same period in 2015, as a result of our specific efforts to control the growth and scale the capacity of our corporate overhead functions.

Research and development expenses. Research and development expense increased primarily as a result of an increase of \$5.3 million in personnel costs due to higher headcount to support our current and future product development and an increase of \$0.7 million of non-personnel cost and related overhead expenses associated with higher personnel cost.

Impairment charges. During the year ended December 31, 2015 we recorded \$2.9 million of impairment charges related to internally developed software. This impairment resulted from a reduction of projected cash flows for product groups based on revisions to our projections during the year and was recorded to reduce the carrying value to fair value. This reduction reflected changes to our plans for certain product groups in connection with changes in future product launches and support. We did not record an impairment charge in 2016.

Other expense, net:

(Dollars in thousands)	For the Year Ended December 31,					
	2016		2015			
	Amount	Percentage of total revenue	Amount	Percentage of total revenue	Variance \$	Variance %
Convertible debt interest and amortization	\$ (9,319)	(6)%	\$ (8,914)	(5)%	\$ (405)	5 %
Other expense, net	\$ (38)	— %	\$ (661)	— %	\$ 623	(94)%

Convertible debt interest and amortization. The convertible debt interest and amortization expense for each of the years ended December 31, 2016 and 2015 related to coupon interest and amortization of debt discount and issuance costs attributable to our senior notes issued in December 2014 and mature in December 2019.

Other expense, net. Other expense, net decreased by \$0.6 million during the year ended December 31, 2016, primarily due to the reduced impact of movements in foreign currency exchange rates during the period.

Income tax provision:

(Dollars in thousands)	For the Year Ended December 31,				Variance \$	Variance %
	2016	2015				
Effective tax rate	(1)%	(1)%			n/a	— %
Income tax (benefit) provision	\$ 470	\$ 739	\$ (269)			(36)%

Income tax (benefit) provision. Our tax provision for the year ended December 31, 2016 primarily consisted of foreign taxes and state taxes not based on loss before income tax provision.

Our 2016 and 2015 effective tax rates had an unusual relationship to pretax loss from operations as a result of the presence of a valuation allowance on our net deferred tax assets. Our income tax provisions in 2016 and 2015 only included foreign taxes and state taxes not based on pre-tax income, resulting in an effective tax rate of (1)% in both periods. The difference between the effective tax rates and the federal statutory rate of 34% for the years ended December 31, 2016 and 2015 was primarily due to the increase in our valuation allowance of \$26.6 million and \$20.9 million, respectively.

As of December 31, 2016 and 2015, we had a valuation allowance on our net deferred tax assets of \$69.0 million and \$44.3 million, respectively. The increase was principally attributed to an additional valuation allowance recorded on our current year's tax loss and increases in our noncash share-based compensation.

Liquidity and capital resources

At December 31, 2017, we had \$160.5 million of cash and cash equivalents and \$100.0 million of working capital as compared to \$118.0 million of cash and cash equivalents and \$76.9 million of working capital at December 31, 2016. In addition, we had zero and \$16.0 million of short-term investments as of December 31, 2017 and 2016, respectively.

Our principal sources of liquidity are our cash and cash equivalents, short-term investments, cash flows generated from operations and potential borrowings under our secured Credit Agreement ("Revolver") with the lenders party thereto and Wells Fargo Bank, National Association as agent for the lenders party thereto. In December 2014, we issued the 2019 Notes and in June 2017, we issued the 2047 Notes to supplement our overall liquidity position. Our material drivers or variants of operating cash flow are net income (loss), noncash expenses (principally share-based compensation, intangible amortization and amortization of

debt discount and issuance costs) and the timing of periodic invoicing and cash collections related to licenses, subscriptions and support for our software and related services. Our operating cash flows are also impacted by the timing of payments to our vendors and the payments of our other liabilities. We generally pay our vendors and service providers in accordance with the invoice terms and conditions.

We believe our existing cash, cash equivalents and short-term investments balances, including funds provided by the issuance of our Notes, funds available under our Revolver and our current estimates of future operating cash flows, will provide adequate liquidity and capital resources to meet our operational requirements, anticipated capital expenditures and coupon payments for our Notes for the next twelve months. Our future working capital requirements will depend on many factors, including the operations of our existing business, potential growth of our subscription services, future acquisitions we might undertake, and expansion into complementary businesses. If such need arises, we may raise additional funds through equity or debt financings.

The following table presents key components of our Consolidated Statements of Cash Flows for the years ended December 31, 2017, 2016 and 2015:

(Dollars in thousands)	For the Year Ended December 31,		
	2017	2016	2015
Net cash (used in) provided by operating activities	\$ (25,313)	\$ (14,345)	\$ 15,532
Net cash used in investing activities	(22,346)	(25,404)	(9,424)
Net cash provided by (used in) financing activities	90,654	(3,684)	(5,554)
Cash and cash equivalents (beginning of period)	118,039	161,770	161,019
Cash and cash equivalents (end of period)	\$ 160,505	\$ 118,039	\$ 161,770

Net cash (used in) provided by operating activities

Cash used in operating activities in 2017 and 2016 was \$25.3 million and \$14.3 million, respectively, compared with cash provided by operating activities of \$15.5 million in 2015. Cash used in operating activities has historically been affected by the amount of net income adjusted for non-cash items such as depreciation and amortization and share-based compensation and changes in working capital, which is impacted by the timing of payments against accounts payable, accrued expenses and the timing of collections from our customers, which is the largest source of operating cash. The \$11.0 million decrease in net cash from operations as compared to 2016 was primarily due to a \$13.8 million decrease in working capital as a result of a decrease in accrued payroll and other employee benefits, and an increase in our prepaid assets for advance payments on our cloud infrastructure.

For 2016, net cash used in operating activities was primarily related to a decrease in net cash from operations compared to 2015 mainly due to our transition to a cloud strategy as on-premise software sales were replaced with annual subscription services, and the net impact of working capital changes, primarily driven by reduced cash generated from accounts receivable, partially offset by an increase in cash associated with deferred revenue.

For 2015, net cash provided by operating activities was primarily comprised of cash provided from net changes in working capital, including a \$32.3 million decrease in accounts receivable due to higher collections, partially offset by our \$65.8 million net loss and the net effect of non-cash items.

Net cash used in investing activities

Cash used in investing activities for 2017, 2016 and 2015 was \$22.3 million, \$25.4 million and \$9.4 million, respectively. For 2017, net cash used in investing activities was primarily related to our acquisition of Vayant, partially offset by the cash inflow from the maturities of short-term investments. In addition, we incurred capitalized internal-use software development costs on our subscription service solutions of \$2.8 million, capital expenditures of \$1.3 million and we paid \$0.1 million for an intangible (non-acquisition) asset.

For 2016 and 2015, net cash used in investing activities was primarily the result of the timing of purchases and maturities of short-term investments and capital expenditures of \$7.2 million and \$6.8 million, respectively. During 2016, we also paid \$2.0 million for a cost method investment, paid \$1.6 million for an intangible (non-acquisition) asset and incurred capitalized internal-use software development costs on our subscription service solutions of \$1.0 million.

Net cash provided by (used in) financing activities

Cash provided by financing activities for 2017 was \$90.7 million, compared with cash used in financing activities in 2016 and 2015 of \$3.7 million and \$5.6 million, respectively. For 2017, the total increase of \$94.3 million in net cash provided

by financing activities primarily consisted of the proceeds of \$93.5 million from the issuance of our 2047 Notes, also higher proceeds from the exercise of stock options and employee stock plans of \$5.4 million and \$0.4 million, respectively, partially offset by payment of \$3.0 million of debt issuance cost on our 2047 Notes, an increase of \$1.9 million in tax withholdings on vesting of employee share-based awards and payment of \$0.2 million in debt issuance costs on the Revolver renewal.

For 2016 and 2015, net cash used in financing activities was primarily the result of tax withholdings on vesting of employee share-based awards of \$5.5 million and \$5.1 million, respectively. During 2016 and 2015, we had proceeds from employee stock plans and the exercises of stock options of \$2.0 million and \$1.5 million, respectively. For 2015, we also paid \$1.3 million of contingent consideration related to the PROS France acquisition.

Stock repurchases

In August 2008, our Board of Directors authorized a stock repurchase program for the purchase of up to \$15.0 million of our common stock. No shares were repurchased during the years ended December 31, 2017, 2016 and 2015, respectively. As of December 31, 2017, \$10.0 million remained available in the stock repurchase program. The repurchase of stock, if continued, will be funded primarily with existing cash balances. The timing of any repurchases will depend upon various factors including, but not limited to, market conditions, the market price of our common stock and management's assessment of our liquidity and cash flow needs. *For additional information on the stock repurchase program see "Market for Registrant's Common Equity, Related Stockholder Matters and Issuer Purchases of Equity Securities."*

Off-Balance Sheet Arrangements and Contractual Obligations

We do not have any relationships with unconsolidated entities or financial partnerships, such as variable interest entities, which would have been established for the purpose of facilitating off-balance sheet arrangements or other contractually narrow or limited purposes. Our principal commitments as of December 31, 2017 consist of obligations under operating leases and various service agreements. *See Note 14 of our Notes to Consolidated Financial Statements for additional information regarding our contractual commitments.*

Contractual Obligations

The following table sets forth our contractual obligations as of December 31, 2017:

(Dollars in thousands)	Payment due by period				
	Total	Less than 1 year	1-3 years	3-5 years	More than 5 years
Notes, including interest	\$ 265,318	\$ 5,000	\$ 150,875	\$ 3,193	\$ 106,250
Operating leases	9,814	3,674	4,443	1,652	45
Purchase commitments	20,171	8,174	11,997	—	—
Total contractual obligations	<u>\$ 295,303</u>	<u>\$ 16,848</u>	<u>\$ 167,315</u>	<u>\$ 4,845</u>	<u>\$ 106,295</u>

Notes

As of December 31, 2017, our outstanding notes payable consist of the 2019 Notes and the 2047 Notes. Interest on these notes is payable semi-annually, in arrears on June 1 and December 1 of each year. At December 31, 2017, our maximum commitment for interest payments under the Notes was \$15.3 million for the remaining duration of the Notes.

Covenants

Our credit facility contains affirmative and negative covenants, including covenants which restrict our ability to, among other things, create liens, incur additional indebtedness and engage in certain other transactions, in each case subject to certain exclusions. In addition, our credit facility contains certain financial covenants which become effective in the event our liquidity falls below \$50 million or upon the occurrence of an event of default. As of December 31, 2017, we were in compliance with all financial covenants in the credit facility.

Critical accounting policies and estimates

Our consolidated financial statements are prepared in accordance with accounting principles generally accepted in the United States. The preparation of these consolidated financial statements requires us to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues, costs and expenses, and related disclosures. Actual results could differ from those estimates. The complexity and judgment of our estimation process and issues related to the assumptions, risks and uncertainties inherent in the application of the percentage-of-completion method of accounting could affect the amounts of revenue, expenses, unbilled receivables and deferred revenue. Estimates are also used for, but not limited to, receivables, allowance for doubtful accounts, useful lives of assets, depreciation, income taxes and deferred tax asset valuation, valuation of stock options, other current liabilities and accrued liabilities. Numerous internal and external factors can affect estimates. Our management has reviewed these critical accounting policies, our use of estimates and the related disclosures with our Audit Committee.

We believe the critical accounting policies listed below affect significant judgment and estimates used in the preparation of our Consolidated Financial Statements.

Revenue recognition

We derive our revenues primarily from subscription services fees, professional services, the perpetual licensing of our software products and the associated software maintenance and support services.

We commence revenue recognition when all of the following criteria are met:

- there is persuasive evidence of an arrangement;
- the service has been or is being provided to the customer;
- collection of the fee is reasonably assured; and
- the amount of fees to be paid by the customer is fixed and determinable.

Subscription services revenue

Subscription services revenue is generally recognized ratably over the contractual term of the arrangement beginning on the date that our service is made available to the customer, assuming all other revenue recognition criteria have been met. Our subscription contracts do not provide customers with the right to take possession of the software supporting the applications and, as a result, are accounted for as service contracts. Any revenue related to up-front activation or set-up fees are deferred and recognized ratably over the estimated period that the customer benefits from the related services. Direct and incremental costs related to up-front activation or set-up activities are capitalized until the date our service is made available and then expensed ratably over the estimated period that the customer benefits from the related services.

For our subscription services that include professional services, we determine whether the professional services have stand-alone value. Professional services deemed to have stand-alone value are accounted for separately from subscription services and the subscription services revenue recognition commences on the date that our subscription services are made available to the customer. If determined that the professional services do not have stand-alone value, the transaction is treated as a single element and the subscription services and professional services revenue is deferred until the customer commences use of the subscription services, and the subscription services and the professional services revenue is recognized over the remaining term of the arrangement.

Maintenance and support revenue

Maintenance and support revenue includes post-implementation customer support and the right to unspecified software updates and enhancements on a when-and-if-available basis. We recognize revenue from maintenance arrangements ratably over the period in which the services are provided. There are limited instances where we recognize maintenance and support revenue at the latter of when the services are provided and when payment is received based on our belief that collectability is not reasonably assured.

License revenue

We derive the majority of our license revenue from the sale of perpetual licenses. For software license arrangements that do not require significant modification or customization of the underlying software, we recognize software licenses revenues upon software delivery, assuming all other revenue recognition criteria have been met.

We evaluate the nature and scope of professional services for each arrangement, and if we determine that the professional services revenue should not be accounted for separately from license revenue, the license revenue is recognized together with the professional services revenue using the percentage-of-completion method or completed contract method. The completed contract method is also used for contracts where there is a risk over final acceptance by the customer or for contracts that are short-term in nature.

The percentage-of-completion method is measured by the percentage of man-days incurred during the reporting period as compared to the estimated total man-days necessary for each contract for implementation of the software solutions. We believe that for each such project, man-days expended in proportion to total estimated man-days at completion represents the most reliable and meaningful measure for determining a project's progress toward completion. Under our fixed-fee arrangements, should a loss be anticipated on a contract, the full amount of the loss is recorded when the loss is determinable.

We also license software solutions under term license agreements that typically include maintenance during the license term. When maintenance is included for the entire term of the term license, there is no renewal rate and we have not established vendor specific objective evidence ("VSOE") of fair value for the maintenance on term licenses. For term license agreements, revenue and the associated costs are deferred until the delivery of the solution and recognized ratably over the remaining license term.

Professional services revenue

Professional services revenues are generally recognized as the services are rendered for time and material contracts, or on a proportional performance basis for fixed price contracts. The majority of our professional services contracts are on a time and materials basis. Training revenues are recognized as the services are rendered.

For our subscription services that include professional services, we determine whether the professional services have stand-alone value. Professional services deemed to have stand-alone value are accounted for separately from subscription services and typically recognized as the services are performed. If determined that the professional services do not have stand-alone value, the transaction is treated as a single element, the professional services revenue is deferred until the customer commences use of the subscription services, and the professional services revenue is recognized over the remaining term of the arrangement.

For software license arrangements that include professional services, we determine whether the professional services are considered essential to the functionality of the software using factors such as: the nature of its software products; whether they are ready for use by the customer upon receipt; the nature of professional services; the availability of services from other vendors; whether the timing of payments for license revenue coincides with performance of services; and whether milestones or acceptance criteria exist that affect the realizability of the software license fee. For professional services considered essential to the functionality of the software, the license revenue is recognized together with the professional services revenue using the percentage-of-completion method or completed contract method. The completed contract method is also used for contracts where there is a risk over final acceptance by the customer or for contracts that are short-term in nature.

Multiple element arrangements

For arrangements with multiple deliverables, we evaluate whether the individual deliverables qualify as separate units of accounting. In order to treat deliverables in a multiple deliverable arrangement as separate units of accounting, the deliverables must have stand-alone value upon delivery. If the deliverables have stand-alone value upon delivery, we account for each deliverable separately and revenue is recognized for the respective deliverables as they are delivered.

When multiple deliverables included in an arrangement are separable into different units of accounting, the arrangement consideration is allocated to the identified separate units of accounting based on their relative selling price. Multiple deliverable arrangement accounting guidance provides a hierarchy when determining the relative selling price for each unit of accounting. VSOE of selling price, based on the price at which the item is regularly sold by the vendor on a stand-alone basis, should be used if it exists. If VSOE of selling price is not available, third-party evidence ("TPE") of selling price is used to establish the selling price if it exists. If neither VSOE nor TPE exist for a deliverable, arrangements with multiple deliverables can be separated into discrete units of accounting based on our best estimate of selling price ("BESP"). The objective of BESP is to determine the price at which we would transact a sale if the product or service were sold on a stand-alone basis. The amount of arrangement fee allocated is limited by contingent revenues, if any. For transactions that only include software and software-related elements, we continue to account for such arrangements under the software revenue recognition standards which require us to establish VSOE of fair value to allocate arrangement consideration to multiple deliverables.

For multiple-element arrangements that contain software and nonsoftware elements such as our subscription services, we allocate revenue between the software and software related elements as a group and any nonsoftware elements based on a relative fair value allocation. We determine fair value for each deliverable using the selling price hierarchy described above and utilizing VSOE of fair value if it exists.

We apply the residual method to recognize revenue for the delivered elements in stand-alone software transactions. Under the residual method, the amount of revenue allocated to delivered elements equals the total arrangement consideration, less the aggregate fair value of any undelivered elements, typically maintenance, provided that VSOE of fair value exists for all undelivered elements. VSOE of fair value is based on the price charged when the element is sold separately or, in the case of maintenance, substantive renewal rates for maintenance.

Revenue that has been recognized, but for which we have not invoiced the customer, is recorded as unbilled receivables. Invoices that have been issued before revenue has been recognized are recorded as deferred revenue in the accompanying consolidated balance sheets.

Allowance for doubtful accounts

In addition to our initial credit evaluations at the inception of arrangements, we regularly assess our ability to collect outstanding customer invoices. To do so, we make estimates of the collectability of accounts receivable. We provide an allowance for doubtful accounts when we determine that the collection of an outstanding customer receivable is not probable. We also analyze accounts receivable and historical bad debt experience, customer creditworthiness, changes in customer payment history and industry concentration on an aggregate basis when evaluating the adequacy of the allowance for doubtful accounts. If any of these factors change, our estimates may also change, which could affect the level of our future provision for doubtful accounts.

Deferred commissions

Sales commissions earned by our sales force are considered to be direct sales commissions when they are associated specifically with a non-cancellable subscription contract. Direct sales commissions are deferred when earned and amortized over the same period that revenues are recognized for the related non-cancellable subscription contract. During the year ended December 31, 2017, we deferred \$4.0 million of commissions and we amortized \$2.5 million to sales and marketing expenses in the accompanying consolidated statements of operations. During the year ended December 31, 2016, we deferred \$4.3 million of commissions and we amortized \$1.9 million to sales and marketing expenses. Total deferred commissions on our consolidated balance sheets were \$6.3 million and \$4.8 million as of December 31, 2017 and 2016, respectively.

Noncash share-based compensation

We have three noncash share-based compensation plans, the 1999 equity incentive plan, the 2007 equity incentive plan, and the 2017 equity incentive plan which authorize the discretionary granting of various types of stock awards to key employees, officers, directors and consultants. Our 1999 equity incentive plan was terminated in March 2007 for purposes of granting any future equity awards. Our 2007 equity incentive plan was adopted in March 2007 and expired in March 2017. Our 2017 equity incentive plan was adopted in May 2017. We may provide noncash share-based compensation through the grant of: (i) restricted stock awards; (ii) restricted stock unit awards - time, performance and market-based ("RSUs"); (iii) stock options; (iv) stock appreciation rights ("SARs"); (v) phantom stock; and (vi) performance awards, such as market stock units ("MSUs"). In February 2014, we granted inducement awards in an aggregate amount of up to 308,250 shares in accordance with NYSE Rule 303A.08. These inducement awards were in the form of RSUs and MSUs granted to our former Chief Operating Officer and RSUs granted to certain new employees in connection with our acquisitions of PROS France and SignalDemand, Inc.

As of December 31, 2017, we have granted stock options, stock appreciation rights, restricted stock units and market stock units. RSUs granted include time-based and market-based awards in which the number of shares that vest are based upon attainment of target average per share closing price over a requisite trading period.

Noncash share-based compensation expense is measured at the grant date based on the fair value of the award and is recognized as expense on a straight-line basis over the requisite service period, which is generally the vesting period.

The fair value of the RSUs (time-based and performance-based) is based on the closing price of our stock on the date of grant. The fair value and the derived service period of the market-based RSUs is estimated on the date of grant using a Monte Carlo simulation model. The model requires the use of a number of assumptions including the expected volatility of our stock, our risk-free interest rate and expected dividends. Our expected volatility at the date of grant is based on our historical volatility over the performance period.

We estimate the fair value of stock options and SARs using the Black-Scholes option pricing model, which requires us to use significant judgment to make estimates regarding the expected life of the award, volatility of our stock price, the risk-free interest rate and the dividend yield of our stock over the life of the award. The expected life of the award is a historical weighted average of the expected lives of similar securities of comparable public companies. We estimate volatility using our historical volatility. The risk-free interest rate assumption is based on observed interest rates appropriate for the terms of our awards. The dividend yield assumption is based on our expectation of paying no dividends.

As we issue stock options and SARs, we evaluate the assumptions used to value our stock option awards and SARs. If factors change and we employ different assumptions, noncash share-based compensation expense may differ significantly from what we have recorded in the past. If there are any modifications or cancellations of the underlying unvested securities, we may be required to accelerate, increase or cancel any remaining unearned noncash share-based compensation expense. Future noncash share-based compensation expense and unearned noncash share-based compensation will increase to the extent that we grant additional equity awards to employees.

We estimate the number of awards that will be forfeited and recognize expense only for those awards that ultimately are expected to vest. Significant judgment is required in determining the adjustment to noncash share-based compensation expense for estimated forfeitures. Noncash share-based compensation expense in a period could be impacted, favorably or unfavorably, by differences between forfeiture estimates and actual forfeitures.

MSUs are performance-based awards that cliff vest based on our shareholder return relative to the total shareholder return of the Russell 2000 Index ("Index") over the three year periods ending December 31, 2016, December 31, 2017, March 2, 2018, February 28, 2019, February 28, 2020 and October 9, 2020 ("Performance Period"), respectively. The MSUs vest on January 1, 2016, January 1, 2017, January 1, 2018, March 3, 2018, March 1, 2019, March 1, 2020 and October 9, 2020, respectively. The maximum number of shares issuable upon vesting is 200% of the MSUs initially granted based on the average price of our common stock relative to the Index during the Performance Period. We estimate the fair value of MSUs on the date of grant using a Monte Carlo simulation model. The determination of fair value of the MSUs is affected by our stock price and a number of assumptions including the expected volatilities of our stock and the Index, the risk-free interest rate and expected dividends. Our expected volatility at the date of grant was based on the historical volatilities of our stock and the Index over the Performance Period.

We record deferred tax assets for stock based compensation awards that will result in future deductions on our income tax returns, based on the amount of stock based compensation recognized at the statutory tax rate in the jurisdiction in which we will receive a tax deduction. Because the deferred tax assets we record are based upon the stock based compensation expenses in a particular jurisdiction, the aforementioned inputs that affect the fair values of our stock awards may also indirectly affect our income tax expense. In addition, differences between the deferred tax assets recognized for financial reporting purposes and the actual tax deduction reported on our income tax returns are recorded in our income tax (expense) income.

At December 31, 2017, we had \$31.4 million of total unrecognized compensation costs related to noncash share-based compensation arrangements for stock options, SARs, RSUs and MSUs granted. These costs will be recognized over a weighted-average period of 2.3 years.

Accounting for income taxes

We estimate our income taxes based on the various jurisdictions where we conduct business and we use estimates in determining our provision for income taxes. We estimate separately our deferred tax assets, related valuation allowances, current tax liabilities and deferred tax liabilities. The calculation of our tax liabilities involves dealing with uncertainties in the application of complex tax rules and the potential for future adjustment of our uncertain tax positions by the U.S. Internal Revenue Service or other taxing jurisdictions. We estimate our current tax liability and assess temporary differences that result from differing treatments of certain items for tax and accounting purposes. These differences result in deferred tax assets and liabilities, which we show on our balance sheet. At December 31, 2017, our deferred tax assets consisted primarily of temporary differences related to noncash share-based compensation, R&E tax credit carryforwards and net operating losses.

We review the realizability of our deferred tax asset on a quarterly basis, or whenever events or changes in circumstances indicate that a review is required. In determining the requirement for a valuation allowance, the historical and projected financial results of the legal entity or consolidated group recording the net deferred tax asset are considered, along with any other positive or negative evidence. Since future financial results may differ from previous estimates, periodic adjustments to our valuation allowances may be necessary. We continually perform an analysis related to the realizability of our deferred tax assets. As a result, and after considering tax planning initiatives and other positive and negative evidence, we determine that it is more likely than not that our net deferred tax assets will not be realized. During 2017, there was not sufficient positive evidence to outweigh the current and historic negative evidence to determine that it was more likely than not that our net deferred tax assets would not be realized. Therefore, we continue to have a valuation allowance against net deferred tax assets as of December 31, 2017.

We account for uncertain income tax positions recognized in our financial statements in accordance with the Income Tax Topic of the Accounting Standards Codification ("ASC"), issued by the FASB. This interpretation requires companies to use a prescribed model for assessing the financial recognition and measurement of all tax positions taken or expected to be taken in their tax returns. This guidance provides clarification on recognition, classification, interest and penalties, accounting in interim periods, disclosures and transition. *Please see Note 11 to the Consolidated Financial Statements for more information.*

Business combinations

We record tangible and intangible assets acquired and liabilities assumed in business combinations under the purchase method of accounting. Amounts paid for each acquisition are allocated to the assets acquired and liabilities assumed based on their fair values at the date of acquisition. We then allocate the purchase price in excess of net tangible assets acquired to identifiable intangible assets based on detailed valuations that use information and assumptions provided by management. We allocate any excess purchase price over the fair value of the net tangible and intangible assets acquired and liabilities assumed to goodwill. If the fair value of the assets acquired exceeds our purchase price, the excess is recognized as a gain.

Significant management judgments and assumptions are required in determining the fair value of acquired assets and liabilities, particularly acquired intangible assets. The valuation of purchased intangible assets is based upon estimates of the future performance and cash flows from the acquired business. Each asset is measured at fair value from the perspective of a market participant.

If different assumptions are used, it could materially impact the purchase price allocation and adversely affect our results of operations, financial condition and cash flows.

Intangible assets, goodwill and long-lived assets

When we acquire a business, a portion of the purchase consideration is typically allocated to acquired technology and other identifiable intangible assets, such as customer relationships. The excess of the purchase consideration over the net of the acquisition-date fair value of identifiable assets acquired and liabilities assumed is recorded as goodwill. We estimate fair value primarily utilizing the market approach, which calculates fair value based on the market values of comparable companies or comparable transactions. The amounts allocated to acquired technology and other intangible assets represent our estimates of their fair values at the acquisition date. We amortize our intangible assets that have finite lives using either the straight-line method or, if reliably determinable, the pattern in which the economic benefit of the asset is expected to be consumed utilizing expected undiscounted future cash flows. Amortization is recorded over the estimated useful lives ranging from two to eight years.

We review our intangible assets subject to amortization to determine if any adverse conditions exist or a change in circumstances has occurred that would indicate impairment or a change in the remaining useful life. If the carrying value of an asset exceeds its undiscounted cash flows, we will write down the carrying value of the intangible asset to its fair value in the period identified. In assessing recoverability, we must make assumptions regarding estimated future cash flows and discount rates. If these estimates or related assumptions change in the future, we may be required to record impairment charges. If the estimate of an intangible asset's remaining useful life is changed, we will amortize the remaining carrying value of the intangible asset prospectively over the revised remaining useful life.

We assess goodwill for impairment as of November 30 of each fiscal year, or more frequently if events or changes in circumstances indicate that the fair value of our reporting unit has been reduced below its carrying value. When conducting our annual goodwill impairment assessment, we use a three step process. The first step is to perform an optional qualitative evaluation as to whether it is more likely than not that the fair value of our reporting unit is less than its carrying value, using an assessment of relevant events and circumstances. In performing this assessment, we are required to make assumptions and judgments including but not limited to an evaluation of macroeconomic conditions as they relate to our business, industry and market trends, as well as the overall future financial performance of our reporting unit and future opportunities in the markets in which it operates. If we determine that it is not more likely than not that the fair value of our reporting unit is less than its carrying value, we are not required to perform any additional tests in assessing goodwill for impairment. However, if we conclude otherwise or elect not to perform the qualitative assessment, we perform a second step for our reporting unit, consisting of a quantitative assessment of goodwill impairment. This quantitative assessment requires us to estimate the fair value of our reporting unit and compare the estimated fair value to its respective carrying value (including goodwill) as of the date of the impairment test. The third step, employed for our reporting unit if it fails the second step, is used to measure the amount of any potential impairment and compares the implied fair value of our reporting unit with the carrying amount of goodwill.

Recent accounting pronouncements

See Note 2 - Summary of Significant Accounting Policies to the Consolidated Financial Statements included in this report, regarding the impact of certain recent accounting pronouncements on our Consolidated Financial Statements.

Item 7A. Quantitative and qualitative disclosures about market risk

Foreign Currency Exchange Risk

Our contracts are predominately denominated in U.S. dollars; however, we have contracts denominated in foreign currencies and therefore a portion of our revenue is subject to foreign currency risks. The primary market risk we face is from foreign currency exchange rate fluctuations. Our cash flows are subject to fluctuations due to changes in foreign currency exchange rates. The effect of an immediate 10% adverse change in exchange rates on foreign denominated receivables as of December 31, 2017, would have resulted in a \$0.2 million loss. We are also exposed to foreign currency risk due to our French subsidiary, PROS France. A hypothetical 10% adverse change in the value of the U.S. dollar in relation to the Euro, which is our single most significant foreign currency exposure, would have changed revenue for the year ended December 31, 2017 by approximately \$0.9 million. In addition, as of December 31, 2017, we had operating subsidiaries in Australia, Ireland, Canada, Bulgaria, United Arab Emirates, the United Kingdom and Germany. Due to the relative low volume of payments made by us through these foreign subsidiaries, we do not believe we have significant exposure to foreign currency exchange risks, however, fluctuations in currency exchange rates could harm our results of operations in the future.

We currently do not use derivative financial instruments to mitigate foreign currency exchange risks. We continue to review this issue and may consider hedging certain foreign exchange risks through the use of currency futures or options in future years.

Exposure to Interest Rates

Our exposure to market risk for changes in interest rates relates to the variable interest rate on borrowings under our Revolver. As of December 31, 2017, we had no borrowings under the Revolver.

Our investment portfolio mainly consists of short-term interest-bearing obligations, including government and investment grade debt securities and money market funds. These securities are classified as available-for-sale and, consequently, are recorded in the unaudited condensed consolidated balance sheets at fair value with unrealized gains or losses reported as a separate component of accumulated other comprehensive income (loss), net of tax. Our investment strategy is focused on the preservation of capital and supporting our working capital requirements. We do not enter into investments for trading or speculative purposes. We believe that we do not have any material exposure to changes in the fair value as a result of changes in interest rates due to the short term nature of our cash equivalents.

As of December 31, 2017, we had an outstanding principal amount of \$143.8 million and \$106.3 million, respectively, of 2019 Notes and 2047 Notes, which are fixed rate instruments. Therefore, our results of operations are not subject to fluctuations in interest rates. The fair value of the Notes may change when the market price of our stock fluctuates.

Item 8. Financial statements and supplementary data

The consolidated financial statements required to be filed are indexed on page F-1 and are incorporated herein by reference. *See Item 15(a)(1) and (2).*

Item 9. Changes in and disagreements with accountants on accounting and financial disclosure

None.

Item 9A. Controls and procedures

Evaluation of Disclosure Controls and Procedures

As of the end of the period covered by this report, we carried out an evaluation, under the supervision and with the participation of our management, including our Chief Executive Officer and Chief Financial Officer, of the effectiveness of our disclosure controls and procedures as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act. Based on that evaluation as of the period covered by this Annual Report on Form 10-K, our Chief Executive Officer and Chief Financial Officer have concluded that our disclosure controls and procedures were effective to ensure that information we are required to disclose in reports that we file or submit under the Exchange Act (i) is recorded, processed, summarized and reported within the time periods

specified in SEC rules and forms, and (ii) is accumulated and communicated to our management, including our Chief Executive Officer and our Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosure.

Changes in Internal Control over Financial Reporting

In August 2017, we acquired Vayant. For purposes of determining the effectiveness of our internal controls over financial reporting, management has excluded Vayant from its evaluation of these matters. Vayant represented approximately 0.6% of our consolidated total assets as of December 31, 2017 and approximately 2.0% of our consolidated revenues for the year-ended December 31, 2017.

Other than the change described above, there have been no changes in our internal control over financial reporting that occurred during the most recent fiscal quarter that materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Management's Report on Internal Control over Financial Reporting

Our management is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Rules 13a-15(f) and 15d-15(f) under the Exchange Act). Internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with GAAP. Our internal control over financial reporting is a framework that includes policies and procedures that: (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of our assets; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with GAAP, and that our receipts and expenditures are being made only in accordance with authorizations of our management and directors; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of our assets that could have a material effect on the financial statements.

In August 2017, we acquired Vayant. For purposes of determining the effectiveness of our internal controls over financial reporting, management has excluded Vayant from its evaluation of these matters. Vayant represented approximately 0.6% of our consolidated total assets as of December 31, 2017 and approximately 2.0% of our consolidated revenues for the year-ended December 31, 2017.

Our management, with the participation of our Chief Executive Officer and Chief Financial Officer, has assessed the effectiveness of our internal control over financial reporting as of December 31, 2017, based on the criteria in Internal Control — Integrated Framework (2013) issued by COSO. Based on this evaluation, management concluded that our internal control over financial reporting was effective as of December 31, 2017 based upon the COSO criteria.

The effectiveness of our internal control over financial reporting as of December 31, 2017 has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their report, which is included herein.

Item 9B. Other information

None.

Part III

Item 10. *Directors, executive officers and corporate governance*

The information required by this item is incorporated by reference from our proxy statement in connection with our 2018 Annual Meeting of Stockholders, which proxy statement will be filed with the SEC not later than 120 days after the close of our fiscal year ended December 31, 2017.

Item 11. *Executive compensation*

The information required by this item is incorporated by reference from our proxy statement in connection with our 2018 Annual Meeting of Stockholders, which proxy statement will be filed with the SEC not later than 120 days after the close of our fiscal year ended December 31, 2017.

Item 12. *Security ownership of certain beneficial owners and management and related stockholder matters*

The information required by this item is incorporated by reference from our proxy statement in connection with our 2018 Annual Meeting of Stockholders, which proxy statement will be filed with the SEC not later than 120 days after the close of our fiscal year ended December 31, 2017.

Item 13. *Certain relationships, related transactions and director independence*

The information required by this item is incorporated by reference from our proxy statement in connection with our 2018 Annual Meeting of Stockholders, which proxy statement will be filed with the SEC not later than 120 days after the close of our fiscal year ended December 31, 2017.

Item 14. *Principal accountant fees and services*

The information required by this item is incorporated by reference from our proxy statement in connection with our 2018 Annual Meeting of Stockholders, which proxy statement will be filed with the SEC not later than 120 days after the close of our fiscal year ended December 31, 2017.

Part IV

Item 15. *Exhibits and financial statements schedules*

(a)(1) Financial Statements

Reference is made to the Index to Financial Statements in the section entitled "Financial Statements and Supplementary Data" in Part II, Item 8 of this Annual Report on Form 10-K.

(a)(2) Financial Statement Schedules

Reference is made to Schedule II, Valuation and Qualifying Accounts, as indexed on page F-34.

Schedules not listed above have been omitted because they are not applicable or are not required or the information required to be set forth therein is included in the Consolidated Financial Statements or Notes thereto.

(a)(3) Exhibits

Exhibits are as set forth in the section entitled "Exhibit Index" which follows the section entitled "Signatures" in this Annual Report on Form 10-K. Exhibits which are incorporated herein by reference can be inspected and copied at the public reference rooms maintained by the SEC in Washington, D.C., New York, New York, and Chicago, Illinois, and are also available to the public from commercial document retrieval services and at the website maintained by the SEC at <http://www.sec.gov>.

PROS Holdings, Inc.
Index to the Consolidated Financial Statements

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Report of Independent Registered Public Accounting Firm

To the Board of Directors and Stockholders of PROS Holdings, Inc.:

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of PROS Holdings, Inc. and its subsidiaries as of December 31, 2017 and 2016, and the related consolidated statements of comprehensive income (loss), cash flows, and stockholders' equity for each of the three years in the period ended December 31, 2017, including the related notes and financial statement schedule for the years listed in the accompanying index (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of December 31, 2017, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of December 31, 2017 and 2016, and the results of their operations and their cash flows for each of the three years in the period ended December 31, 2017 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2017, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the COSO.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in Management's Report on Internal Control over Financial Reporting appearing under Item 9A. Our responsibility is to express opinions on the Company's consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) ("PCAOB") and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

As described in Management's Report on Internal Control over Financial Reporting, management has excluded Vayant from its assessment of internal control over financial reporting as of December 31, 2017 because it was acquired by the Company in a purchase business combination during 2017. We have also excluded Vayant from our audit of internal control over financial reporting. Vayant is a wholly-owned subsidiary whose total assets and total revenues excluded from management's assessment and our audit of internal control over financial reporting represent 0.6% and 2.0%, respectively, of the related consolidated financial statement amounts as of and for the year ended December 31, 2017.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets

of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

/s/ PricewaterhouseCoopers LLP

San Jose, California
February 15, 2018

We have served as the Company's auditor since 2002.

PROS Holdings, Inc.
Consolidated Balance Sheets
(In thousands, except share and per share amounts)

	December 31,	
	2017	2016
Assets:		
Current assets:		
Cash and cash equivalents	\$ 160,505	\$ 118,039
Short-term investments	—	15,996
Accounts and unbilled receivables, net of allowance of \$760 and \$760, respectively	32,484	33,285
Prepaid and other current assets	9,067	6,337
Total current assets	202,056	173,657
Property and equipment, net	14,007	15,238
Intangibles, net	26,929	12,650
Goodwill	38,458	20,096
Other long-term assets	7,233	6,013
Total assets	<u>\$ 288,683</u>	<u>\$ 227,654</u>
Liabilities and Stockholders' Equity:		
Current liabilities:		
Accounts payable and other liabilities	\$ 2,976	\$ 2,744
Accrued liabilities	6,733	7,279
Accrued payroll and other employee benefits	16,712	18,349
Deferred revenue	75,604	68,349
Total current liabilities	102,025	96,721
Long-term deferred revenue	19,591	11,389
Convertible debt, net	213,203	122,299
Other long-term liabilities	843	639
Total liabilities	335,662	231,048
Commitments and contingencies (Note 14)		
Stockholders' equity:		
Preferred stock, \$0.001 par value, 5,000,000 shares authorized none issued	—	—
Common stock, \$0.001 par value, 75,000,000 shares authorized; 36,356,760 and 35,001,236 shares issued, respectively; 31,939,175 and 30,583,651 shares outstanding, respectively	36	35
Additional paid-in capital	207,924	175,678
Treasury stock, 4,417,585 common shares, at cost	(13,938)	(13,938)
Accumulated deficit	(238,185)	(160,259)
Accumulated other comprehensive loss	(2,816)	(4,910)
Total stockholders' equity	(46,979)	(3,394)
Total liabilities and stockholders' equity	<u>\$ 288,683</u>	<u>\$ 227,654</u>

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

PROS Holdings, Inc.
Consolidated Statements of Comprehensive Income (Loss)
(In thousands, except per share data)

	For the Year Ended December 31,		
	2017	2016	2015
Revenue:			
Subscription	\$ 60,539	\$ 38,158	\$ 28,989
Maintenance and support	69,408	68,565	63,666
Total subscription, maintenance and support	129,947	106,723	92,655
License	5,562	11,814	32,716
Services	33,307	34,739	42,875
Total revenue	168,816	153,276	168,246
Cost of revenue:			
Subscription	27,858	17,379	12,786
Maintenance and support	11,693	13,681	12,173
Total cost of subscription, maintenance and support	39,551	31,060	24,959
License	282	246	304
Services	28,733	32,047	36,147
Total cost of revenue	68,566	63,353	61,410
Gross profit	100,250	89,923	106,836
Operating expenses:			
Selling and marketing	68,116	63,980	74,146
General and administrative	40,336	38,537	38,517
Research and development	56,021	52,804	46,780
Acquisition-related	720	—	—
Impairment of internal-use software	—	—	2,890
Loss from operations	(64,943)	(65,398)	(55,497)
Convertible debt interest and amortization	(13,218)	(9,319)	(8,914)
Other income (expense), net	384	(38)	(661)
Loss before income tax provision	(77,777)	(74,755)	(65,072)
Income tax provision	149	470	739
Net loss	(77,926)	(75,225)	(65,811)
Net loss per share:			
Basic and diluted	(2.46)	(2.47)	(2.23)
Weighted average number of shares:			
Basic and diluted	31,627	30,395	29,578
Other comprehensive (loss) income, net of tax:			
Foreign currency translation adjustment	2,107	(594)	(2,076)
Unrealized gain on short-term investments	(13)	6	3
Other comprehensive loss, net of tax	2,094	(588)	(2,073)
Comprehensive (loss) income	(75,832)	(75,813)	(67,884)

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

PROS Holdings, Inc.
Consolidated Statements of Cash Flows
(In thousands)

	Year Ended December 31,		
	2017	2016	2015
Operating activities:			
Net loss	\$ (77,926)	\$ (75,225)	\$ (65,811)
Adjustments to reconcile net loss to net cash provided by operating activities:			
Depreciation and amortization	10,531	9,507	10,395
Amortization of debt discount and issuance costs	9,264	6,439	6,039
Share-based compensation	22,796	20,466	27,864
Deferred income tax, net	(520)	40	165
Provision for doubtful accounts	—	174	(282)
Loss on disposal of assets	59	19	167
Impairment of internal-use software	—	—	2,890
Changes in operating assets and liabilities:			
Accounts and unbilled receivables	2,022	5,671	32,274
Prepaid expenses and other assets	(3,715)	(915)	229
Accounts payable and other liabilities	700	(2,905)	(4,049)
Accrued liabilities	(1,055)	2,801	800
Accrued payroll and other employee benefits	(2,344)	5,195	(2,048)
Deferred revenue	14,875	14,388	6,899
Net cash (used in) provided by operating activities	(25,313)	(14,345)	15,532
Investing activities:			
Purchase of property and equipment	(1,286)	(7,241)	(6,794)
Purchase of equity securities	—	(2,000)	—
Acquisition of Vayant, net of cash acquired	(34,130)	—	—
Capitalized internal-use software development costs	(2,797)	(1,048)	(233)
Purchase of intangible asset	(125)	(1,625)	—
Change in restricted cash	—	—	100
Purchases in short-term investment	—	(154,990)	(57,697)
Proceeds from maturities of short-term investments	15,992	141,500	55,200
Net cash used in investing activities	(22,346)	(25,404)	(9,424)
Financing activities:			
Exercise of stock options	6,331	889	706
Proceeds from employee stock plans	1,535	1,090	839
Tax withholding related to net share settlement of stock awards	(7,375)	(5,467)	(5,124)
Payment of contingent consideration for PROS France	—	—	(1,304)
Payments of notes payable	(209)	(196)	(263)
Proceeds from issuance of convertible debt, net	93,500	—	—
Debt issuance costs related to convertible debt	(2,978)	—	—
Debt issuance costs related to revolver	(150)	—	(408)
Net cash provided by (used in) financing activities	90,654	(3,684)	(5,554)
Effect of foreign currency rates on cash	(529)	(298)	197
Net increase (decrease) in cash and cash equivalents	42,466	(43,731)	751
Cash and cash equivalents:			
Beginning of period	118,039	161,770	161,019
End of period	\$ 160,505	\$ 118,039	\$ 161,770

PROS Holdings, Inc.
Consolidated Statements of Cash Flows
(In thousands)

Supplemental disclosure of cash flow information:

Cash (paid) refund during period for:

Taxes	\$	(271)	\$	968	\$	(3)
Interest	\$	(4,013)	\$	(3,182)	\$	(2,932)

Noncash investing activities:

Purchase of property and equipment accrued but not paid	\$	38	\$	378	\$	2,722
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The accompanying notes are an integral part of these consolidated financial statements.

PROS Holdings, Inc.
Consolidated Statements of Stockholders' Equity
(In thousands, except share data)

	Common Stock			Treasury Stock		Accumulated (Deficit) Retained Earnings	Accumulated other comprehensive loss	Total Stockholders' Equity
	Shares	Amount	Additional Paid-In Capital	Shares	Amount			
Balance at December 31, 2014	29,060,225	\$ 34	\$ 134,375	4,417,585	\$ (13,938)	\$ (19,223)	\$ (2,249)	\$ 98,999
Exercise of stock options	220,031	—	706	—	—	—	—	706
Restricted and market stock net settlement	421,115	—	(5,124)	—	—	—	—	(5,124)
Proceeds from employee stock plans	37,605	—	839	—	—	—	—	839
Noncash share-based compensation	—	—	27,878	—	—	—	—	27,878
Other comprehensive loss	—	—	—	—	—	—	(2,073)	(2,073)
Net loss	—	—	—	—	—	(65,811)	—	(65,811)
Balance at December 31, 2015	29,738,976	\$ 34	\$ 158,674	4,417,585	\$ (13,938)	\$ (85,034)	\$ (4,322)	\$ 55,414
Exercise of stock options	96,870	—	889	—	—	—	—	889
Restricted and market stock net settlement	682,112	1	(5,467)	—	—	—	—	(5,466)
Proceeds from employee stock plans	65,693	—	1,090	—	—	—	—	1,090
Noncash share-based compensation	—	—	20,492	—	—	—	—	20,492
Other comprehensive loss	—	—	—	—	—	—	(588)	(588)
Net loss	—	—	—	—	—	(75,225)	—	(75,225)
Balance at December 31, 2016	30,583,651	\$ 35	\$ 175,678	4,417,585	\$ (13,938)	\$ (160,259)	\$ (4,910)	\$ (3,394)
Exercise of stock options	651,607	1	6,330	—	—	—	—	6,331
Restricted and market stock net settlement	611,708	—	(7,375)	—	—	—	—	(7,375)
Proceeds from employee stock plans	92,209	—	1,535	—	—	—	—	1,535
Equity component of the convertible notes issuance, net	—	—	8,846	—	—	—	—	8,846
Noncash share-based compensation	—	—	22,910	—	—	—	—	22,910
Other comprehensive loss	—	—	—	—	—	—	2,094	2,094
Net loss	—	—	—	—	—	(77,926)	—	(77,926)
Balance at December 31, 2017	31,939,175	\$ 36	\$ 207,924	4,417,585	\$ (13,938)	\$ (238,185)	\$ (2,816)	\$ (46,979)

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

PROS Holdings, Inc.
Notes to Consolidated Financial Statements

1. Organization and Nature of Operations

PROS Holdings, Inc., a Delaware corporation, through its operating subsidiaries (collectively, the "Company"), provides cloud-based solutions to power the shift to modern commerce by helping companies create personalized and frictionless buying experiences for their customers. Fueled by artificial intelligence, machine learning and proven science, PROS solutions make it possible for companies to price, configure and sell their products and services in an omnichannel environment with speed, precision and consistency. PROS customers benefit from decades of data science expertise infused into its purpose-built industry solutions. The Company provides its solutions to enterprises across the manufacturing, distribution and services industries, including automotive and industrial, business-to-business ("B2B") services, cargo, chemicals and energy, consumer goods, insurance, food and beverage, healthcare, high tech, and travel. The Company also provides professional services to implement its software applications. In addition, the Company provides product maintenance and support to its customers through which they receive unspecified upgrades, maintenance releases and bug fixes during the term of the support period on a when-and-if-available basis.

2. Summary of Significant Accounting Policies

Principles of consolidation and basis of presentation

The Consolidated Financial Statements include the accounts of the Company, and its wholly-owned subsidiaries. All significant intercompany transactions and balances have been eliminated in consolidation. The Consolidated Financial Statements of the Company have been prepared in accordance with generally accepted accounting principles in the United States ("GAAP").

Dollar amounts

The dollar amounts presented in the tabular data within these footnote disclosures are stated in thousands of dollars, except per share amounts, or as noted within the context of each footnote disclosure.

Use of estimates

The Company's management makes estimates and assumptions in the preparation of its audited Consolidated Financial Statements in conformity with GAAP. These estimates and assumptions may affect the reported amounts of assets and liabilities, the disclosure of contingent assets and liabilities at the date of the audited Consolidated Financial Statements and the reported amounts of revenue and expense during the reporting periods. Actual results could differ from those estimates. The complexity of the estimation process and issues related to the assumptions, risks and uncertainties inherent in the application of the percentage-of-completion method of revenue recognition affects the amount of revenue, expenses, unbilled receivables and deferred revenue. Numerous internal and external factors can affect estimates. Estimates are also used for, but not limited to, receivables, allowance for doubtful accounts, useful lives of assets, depreciation and amortization, the fair value of assets acquired and liabilities assumed for business combinations, income taxes and deferred tax asset valuation, valuation of stock options, other current liabilities and accrued liabilities.

Cash and cash equivalents

The Company considers all highly liquid investments with an original maturity of three months or less at the time of purchase, or the ability to be settled in cash within a period of three months, to be cash equivalents, except for commercial paper which is classified as short-term investments. The Company has a cash management program that provides for the investment of excess cash balances, primarily in short-term money market instruments.

Short-term investments

The Company's investments are available-for-sale commercial paper and certificate of deposit that are recorded at fair value in the consolidated balance sheets. The Company classifies all commercial paper regardless of original maturity at purchase date as investments. Unrealized gains and losses on available-for-sale securities are recorded, net of tax, as a component of accumulated other comprehensive income (loss), unless impairment is considered to be other-than-temporary. Other-than-temporary unrealized losses on available-for-sale securities are generally recorded in gain (loss) on investments, net, in the consolidated statements of comprehensive income (loss) unless certain criteria are met. The primary factors considered when determining if a charge must be recorded because a decline in the fair value of an investment is other-than-temporary include whether: (i) the fair value of the investment is significantly below the Company's cost basis; (ii) the financial condition of the issuer of the security has deteriorated; (iii) if a debt security, it is probable that the Company will be unable to collect all amounts

due according to the contractual terms of the security; (iv) the decline in fair value has existed for an extended period of time; (v) if a debt security, such security has been downgraded by a rating agency; and (vi) the Company has the intent and ability to retain the investment for a period of time sufficient to allow for any anticipated recovery in fair value. Investments with remaining maturities of twelve months or less are classified as short-term investments since they are readily convertible to cash to fund short-term operations. Investments with remaining maturities of more than twelve months are classified as long-term investments. The Company had no investments as of December 31, 2017. All of the Company's investments had contractual maturities of less than twelve months as of December 31, 2016.

Cost method investment

Investments in equity securities of privately held companies without readily determinable fair value, where the Company does not exercise significant influence over the investee, are recorded using the cost method of accounting, carrying the investment at historical cost. If there are no identified events or changes in circumstances that might have an adverse effect on the cost method investments, the Company does not estimate the investments' fair value. For all investments, if a decline in the fair value of an investment below the carrying value is determined to be other-than-temporary, such investment is written down to its estimated fair value with a charge to current earnings.

At December 31, 2017 and December 31, 2016, the Company held \$2.0 million of equity securities in a privately held company. This investment is accounted for under the cost method and the Company measures it at fair value on a nonrecurring basis when it is deemed to be other-than-temporarily impaired. The Company estimates fair value of its cost method investment considering available information such as pricing in recent rounds of financing, current cash positions, earnings and cash flow forecasts, recent operational performance and any other readily available market data, which represents level 3 in the fair value hierarchy. As of December 31, 2017, the Company determined there were no other-than-temporary impairments on its cost method investment.

Financial instruments

The carrying amount of the Company's financial instruments, which include cash equivalents, short-term investments, receivables and accounts payable, and cost method investment approximates their fair values at December 31, 2017 and 2016. *For additional information on the Company's fair value measurements, see Note 8 to the Consolidated Financial Statements.*

Allowance for doubtful accounts

The Company maintains an allowance for doubtful accounts which reflects the Company's best estimate of potentially uncollectible receivables. The Company regularly reviews the receivables allowances by considering such factors as historical experience, credit-worthiness, the age of the receivable balances and current economic conditions that may affect a customer's ability to pay and the Company specifically reserves for those deemed uncollectible.

Prepaid expenses and other assets

Prepaid expenses and other assets consist primarily of prepaid third-party cloud infrastructure costs and license fees, deferred project costs and prepaid income taxes.

Property and equipment, net

Property and equipment are recorded at cost, less accumulated depreciation. Maintenance, repairs and minor replacements are charged to expense as incurred. Significant renewals and betterments are capitalized. Depreciation on property and equipment, with the exception of leasehold improvements, is recorded using the straight-line method over the estimated useful lives of the assets. Depreciation on leasehold improvements is recorded using the shorter of the lease term or useful life. When property is retired or disposed of, the cost and related accumulated depreciation are removed from the accounts and any resulting gains or losses are reflected in the Consolidated Statements of Comprehensive Income in the period of disposal.

Internal-use software

Costs incurred to develop internal-use software during the application development stage are capitalized, stated at cost, and depreciated using the straight-line method over the estimated useful lives of the assets. Application development stage costs generally include salaries and personnel costs and third-party contractor expenses associated with internal-use software development, configuration and coding. Capitalization of such costs begins when the preliminary project stage is complete and ceases at the point in which the project is substantially complete and is ready for its intended purpose. Capitalized internal-use software is included in property and equipment, net in the Consolidated Balance Sheets.

Deferred commissions

Sales commissions earned by the Company's sales force are considered to be direct sales commissions when they are associated specifically with a non-cancellable subscription contract. Direct sales commissions are deferred when earned and amortized over the same period that revenues are recognized for the related non-cancellable subscription contract.

Impairment of long-lived assets

Long-lived assets are reviewed for impairment whenever an event or change in circumstances indicates that the carrying amount of an asset or group of assets may not be recoverable. The impairment review includes comparison of future cash flows expected to be generated by the asset or group of assets with the associated assets' carrying value. If the carrying value of the asset or group of assets exceeds its expected future cash flows (undiscounted and without interest charges), an impairment loss is recognized to the extent that the carrying amount of the asset exceeds its fair value. The Company recorded no impairment charges in the year ended December 31, 2017 and 2016. During the year ended December 31, 2015, the Company recorded a full impairment of \$2.9 million related to capitalized internal-use software associated with the expected future cash flows.

Intangible assets and goodwill

Intangible assets that have finite lives are amortized over their useful lives and are reviewed for impairment whenever events or changes in circumstances indicate that the carrying amount of an asset may not be recoverable. During this review, the Company reevaluates the significant assumptions used in determining the original cost and estimated lives of long-lived assets. Although the assumptions may vary from asset to asset, they generally include operating results, changes in the use of the asset, cash flows and other indicators of value. Management then determines whether the remaining useful life continues to be appropriate or whether there has been an impairment of long-lived assets based primarily upon whether expected future undiscounted cash flows are sufficient to support the assets' recovery. If impairment exists, the Company would adjust the carrying value of the asset to fair value, generally determined by a discounted cash flow analysis.

Goodwill represents the excess of the purchase consideration over the net of the acquisition-date fair value of identifiable assets acquired, including identifiable intangible assets, and liabilities assumed in connection with business combinations. Goodwill is not amortized, but is assessed for impairment as of November 30 of each fiscal year, or more frequently if events or changes in circumstances indicate that the fair value of the Company's sole reporting unit has been reduced below its carrying value. When conducting the annual goodwill impairment assessment, a three step process is used. The first step is to perform an optional qualitative evaluation as to whether it is more likely than not that the fair value of the Company's sole reporting unit is less than its carrying value, using an assessment of relevant events and circumstances. In performing this assessment, the Company is required to make assumptions and judgments including but not limited to an evaluation of macroeconomic conditions as they relate to the business, industry and market trends, as well as the overall future financial performance of the reporting unit and future opportunities in the markets in which it operates. If it is determined that it is not more likely than not that the fair value of the reporting unit is less than its carrying value, no additional tests are required to be performed in assessing goodwill for impairment. However, if the Company concludes otherwise or elects not to perform the qualitative assessment, the Company performs a second step, consisting of a quantitative assessment of goodwill impairment. This quantitative assessment requires us to estimate the fair value of the reporting unit and compare the estimated fair value to its respective carrying value (including goodwill) as of the date of the impairment test. The third step, employed for the reporting unit failing the second step, is used to measure the amount of any potential impairment and compares the implied fair value of the reporting unit with the carrying amount of goodwill. Based on the results of the qualitative review of goodwill performed as of November 30, 2017, the Company did not identify any indicators of impairment. As such, the second and third steps described above were not necessary.

Research and development

Research and development costs for software sold to customers are expensed as incurred. These costs include salaries and personnel costs, including employee benefits, third-party contractor expenses, software development tools, an allocation of facilities and depreciation expenses and other expenses in developing new solutions and upgrading and enhancing existing solutions.

Software development costs

Capitalization of software development costs for software to be sold, leased, or otherwise marketed begins upon the establishment of technological feasibility, which is generally the completion of a working prototype that has been certified as having no critical bugs and is a release candidate. Amortization begins once the software is ready for its intended use, generally based on the pattern in which the economic benefits will be consumed. To date, software development costs incurred between completion of a working prototype and general availability of the related product have not been material.

Treasury stock

The Company is authorized to make treasury stock purchases in the open market pursuant to the share repurchase program, which was approved by its Board of Directors on August 28, 2008. The Company accounts for the purchase of treasury stock

under the cost method. *For additional information on the Company's stock repurchase program, see Note 9 to the Consolidated Financial Statements.* There were no treasury stock repurchases for the years ended December 31, 2017, 2016 and 2015.

Revenue recognition

The Company derives its revenues primarily from subscription services fees, professional services, the perpetual licensing of its software products and the associated software maintenance and support services.

The Company commences revenue recognition when all of the following criteria are met:

- there is persuasive evidence of an arrangement;
- the service has been or is being provided to the customer;
- collection of the fee is reasonably assured; and
- the amount of fees to be paid by the customer is fixed and determinable.

Subscription services revenue

Subscription services revenue is generally recognized ratably over the contractual term of the arrangement beginning on the date that the Company's service is made available to the customer, assuming all other revenue recognition criteria have been met. The Company's subscription contracts do not provide customers with the right to take possession of the software supporting the applications and, as a result, are accounted for as service contracts. Any revenue related to up-front activation or set-up fees are deferred and recognized ratably over the estimated period that the customer benefits from the related services. Direct and incremental costs related to up-front activation or set-up activities are capitalized until the date the Company's service is made available and then expensed ratably over the estimated period that the customer benefits from the related services.

For the Company's subscription services that include professional services, the Company determines whether the professional services have stand-alone value. Professional services deemed to have stand-alone value are accounted for separately from subscription services and the subscription services revenue recognition commences on the date that the Company's subscription services are made available to the customer. If determined that the professional services do not have stand-alone value, the transaction is treated as a single element and the subscription services and professional services revenue is deferred until the customer commences use of the subscription services, and the subscription services revenue is recognized over the remaining term of the arrangement.

Maintenance and support revenue

Maintenance and support revenue includes post-implementation customer support and the right to unspecified software updates and enhancements on a when-and-if-available basis. The Company recognizes revenue from maintenance arrangements ratably over the period in which the services are provided. There are limited instances where the Company recognizes maintenance and support revenue at the latter of when the services are provided and when payment is received based on the Company's belief that collectability is not reasonably assured.

License revenue

The Company derives the majority of its license revenue from the sale of perpetual licenses. For software license arrangements that do not require significant modification or customization of the underlying software, the Company recognizes software licenses revenues upon software delivery, assuming all other revenue recognition criteria have been met.

The Company evaluates the nature and scope of professional services for each arrangement, and if it determines that the professional services revenue should not be accounted for separately from license revenue, the license revenue is recognized together with the professional services revenue using the percentage-of-completion method or completed contract method. The completed contract method is also used for contracts where there is a risk over final acceptance by the customer or for contracts that are short-term in nature.

The percentage-of-completion method is measured by the percentage of man-days incurred during the reporting period as compared to the estimated total man-days necessary for each contract for implementation of the software solutions. The Company believes that for each such project, man-days expended in proportion to total estimated man-days at completion represents the most reliable and meaningful measure for determining a project's progress toward completion. Under the Company's fixed-fee arrangements, should a loss be anticipated on a contract, the full amount of the loss is recorded when the loss is determinable.

The Company also licenses software solutions under term license agreements that typically include maintenance during the license term. When maintenance is included for the entire term of the term license, there is no renewal rate and the Company has not established vendor specific objective evidence ("VSOE") of fair value for the maintenance on term licenses. For term license agreements, revenue and the associated costs are deferred until the delivery of the solution and recognized ratably over the remaining license term.

Professional services revenue

Professional services revenues are generally recognized as the services are rendered for time and material contracts, or on a proportional performance basis for fixed price contracts. The majority of the Company's professional services contracts are on a time and materials basis. Training revenues are recognized as the services are rendered.

For the Company's subscription services that include professional services, the Company determines whether the professional services have stand-alone value. Professional services deemed to have stand-alone value are accounted for separately from subscription services and typically recognized as the services are performed. If determined that the professional services do not have stand-alone value, the transaction is treated as a single element, the professional services revenue is deferred until the customer commences use of the subscription services, and the professional services revenue is recognized over the remaining term of the arrangement.

For software license arrangements that include professional services, the Company determines whether the professional services are considered essential to the functionality of the software using factors such as: the nature of its software products; whether they are ready for use by the customer upon receipt; the nature of professional services; the availability of services from other vendors; whether the timing of payments for license revenue coincides with performance of services; and whether milestones or acceptance criteria exist that affect the realizability of the software license fee. For professional services considered essential to the functionality of the software, the license revenue is recognized together with the professional services revenue using the percentage-of-completion method or completed contract method. The completed contract method is also used for contracts where there is a risk over final acceptance by the customer or for contracts that are short-term in nature.

Multiple element arrangements

For arrangements with multiple deliverables, the Company evaluates whether the individual deliverables qualify as separate units of accounting. In order to treat deliverables in a multiple deliverable arrangement as separate units of accounting, the deliverables must have stand-alone value upon delivery. If the deliverables have stand-alone value upon delivery, the Company accounts for each deliverable separately and revenue is recognized for the respective deliverables as they are delivered.

When multiple deliverables included in an arrangement are separable into different units of accounting, the arrangement consideration is allocated to the identified separate units of accounting based on their relative selling price. Multiple deliverable arrangement accounting guidance provides a hierarchy when determining the relative selling price for each unit of accounting. VSOE of selling price, based on the price at which the item is regularly sold by the vendor on a stand-alone basis, should be used if it exists. If VSOE of selling price is not available, third-party evidence ("TPE") of selling price is used to establish the selling price if it exists. If neither VSOE nor TPE exist for a deliverable, arrangements with multiple deliverables can be separated into discrete units of accounting based on the Company's best estimate of selling price ("BESP"). The objective of BESP is to determine the price at which the Company would transact a sale if the product or service were sold on a stand-alone basis. The amount of arrangement fee allocated is limited by contingent revenues, if any. For transactions that only include software and software-related elements, the Company continues to account for such arrangements under the software revenue recognition standards which require it to establish VSOE of fair value to allocate arrangement consideration to multiple deliverables.

For multiple-element arrangements that contain software and nonsoftware elements such as its subscription services, the Company allocates revenue between the software and software related elements as a group and any nonsoftware elements based on a relative fair value allocation. The Company determines fair value for each deliverable using the selling price hierarchy described above and utilizing VSOE of fair value if it exists.

The Company applies the residual method to recognize revenue for the delivered elements in stand-alone software transactions. Under the residual method, the amount of revenue allocated to delivered elements equals the total arrangement consideration, less the aggregate fair value of any undelivered elements, typically maintenance, provided that VSOE of fair value exists for all undelivered elements. VSOE of fair value is based on the price charged when the element is sold separately or, in the case of maintenance, substantive renewal rates for maintenance.

Revenue that has been recognized, but for which the Company has not invoiced the customer, is recorded as unbilled receivables. Invoices that have been issued before revenue has been recognized are recorded as deferred revenue in the accompanying consolidated balance sheets.

Foreign currency

The Company has contracts denominated in foreign currencies and therefore a portion of the Company's revenue is subject to foreign currency risks. Gains and losses from foreign currency transactions, such as those resulting from the settlement of receivables, are classified in other expense, net included in the accompanying Consolidated Statements of Comprehensive Income (Loss).

The functional currency of PROS France SAS ("PROS France") is the Euro. The financial statements of this subsidiary are translated into U.S. dollars using period-end rates of exchange for assets and liabilities, historical rates of exchange for equity, and average rates of exchange for the period for revenue and expenses. Translation gains (losses) are recorded in accumulated other comprehensive income (loss) as a component of stockholders' equity.

Noncash share-based compensation

The Company has three noncash share-based compensation plans, the 1999 Equity Incentive Plan ("1999 Stock Plan"), the 2007 Equity Incentive Plan ("2007 Stock Plan") and the 2017 Equity Incentive Plan ("2017 Stock Plan"), which authorize the discretionary granting of various types of stock awards to key employees, officers, directors and consultants. The 1999 Stock Plan was terminated in March 2007 for purposes of granting any future equity awards. The 2007 Stock Plan was adopted in March 2007 and expired in March 2017 for purposes of granting any future equity awards. The 2017 Stock Plan was adopted in May 2017. The Company may provide noncash share-based compensation through the grant of: (i) restricted stock awards; (ii) restricted stock unit awards - time, performance and market-based ("RSUs"); (iii) stock options; (iv) stock appreciation rights ("SARs"); (v) phantom stock; and (vi) performance awards, such as market stock units ("MSUs"). Also in February 2014, the Company granted inducement awards in an aggregate amount of up to 308,250 shares in accordance with NYSE Rule 303A.08. These inducement awards were in the form of RSUs and MSUs granted to the Company's former Chief Operating Officer and RSUs granted to certain new employees in connection with the acquisitions of PROS France and SignalDemand Inc.

To date, the Company has granted stock options, stock appreciation rights, restricted stock units, time-based, performance-based and market-based, and market stock units. The Company issues common stock from its pool of authorized stock upon exercise of stock options, settlement of stock appreciation rights and market stock units or upon vesting of restricted stock units.

The following table presents the number of awards outstanding for each award type as of December 31, 2017 and 2016 (in thousands):

Award type	Year Ended December 31,	
	2017	2016
Stock options	135	734
Restricted stock units (time-based)	2,133	2,237
Restricted stock units (market-based)	345	460
Stock appreciation rights	356	515
Market stock units	387	342

Stock options. The Company did not grant stock options during 2017 and 2016. The fair value of each stock option was estimated on the date of grant using the Black-Scholes option pricing model.

Restricted stock units. The fair value of the RSUs (time-based and performance-based) is based on the closing price of the Company's stock on the date of grant and is amortized over the vesting period. RSUs include (i) time-based awards, (ii) performance-based awards in which the number of shares that vest are based upon satisfying certain conditions from binding customer agreements for the provision of configure, price, and quote ("CPQ") solutions, and (iii) market-based awards in which the number of shares that vest are based upon attainment of target average per share closing price over a requisite trading period. Market-based RSUs vest if the average trailing closing price of the Company's Common Stock meets certain minimum performance hurdles for at least 105 calendar days prior to September 9, 2020, with 25% vesting at \$27, an additional 25% vesting at \$33, and the remaining 50% vesting at \$41. The Company estimates the fair value and the derived service period of the market-based RSUs on the date of grant using a Monte Carlo simulation model. The model requires the use of a number of assumptions including the expected volatility of the Company's stock, its risk-free interest rate and expected dividends. The Company's expected volatility at the date of grant is based on the historical volatility of the Company over the performance period.

Stock appreciation rights. SARs will be settled in stock at the time of exercise and vest over four years from the date of grant. The Company used the Black-Scholes option pricing model to estimate the fair value of its SARs. The determination of the fair value of SARs utilizing the Black-Scholes model is affected by the Company's stock price and a number of assumptions, including expected volatility, expected life, deliver risk-free interest rate and expected dividends. The Company estimates the expected volatility of common stock at the date of grant based on a combination of its historical volatility and the average volatility of comparable companies. The expected life of the SARs noncash share-based payment awards is a historical weighted average of the expected lives of similar securities of comparable public companies. The risk-free interest rate assumption is based on observed interest rates appropriate for the terms of the Company's awards. The dividend yield assumption is based on the Company's expectation of paying no dividends.

Market stock units. MSUs are performance-based awards that vest based upon the Company's relative shareholder return. The actual number of MSUs that will be eligible to vest is based on the total shareholder return of the Company relative to the total shareholder return of the Russell 2000 Index ("Index") over a three year period ending December 31, 2016, December 31, 2017, March 2, 2018, February 28, 2019, February 28, 2020 and October 9, 2020 ("Performance Period"), respectively. The MSUs vest on January 1, 2017, January 1, 2018, March 3, 2018, March 1, 2019, March 1, 2020, and October 9, 2020, respectively. The maximum number of shares issuable upon vesting is 200% of the MSUs initially granted based on the average price of the Company's common stock relative to the Index during the Performance Period. The Company estimates the fair value of MSUs on the date of grant using a Monte Carlo simulation model. The determination of fair value of the MSUs is affected by the Company's stock price and a number of assumptions including the expected volatility of the Company's stock and the Index, its risk-free interest rate and expected dividends. The Company's expected volatility at the date of grant was based on the historical volatilities of the Company and the Index over the Performance Period.

As the Company issues stock options and SARs, it evaluates the assumptions used to value its stock option awards and SARs. If factors change and the Company employs different assumptions, noncash share-based compensation expense may differ significantly from what has been recorded in the past. If there are any modifications or cancellations of the underlying unvested securities, the Company may be required to accelerate, increase or cancel any remaining unearned noncash share-based compensation expense. Future noncash share-based compensation expense and unearned noncash share-based compensation will increase to the extent that the Company grants additional equity awards to employees.

At December 31, 2017, there were an estimated \$31.4 million of total unrecognized compensation costs related to noncash share-based compensation arrangements. These costs will be recognized over a weighted average period of 2.3 years. *For further discussion of the Company's noncash share-based compensation plans, see Note 10 to the Consolidated Financial Statements.*

Product warranties

For software-as-a-service application subscriptions, the Company generally issues a product warranty for the subscription term, depending on the contract. For on-premise software licenses, the Company generally issues a product warranty for 90 days following the first use of the software in a production environment, depending on the contract. In the Company's experience, warranty costs have been insignificant.

Income taxes

The Company uses the asset and liability method to account for income taxes, including recognition of deferred tax assets and liabilities for the anticipated future tax consequences attributable to differences between financial statement amounts and their respective tax basis. The Company reviews its deferred tax assets for recovery. A valuation allowance is established when the Company believes that it is more-likely than not that some portion of its deferred tax assets will not be realized. Changes in the valuation allowance from period to period are included in the Company's tax provision in the period of change.

The Company accounts for uncertain income tax positions recognized in an enterprise's financial statements in accordance with the income tax topic of the ASC issued by the FASB. This interpretation requires companies to use a prescribed model for assessing the financial recognition and measurement of all tax positions taken or expected to be taken in its tax returns. This guidance provides clarification on recognition, classification, interest and penalties, accounting in interim periods, disclosures and transition. The Company recognized accrued interest and penalties related to income taxes as a component of income tax expense. *For additional information regarding the Company's income taxes, see Note 11 to the Consolidated Financial Statements.*

Segment reporting

The Company reports as one operating segment with the Chief Executive Officer ("CEO") acting as the Company's chief operating decision maker. The Company's CEO reviews financial information presented on a consolidated basis for purposes of allocating resources and evaluating financial performance. The Company has a single reporting unit, and there are no segment managers who are held accountable for operations, operating results or components below the consolidated unit level.

Earnings per share

The Company computes basic earnings (loss) per share by dividing net income (loss) attributable to common stockholders by the weighted average number of common shares outstanding. Diluted earnings (loss) per share is computed by dividing net income (loss) attributable to common stockholders by the weighted average number of common shares and dilutive potential common shares then outstanding. Diluted earnings per share reflect the assumed conversion of all dilutive securities, using the treasury stock method. Dilutive potential common shares consist of shares issuable upon the exercise of stock options, shares of unvested restricted stock units, and settlement of stock appreciation rights. When the Company incurs a net loss, the effect of the Company's outstanding stock options, stock appreciation rights, restricted stock units and market stock units are not included in the calculation of diluted earnings (loss) per share as the effect would be anti-dilutive. Accordingly, basic and diluted net loss per share are identical.

Recently adopted accounting pronouncements

In March 2016, the FASB issued ASU 2016-09, "Compensation – Stock Compensation (Topic 718): Improvements to Employee Share-Based Payment Accounting" which is intended to simplify several aspects of the accounting for share-based payment transactions including the income tax consequences, classification of awards as either equity or liabilities, and classification on the statement of cash flows. This standard is effective for interim and annual reporting periods beginning after December 15, 2016. The Company adopted this standard on January 1, 2017. Upon adoption, the Company recognized the previously unrecognized excess tax benefits using the modified retrospective transition method, which resulted in a cumulative-effect adjustment of \$4.2 million to accumulated deficit. The previously unrecognized excess tax effects were recorded as a deferred tax asset, which was fully offset by a valuation allowance and as such the cumulative adjustment had no net impact on the Company's financial statements. As required by ASU 2016-09, excess tax benefits recognized on stock-based compensation expense are reflected in the condensed consolidated statements of operations as a component of the provision for income taxes on a prospective basis. In addition, ASU 2016-09 allows companies to account for forfeitures as they occur or estimate expected forfeitures over the course of a vesting period; the Company has elected to continue to estimate forfeitures expected to occur to determine the amount of compensation cost to be recognized each period.

Recent accounting pronouncements

In May 2014, the FASB issued Accounting Standards Update No. 2014-09, "Revenue from Contracts with Customers (Topic 606)" ("ASU 2014-09"), which amended the existing FASB Accounting Standards Codification, replaces existing revenue recognition guidance with a comprehensive revenue measurement and recognition standard and expanded disclosure requirements. The standard also provides guidance on the recognition of costs related to obtaining customer contracts. ASU 2014-09, as amended, will be effective in the first quarter of 2018, including interim periods within that reporting period. The Company has evaluated the transition methods and elected to use the modified retrospective method and will adopt this standard beginning January 1, 2018, by recognizing the cumulative effect of initially applying the new standard as an adjustment to the opening balance of accumulated deficit.

The Company believes that the new standard will impact the following policies and disclosures:

- removal of the current limitation on contingent revenue will result in revenue being recognized earlier for certain contracts;
- allocation of subscription and professional services revenue;
- required disclosures including remaining revenue from remaining performance obligations and when the Company expects to recognize revenue; and
- accounting for deferred costs of obtaining a contract with a customer that qualify for deferral and the amortization period.

In the fourth quarter of fiscal 2017, the Company finalized its assessment of the new standard, including completing its contract reviews and its evaluation of the incremental costs of obtaining a contract and related disclosures. The most significant impact relates to its accounting for arrangements that include term-based software licenses bundled with maintenance and support, the deferral of incremental costs of obtaining a contract with a customer, including the period of amortization of such costs, and additional disclosures. Under Topic 605, the revenue attributable to term-based software licenses is recognized ratably over the term of the arrangement, as VSOE does not exist for the undelivered maintenance and support element as it is not sold separately. The requirement to have VSOE for undelivered elements to enable the separation of revenue for the delivered software licenses is eliminated under the new standard. Accordingly, under the new standard, the Company will be required to recognize as revenue a portion of the arrangement fee upon delivery of the software license. The Company expects the adjustment to the opening balance sheet of the accumulated deficit for all revenue related items to be a decrease of approximately \$2.5 million.

The costs to obtain a contract accounting under the new standard is significantly different than the Company's current capitalization policy, as it will require the Company to capitalize additional costs and amortize them over a longer period of time. Under Topic 605, the Company deferred only direct and incremental commission costs to obtain a revenue contract and amortized those costs on a straight-line basis over the term of the related contract. Under the new standard, the concept of what must be capitalized is significantly broader since a direct relationship with a revenue contract is not required. Accordingly, the new standard will result in additional types of costs being capitalized. Additionally, all amounts capitalized will be amortized over the expected period of customer benefit, which is longer than the Company's current policy of amortizing the deferred amounts over the term of the related contract, which are typically 24 to 60 months. The Company expects the adjustment to the opening balance sheet of the accumulated deficit for costs to obtain a contract to be a decrease of approximately \$7.0 million.

The Company does not expect the adoption of ASU 2014-09 to have any impact on its cash flows from operating activities.

In February 2016, the FASB issued ASU 2016-02, "Leases (Topic 842)" which requires the lessee to recognize most leases on the balance sheet thereby resulting in the recognition of lease assets and liabilities for those leases currently classified as operating leases. Lessor accounting remains largely unchanged from current guidance, however, ASU 2016-02 provides improvements that are intended to align lessor accounting with the lessee model and with updated revenue recognition guidance. This standard is effective for interim and annual reporting periods beginning after December 15, 2018. The Company is currently assessing the impact of ASU 2016-02 on its condensed consolidated financial statements.

In August 2016, the FASB issued ASU 2016-15, "Statement of Cash Flows (Topic 230): Classification of Certain Cash Receipts and Cash Payments" which is intended to reduce the diversity in practice on classification of certain transactions in the statement of cash flows. This standard is effective for interim and annual reporting periods beginning after December 15, 2017; early adoption is permitted. The Company is currently assessing the impact of ASU 2016-15 on its condensed consolidated financial statements.

In January 2017, the FASB issued ASU 2017-04, "Intangibles - Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment", which eliminates step two from the goodwill impairment test. Under the amendments in this standard, an entity should recognize an impairment charge for the amount by which the carrying amount of a reporting unit exceeds its fair value; however, the loss recognized should not exceed the total amount of goodwill allocated to that reporting unit. The standard is effective for interim and annual reporting periods beginning after December 15, 2019; earlier adoption is permitted for goodwill impairment tests performed on testing dates after January 1, 2017. The Company is currently assessing the impact of ASU 2017-04 on its condensed consolidated financial statements.

With the exception of the new standards discussed above, there have been no other recent accounting pronouncements or changes in accounting pronouncements during the year ended December 31, 2017, that are of significance or potential significance to the Company.

3. Business Combination

On August 3, 2017, the Company acquired 100% of the issued and outstanding stock of Vayant Travel Technologies, Inc. ("Vayant"), a privately held company based in Sofia, Bulgaria, for total cash consideration, net of cash acquired, of approximately \$34.1 million. Vayant is a cloud software company that provides advanced shopping, merchandising and inspirational travel solutions. The acquisition of Vayant strengthens the Company's modern commerce solutions for the travel industry and positions it to deliver greater value to its travel customers through an end-to-end offer optimization solution designed to help travel companies deliver personalized offers and expanded choices that drive loyalty and growth.

Since the acquisition date, the Company has included \$3.3 million of revenue and \$1.8 million of net loss related to Vayant in its consolidated income statement. During the year ended December 31, 2017, the Company incurred acquisition-related costs of \$0.7 million consisting primarily of advisory, legal fees, and retention of key employees. All of the assets acquired and the liabilities assumed in the transaction have been recognized at their acquisition date fair values at August 3, 2017.

The preliminary allocation of the total purchase price for Vayant is as follows (in thousands):

Cash	\$	1,822
Other current assets		1,235
Noncurrent assets		86
Intangibles		18,600
Goodwill		17,052
Accounts payable and accrued liabilities		(1,668)
Deferred revenue		(600)
Deferred tax liability		(526)
Noncurrent liabilities		(49)
Net assets acquired	\$	<u>35,952</u>

The following are the identifiable intangible assets acquired (in thousands) and their respective useful lives:

	Amount	Useful Life (years)
Developed technology	\$ 11,600	7
Customer relationships	7,000	5
Total	<u>\$ 18,600</u>	

In performing the preliminary purchase price allocation, the Company considered, among other factors, its anticipated future use of the acquired assets, analysis of historical financial performance, and estimates of future cash flows from Vayant's products and services. The allocation resulted in acquired intangible assets of \$18.6 million. The acquired intangible assets consisted of developed technology and customer relationships and were valued using the income approach in which the after-tax cash flows are discounted to present value. The cash flows are based on estimates used to price the transaction, and the discount rates applied were benchmarked with reference to the implied rate of return from the transaction model as well as the weighted average cost of capital. Additionally, the Company assumed certain liabilities in the acquisition, including deferred revenue to which a fair value of \$0.6 million was ascribed using a cost-plus profit approach.

The Company has made a preliminary determination that \$0.5 million of net deferred tax liabilities were assumed on the acquisition date. The deferred tax liability is comprised of the value of intangible assets partially offset by a deferred tax asset related to net operating losses.

The excess of the purchase price over the estimated amounts of net assets as of the effective date of the acquisition was allocated to goodwill. The factors contributing to the recognition of the amount of goodwill are based on several strategic and synergistic benefits that are expected to be realized from the Vayant acquisition. These benefits include the expectation that the combined company's complementary products will strengthen the Company's modern commerce solutions for the travel industry.

The Company believes the combined company will benefit from a broader global presence and, with the Company's direct sales force and larger channel coverage, significant cross-selling opportunities. None of the goodwill is expected to be currently deductible for tax purposes. In accordance with applicable accounting standards, goodwill will not be amortized but instead will be tested for impairment at least annually, or more frequently if certain indicators are present. In the event that the management of the combined company determines that the value of goodwill has become impaired, the combined company will incur a charge for the amount of the impairment during the fiscal quarter in which the impairment occurs.

Pro Forma Financial Information

The unaudited financial information in the table below summarizes the combined results of operations of the Company and Vayant, on a pro forma basis, as though the Company had acquired Vayant on January 1, 2016. The pro forma information for all periods presented also includes the effect of business combination accounting resulting from the acquisition, including amortization charges from acquired intangible assets.

(in thousands, except earnings per share)	Year Ended December 31,	
	2017	2016
Total revenue	\$ 173,866	\$ 160,696
Net loss	(81,476)	(81,652)
Earnings per share - basic and diluted	\$ (2.58)	\$ (2.69)

4. Goodwill and Intangible Assets

The change in the carrying amount of goodwill for the years ended December 31, 2017 and 2016, was as follows (in thousands):

Balance as of December 31, 2015	\$ 20,445
Foreign currency translation adjustments	(349)
Balance as of December 31, 2016	20,096
Goodwill acquired	17,052
Foreign currency translation adjustments	1,310
Balance as of December 31, 2017	\$ 38,458

The goodwill balance related to PROS France is denominated in Euro and the goodwill balance related to Vayant is denominated in the U.S. dollar.

Intangible assets consisted of the following as of December 31, (in thousands):

	Weighted average useful life (years)	December 31, 2017		
		Gross Carrying Amount	Accumulated Amortization*	Net Carrying Amount
Developed technology	7	\$ 26,023	\$ 9,560	\$ 16,463
Maintenance relationships	8	3,565	2,207	1,358
Customer relationships	6	11,840	4,482	7,358
Acquired technology	3	1,750	—	1,750
Total		\$ 43,178	\$ 16,249	\$ 26,929

*Cumulative foreign currency translation adjustments, reflecting movement in the currencies of the underlying entities, increased total intangible assets by approximately \$0.7 million as of December 31, 2017.

	Weighted average useful life (years)	December 31, 2016		
		Gross Carrying Amount	Accumulated Amortization*	Net Carrying Amount
Developed technology	7	\$ 13,223	\$ 5,671	\$ 7,552
Maintenance relationships	8	3,346	1,755	1,591
Customer relationships	7	4,736	2,854	1,882
Acquired technology	4	1,625	—	1,625
Total		\$ 22,930	\$ 10,280	\$ 12,650

*Cumulative foreign currency translation adjustments, reflecting movement in the currencies of the underlying entities, decreased total intangible assets by approximately \$0.2 million as of December 31, 2016.

Customer relationships are amortized over a period ranging from five to eight years.

In the third quarter of 2015, the Company determined that the original strategy for the trade name of 'Cameleon Software SA' had changed which caused a change in estimate related to the useful life of the asset and the amortization related to this intangible asset was accelerated and fully recognized at that time.

In December 2016, the Company purchased a technology-based intangible asset in connection with the equity securities investment made during the same period. The Company estimates that the intangible will be amortized approximately over a 3 year period. During the second half of 2017, the Company purchased an additional technology-based intangible asset which is expected to be amortized over a 3 year period.

Intangible asset amortization expense for the years ended December 31, 2017, 2016 and 2015 was \$5.2 million, \$3.0 million and \$4.8 million, respectively. As of December 31, 2017, the expected future amortization expense for the acquired intangible assets for each of the five succeeding years and thereafter was as follows (in thousands):

Year Ending December 31,	Amount
2018	\$ 7,790
2019	6,408
2020	5,735
2021	3,030
2022	1,921
2023 and thereafter	2,045
Total amortization expense	<u>\$ 26,929</u>

5. Accounts receivable and contracts in progress

Accounts receivable at December 31, 2017 and 2016, consists of the following (in thousands):

	December 31,	
	2017	2016
Accounts receivable	\$ 30,689	\$ 31,722
Unbilled receivables	2,555	2,323
Total receivables	33,244	34,045
Less: Allowance for doubtful accounts	(760)	(760)
Accounts receivable, net	<u>\$ 32,484</u>	<u>\$ 33,285</u>

The bad debt expense reflected in general and administrative expenses in the accompanying Consolidated Statements of Comprehensive Income for the years ended December 31, 2017, 2016 and 2015, totaled approximately zero, \$0.2 million and \$(0.3) million, respectively.

Activity related to contracts in progress at December 31, 2017 and 2016, is summarized as follows (in thousands):

	December 31,	
	2017	2016
Costs and estimated earnings recognized to date	\$ 612,565	\$ 470,239
Progress billings to date	(705,205)	(547,654)
Total	<u>\$ (92,640)</u>	<u>\$ (77,415)</u>

The foregoing table reflects the aggregate invoiced amount of all contracts in progress and maintenance as of the respective dates, including amounts that have already been collected.

These amounts are included in the accompanying Consolidated Balance Sheets at December 31, 2017 and 2016, as follows (in thousands):

	December 31,	
	2017	2016
Unbilled receivables	\$ 2,555	\$ 2,323
Deferred revenue	(95,195)	(79,738)
Total	<u>\$ (92,640)</u>	<u>\$ (77,415)</u>

At December 31, 2017 and 2016, the Company had approximately \$22.3 million and \$25.1 million, respectively, in deferred maintenance and support revenue, and \$57.9 million and \$36.6 million, respectively, in deferred subscription revenue both of which are reflected above within deferred revenue and progress billing.

6. Earnings per share

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

	For the Year Ended December 31,		
	2017	2016	2015
Numerator:			
Net loss	\$ (77,926)	\$ (75,225)	\$ (65,811)
Denominator:			
Weighted average shares (basic)	31,627	30,395	29,578
Dilutive effect of stock options, restricted stock units and stock appreciation rights	—	—	—
Weighted average shares (diluted)	31,627	30,395	29,578
Basic earnings per share	\$ (2.46)	\$ (2.47)	\$ (2.23)
Diluted earnings per share	\$ (2.46)	\$ (2.47)	\$ (2.23)

Dilutive potential common shares consist of shares issuable upon the exercise of stock options, settlement of SARs, and the vesting of RSUs and MSUs. Potential common shares determined to be antidilutive and excluded from diluted weighted average shares outstanding were approximately 2.0 million, 1.8 million and 2.2 million for the years ended December 31, 2017, 2016 and 2015, respectively.

Since the Company has the intention and ability to settle the principal amount of its Notes (*see Note 12*) in cash, the treasury stock method is expected to be used for calculating any potential dilutive effect of the conversion spread on diluted net income per share, if applicable. The conversion spread will have a dilutive impact on diluted net income per share of common stock when the average market price of common stock for a given period exceeds the conversion price of \$33.79 and \$48.63 per share, for the 2019 Notes and 2047 Notes, respectively.

7. Property and equipment, net

Property and equipment, net as of December 31, 2017 and 2016 consists of the following:

	Estimated useful life	December 31,	
		2017	2016
Furniture and fixtures	5-10 years	\$ 2,958	\$ 2,934
Computers and equipment	3-5 years	18,950	20,321
Software	3-6 years	5,430	5,907
Capitalized internal-use software development costs	3 years	4,102	1,078
Leasehold improvements	Shorter of lease term or useful life	5,650	5,601
Construction in progress		19	98
Property and equipment, gross		37,109	35,939
Less: Accumulated depreciation and amortization		(23,102)	(20,701)
Property and equipment, net		\$ 14,007	\$ 15,238

Depreciation and amortization was approximately \$5.4 million, \$6.4 million and \$5.5 million for the years ended December 31, 2017, 2016 and 2015, respectively. During the years ended December 31, 2017, 2016 and 2015, the Company disposed of approximately \$1.8 million, \$2.3 million and \$4.4 million, respectively, of fully depreciated assets. During the years ended December 31, 2017 and 2016, the Company recognized immaterial amounts of loss on disposal of certain non-fully depreciated assets, respectively. During the year ended December 31, 2015, the Company recognized \$0.2 million of loss on disposal of assets. As of December 31, 2017 and 2016, the Company had approximately \$11.1 million and \$9.3 million, respectively, of fully depreciated assets in use.

During the years ended December 31, 2017 and 2016, the Company capitalized internal-use software development costs of approximately \$3.0 million and \$1.1 million, respectively, related to its subscription solutions. As of December 31, 2017 and 2016, \$1.0 million and zero, respectively, capitalized internal-use software development costs were subject to amortization and \$0.1 million and zero capitalized internal-use software development costs was included in accumulated depreciation and amortization for the years ended December 31, 2017 and 2016.

No impairment was recorded for the years ended December 31, 2017 and 2016. During the year ended December 31, 2015, the Company recorded \$2.9 million of impairment charges related to internally developed software. The impairment was triggered by a change in product strategy which resulted in a reduction in projected cash flows.

8. Fair value measurements

The Company adopted fair value measurements guidance for financial and nonfinancial assets and liabilities. The guidance defines fair value, establishes a framework for measuring fair value in GAAP and expands disclosures about fair value measurements.

The guidance defines fair value as the price that would be received to sell an asset, or paid to transfer a liability, in an orderly transaction between market participants. The guidance establishes a fair value hierarchy for valuation inputs that gives the highest priority to quoted prices in active markets for identical assets or liabilities and the lowest priority to unobservable inputs. The fair value hierarchy is as follows:

Level 1: Unadjusted quoted prices in active markets that are accessible at the measurement date for identical, unrestricted assets or liabilities;

Level 2: Quoted prices for similar assets or liabilities in markets that are not active or inputs which are observable, either directly or indirectly, for substantially the full term of the asset or liability; and

Level 3: Prices or valuation techniques that require inputs that are both significant to the fair value measurement and unobservable (i.e., supported by little or no market activity).

A portion of the Company's existing cash and cash equivalents are invested in short-term interest bearing obligations with original maturities less than 90 days, principally various types of money market funds. In addition, the Company had short-term investments consisting of commercial papers and certificate of deposit. The Company does not enter into investments for trading or speculative purposes.

At December 31, 2017 and 2016, the Company had approximately \$131.4 million and \$106.3 million invested in treasury money market funds. The fair value of the treasury money market funds is determined based on quoted market prices, which represents level 1 in the fair value hierarchy as defined by Accounting Standard Codification ("ASC") 820, *"Fair Value Measurement and Disclosure."*

The Company's short-term investments that are measured at fair value are comprised of zero and \$10.0 million invested in available-for-sale commercial paper as of December 31, 2017 and 2016, respectively, and zero and \$6.0 million invested in certificate of deposit at December 31, 2017 and 2016, respectively. The fair value of these accounts is determined based on quoted market prices for similar assets in active markets, which represents level 2 in the fair value hierarchy. The Company's diversified money market funds, treasury money market funds and short-term investments have a fair value that is not materially different from its carrying amount. The Company recorded an immaterial amount of unrealized gain related to the short-term investments for the years ended December 31, 2017 and 2016. Reclassification adjustments for realized gain (loss) on available-for-sale securities in net income were immaterial for the years ended December 31, 2017 and 2016.

The fair value of the Company's Notes is classified in the level 2 hierarchy. *See Note 12 for further detail regarding the Notes.*

In December 2016, the Company purchased \$2.0 million equity securities in a privately held company. This investment is accounted for under the cost method and the Company measures it at fair value on a nonrecurring basis when it is deemed to be other-than-temporarily impaired. The Company estimates fair value of its cost method investment considering available information such as pricing in recent rounds of financing, current cash positions, earnings and cash flow forecasts, recent operational performance and any other readily available market data, which represents level 3 in the fair value hierarchy. An impairment charge to current earnings is recorded when the cost of the investment exceeds its fair value and this condition is determined to

be other-than-temporary. As of December 31, 2017, the Company determined there were no other-than-temporary impairments on its cost method investment.

9. Stockholders' equity

Stock repurchase

On August 25, 2008, the Company's Board of Directors approved a stock repurchase program that authorized the Company to purchase up to \$15.0 million of the Company's outstanding shares of common stock. Under the board-approved repurchase program, share purchases may be made from time to time in the open market or through privately negotiated transactions depending on market conditions, share price, trading volume and other factors, and such purchases, if any, will be made in accordance with applicable insider trading and other securities laws and regulations. These repurchases may be commenced or suspended at any time or from time to time without prior notice.

The Company did not repurchase any shares under this plan for the years ended December 31, 2017 and 2016. The remaining amount available to purchase common stock under this plan was \$10.0 million as of December 31, 2017.

10. Noncash share-based compensation

Employee noncash share-based compensation plans

The Company has three noncash share-based compensation plans; the 1999 Stock Plan, the 2007 Stock Plan and the 2017 Stock Plan. These plans authorize the discretionary granting of various types of stock awards to key employees, officers, directors and consultants. The discretionary issuance of stock awards generally contains vesting provisions ranging from one to four years.

1999 Stock Plan. Under the 1999 Stock Plan, the Company is authorized to grant options to purchase shares of common stock to its employees, directors and consultants at the Company's discretion. The Company's 1999 Stock Plan was terminated in March 2007 for purposes of granting any future equity awards. There were no issued and outstanding stock options to purchase shares of the Company's common stock under the 1999 Stock Plan as of December 31, 2017. All outstanding options were exercised in 2016 and there were no outstanding options remaining as of December 31, 2017.

2007 Stock Plan. The Company's 2007 Stock Plan was adopted in March 2007 and expired in March 2017 for purposes of granting future equity awards. The 2007 Stock Plan had an evergreen provision that allowed for an annual increase equal to the lesser of (i) 3.5% of the Company's outstanding shares, (ii) 900,000 shares, or (iii) any lesser amount determined by the Compensation Committee of the Board of Directors. The Company was authorized to provide these incentives through the grant of: (i) restricted stock awards; (ii) restricted stock unit awards; (iii) stock options; (iv) stock appreciation rights; (v) phantom stock; and (vi) performance awards, such as market stock units. As of December 31, 2017, the Company had outstanding equity awards to acquire 3,244,069 shares of its common stock held by the Company's employees, directors and consultants under the 2007 Stock Plan (assuming MSU performance at 100% of the MSUs initially granted), and inclusive of 134,600 stock options, 2,405,734 RSUs, 356,435 SARs and 347,300 MSUs. As of December 31, 2017, there were no restricted stock awards or phantom stock issued under the 2007 Stock Plan.

In February 2014, the Company granted inducement awards in an aggregate amount of up to 308,250 shares in accordance with NYSE Rule 303A.08. These inducement awards were in the form of RSUs and MSUs granted to the Company's former Chief Operating Officer and RSUs granted to certain new employees in connection with the acquisitions of PROS France and SignalDemand, Inc. As of December 31, 2017, the Company had no outstanding equity inducement awards.

2017 Stock Plan. The Company's 2017 Stock Plan was adopted in May 2017. The purpose of the 2017 Stock Plan is to promote the Company's long-term growth and profitability by making available incentives that will help the Company attract, retain and reward employees whose contributions are essential to its success. Under the 2017 Stock Plan, the Company's employees, officers, directors and other individuals providing services to the Company or any of its affiliates are eligible to receive awards. The 2017 Stock Plan reserved an aggregate amount of 2,500,000 shares for issuance. The Company may provide these incentives through the grant of: (i) restricted stock awards; (ii) restricted stock unit awards; (iii) stock options; (iv) stock appreciation rights; (v) phantom stock; and (vi) performance awards, such as market stock units.

As of December 31, 2017, the Company had outstanding equity awards to acquire 111,961 shares of its common stock held by the Company's employees, directors and consultants under the 2017 Stock Plan (assuming MSU performance at 100% of the MSUs initially granted), and inclusive of 72,292 RSUs and 39,669 MSUs. As of December 31, 2017, 2,348,370 shares remain

available for grant under the 2017 Stock Plan. As of December 31, 2017, there were no options, SARs, restricted stock awards or phantom stock issued under the 2017 Stock Plan.

Noncash share-based compensation expense for all noncash share-based payment awards granted is determined based on the grant-date fair value of the award. The Company recognizes compensation expense, net of estimated forfeitures, which represents noncash share-based awards expected to vest on a straight-line basis over the requisite service period of the award, which is generally the vesting term. Noncash share-based awards typically vest over four years. Stock options are generally granted for a ten-year term. The Company estimates forfeiture rates based on its historical experience for grant years where the majority of the vesting terms have been satisfied. Changes in estimated forfeiture rates are recognized through a cumulative catch-up adjustment in the period of change and thus impact the amount of noncash share-based compensation expense to be recognized in future periods.

Noncash share-based compensation expense is allocated to expense categories on the Consolidated Statements of Comprehensive Income. The following table summarizes noncash share-based compensation expense, net of amounts capitalized, for the years ended December 31, 2017, 2016 and 2015 (in thousands).

	For the Year Ended December 31,		
	2017	2016	2015
Share-based compensation:			
Cost of revenue	\$ 1,971	\$ 2,267	\$ 3,719
Operating expenses:			
Selling and marketing	4,348	3,824	8,536
General and administrative	11,163	9,040	10,293
Research and development	5,314	5,335	5,316
Total included in operating expenses	20,825	18,199	24,145
Total share-based compensation expense	<u>\$ 22,796</u>	<u>\$ 20,466</u>	<u>\$ 27,864</u>

At December 31, 2017, there was an estimated \$31.4 million of total unrecognized compensation costs related to noncash share-based compensation arrangements. These costs will be recognized over a weighted average period of 2.3 years.

Stock options

The following table summarizes the Company's stock option activity for the year ended December 31, 2017 (number of shares and intrinsic value in thousands):

	Number of shares under option	Weighted average exercise price	Weighted average remaining contractual term (year)	Aggregate intrinsic value (1)
Outstanding, December 31, 2016	734	\$ 12.38		
Granted	—	—		
Exercised	(592)	12.41		
Forfeited	—	—		
Expired	(7)	7.43		
Outstanding, December 31, 2017	<u>135</u>	\$ 12.52	0.33	\$ 1,875
Vested and exercisable at December 31, 2017	<u>135</u>	\$ 12.52	0.33	\$ 1,875

(1) The aggregate intrinsic value was calculated based on the positive difference between the estimated fair value of the Company's common stock on December 31, 2017 of \$26.45 and the grant date fair value.

For the years ended December 31, 2017 and 2016, respectively, the Company did not grant any stock options. The total intrinsic value of stock options exercised for the years ended December 31, 2017, 2016 and 2015 was \$7.2 million, \$1.0 million and \$1.6 million, respectively.

RSUs (time-based)

The Company has granted RSUs under the 2017 Stock Plan, the 2007 Stock Plan and as part of the February 2014 inducement awards grant. Time-based RSUs granted to employees, directors and consultants vest in equal annual installments over a one to four year period from the grant date.

The following table summarizes the Company's unvested time-based RSUs as of December 31, 2017, and changes during the year then ended (number of shares and intrinsic value in thousands):

	Number of shares	Weighted average grant date fair value	Weighted average remaining contractual term (year)	Aggregate intrinsic value (1)
Unvested at December 31, 2016	2,237	\$ 18.05		
Granted	964	21.63		
Vested	(813)	19.75		
Forfeited	(255)	19.07		
Unvested at December 31, 2017	2,133	\$ 18.90	2.15	\$ 56,419
Expected to vest at December 31, 2017	2,073	\$ 18.92	2.14	\$ 54,836

(1) The aggregate intrinsic value was calculated based on the fair value of the Company's common stock on December 31, 2017 of \$26.45.

The weighted average grant-date fair value of the time and performance-based RSUs granted during the years ended December 31, 2017, 2016 and 2015 was \$21.63, \$11.69 and \$25.29, respectively.

RSUs (market-based)

During 2016, under the 2007 Stock Plan, the Company granted 460,000 RSUs with a market-based vesting condition to certain executive employees. These market-based RSUs will vest if the average trailing closing price of the Company's Common Stock meets certain minimum performance hurdles for at least 105 calendar days prior to September 9, 2020, with 25% vesting at \$27, an additional 25% vesting at \$33, and the remaining 50% vesting at \$41.

The following table summarizes the Company's unvested market-based RSUs as of December 31, 2017, and changes during the year then ended (number of shares and intrinsic value in thousands):

	Number of shares	Weighted average grant date fair value	Weighted average remaining contractual term (year)	Aggregate intrinsic value (1)
Unvested at December 31, 2016	460	\$ 11.92		
Granted	—	—		
Vested	(115)	15.09		
Forfeited	—	—		
Unvested at December 31, 2017	345	\$ 10.86	2.69	\$ 9,125
Expected to vest at December 31, 2017	331	\$ 10.86	2.69	\$ 8,753

(1) The aggregate intrinsic value was calculated based on the fair value of the Company's common stock on December 31, 2017 of \$26.45.

The Company estimates the fair value and the derived service period of the market-based RSUs on the date of grant using a Monte Carlo simulation model. The model requires the use of a number of assumptions including the expected volatility of the Company's stock, its risk-free interest rate and expected dividends. The Company's expected volatility at the date of grant was based on the historical volatility of the Company over the performance period.

The assumptions used to value the market-based RSUs granted in 2016 were as follows:

	December 31, 2016
Volatility	44.98%
Risk-free interest rate	1.08%
Dividend yield	—

The fair value of the market-based RSUs is expensed over the derived service period for each separate vesting tranche. The derived service period for the vesting tranches of the market-based RSUs ranges between 1.01 and 1.98 years.

SARs

The Company has granted SARs under the 2007 Stock Plan. The SARs will be settled in stock at the time of exercise and vest four years from the date of grant subject to the recipient's continued employment with the Company. The number of shares issued upon the exercise of the SARs is calculated as the difference between the share price of the Company's stock on the date of exercise and the date of grant multiplied by the number of SARs divided by the share price on the exercise date.

The following table summarizes the Company's SARs activity for the year ended December 31, 2017 (number of shares and intrinsic value in thousands):

	Stock appreciation rights	Weighted average exercise price	Weighted average remaining contractual term (year)	Aggregate intrinsic value (1)
Outstanding, December 31, 2016	515	\$ 10.86		
Granted	—	—		
Exercised	(159)	10.61		
Forfeited	—	—		
Expired	—	—		
Outstanding, December 31, 2017	356	\$ 10.97	2.88	\$ 5,518
Exercisable at December 31, 2017	356	\$ 10.97	2.88	\$ 5,518
Vested and expected to vest at December 31, 2017	356	\$ 10.97	2.88	\$ 5,518

(1) The aggregate intrinsic value was calculated based on the positive difference between the estimated fair value of the Company's common stock on December 31, 2017 of \$26.45 and the exercise price of the underlying SARs.

The Company did not grant SARs in 2017, 2016 and 2015.

MSUs

In 2017, 2016 and 2015, the Company granted MSUs to certain executives employees under the 2007 and 2017 Stock Plans. The MSUs are performance-based awards that vest based upon the Company's relative shareholder return. The actual number of MSUs that will be eligible to vest is based on the total shareholder return of the Company relative to the total shareholder return of the Index over the three year Performance Period. The MSUs vest on January 1, 2017, January 1, 2018, March 3, 2018, March 1, 2019, March 1, 2020 and October 9, 2020, respectively. The MSUs maximum number of shares issuable upon vesting is 200% of the MSUs initially granted.

The following table summarizes the Company's MSUs activity for the year ended December 31, 2017 (number of shares and intrinsic value in thousands):

	Number of unvested awards	Weighted average grant date fair value	Weighted average remaining contractual term (year)	Aggregate intrinsic value (1)
Unvested at December 31, 2016	342	\$ 29.06		
Granted	150	28.13		
Exercised	(105)	48.32		
Forfeited	—	—		
Expired	—	—		
Unvested at December 31, 2017	387	\$ 23.48	1.37	\$ 10,235

(1) The aggregate intrinsic value was calculated based on the positive difference between the estimated fair value of the Company's common stock on December 31, 2017 of \$26.45 and the grant date fair value of the underlying MSUs.

The Company estimates the fair value of MSUs on the date of grant using a Monte Carlo simulation model. The determination of fair value of the MSUs is affected by the Company's stock price and a number of assumptions including the expected volatilities of the Company's stock and the Index, its risk-free interest rate and expected dividends. The Company's expected volatility at the date of grant was based on the historical volatilities of the Company and the Index over the Performance Period. The Company did not estimate a forfeiture rate for the MSUs due to the limited size, the vesting period and nature of the grantee population and the lack of history of granting this type of award.

Significant assumptions used in the Monte Carlo simulation model for MSUs granted during the years ended December 31, 2017, 2016 and 2015 are as follows:

	For the Year Ended December 31,		
	2017	2016	2015
Volatility	45.38%	44.06%	42.06%
Risk-free interest rate	1.56%	1.04%	0.89%
Expected option life in years	3.07	2.93	2.95
Dividend yield	—	—	—

The assumptions related to fiscal years 2017 and 2015 are presented on weighted average basis for the various awards granted throughout the period.

Employee stock purchase plan

In June 2013, the Board of Directors authorized an Employee Stock Purchase Plan ("ESPP") which provides for eligible employees to purchase shares on an after-tax basis in an amount between 1% and 10% of their annual pay: (i) on June 30 of each year at a 5% discount of the fair market value of the Company's common stock on January 1 or June 30, whichever is lower, and (ii) on December 31 of each year at a 5% discount of the fair market value of the Company's common stock on July 1 or December 31, whichever is lower. An employee may not purchase more than \$5,000 in either of the six-month measurement periods described above or more than \$10,000 annually. In November 2015, the Board of Directors amended the ESPP plan to increase the discount to 15% of the fair market value of the Company's common stock effective January 1, 2016. The amendment did not change the accounting treatment of the ESPP plan. During the year ended December 31, 2017, the Company issued 92,209 shares under the ESPP. As of December 31, 2017, 291,101 shares remain authorized and available for issuance under the ESPP. As of December 31, 2017, the Company held approximately \$0.8 million on behalf of employees for future purchases under the ESPP and this amount was recorded in accrued liabilities in the Company's Consolidated Balance Sheet.

11. Income taxes

The income tax provision (benefit) consisted of the following for the years ended December 31, 2017, 2016 and 2015 (in thousands):

	Year Ended December 31,		
	2017	2016	2015
Current:			
Federal	\$ —	\$ 19	\$ (51)
State and Foreign	669	402	621
	669	421	570
Deferred:			
Federal	(488)	51	159
State	(32)	(2)	10
Income tax provision	<u>\$ 149</u>	<u>\$ 470</u>	<u>\$ 739</u>

The differences between the effective tax rates reflected in the total provision for income taxes and the U.S. federal statutory rate of 34% for the years ended December 31, 2017, 2016 and 2015, respectively, were as follows (in thousands):

	Year Ended December 31,		
	2017	2016	2015
Provision at the U.S. federal statutory rate	\$ (26,443)	\$ (25,338)	\$ (22,124)
Increase (decrease) resulting from:			
State income taxes, net of federal taxes	18	3	74
Nondeductible expenses	373	457	1,195
Acquisition-related expense	245	(4)	(4)
Statutory to GAAP income adjustment	(77)	(274)	119
Foreign Tax Expense	—	2	350
Noncash share-based compensation	(3,405)	604	2,201
Incremental benefits for tax credits	(1,711)	(1,663)	(1,947)
Change in tax rate/income subject to lower tax rates and other	2,625	49	(15)
Change related to US tax reform	31,359	—	—
Change in valuation allowance	(2,835)	26,634	20,890
Income tax provision	<u>\$ 149</u>	<u>\$ 470</u>	<u>\$ 739</u>

The Company's effective tax rate was a provision of 0%, 1% and 1% for the years ended December 31, 2017, 2016 and 2015, respectively. During the year ended December 31, 2017, the Company's effective tax rate was impacted primarily by a valuation allowance, foreign taxes and other nondeductible expenses, partially offset by the R&E credit and the tax law changes under the Tax Cuts and Jobs Act.

On December 22, 2017, the Tax Cuts and Jobs Act was signed into law by the President of the United States and included a broad range of tax reform proposals affecting businesses, including corporate tax rates, business deductions, and international tax provisions. The Tax Cuts and Jobs Act reduced the United States corporate income tax rate to 21% effective January 1, 2018. The Company has remeasured the deferred tax assets as of December 31, 2017 to reflect the tax rate reduction and this resulted in a deferred tax expense of \$31.4 million. The tax expense is offset by a release of valuation allowance of \$31.4 million resulting in no expense for the year ended December 31, 2017.

The Tax Cuts and Jobs Act imposes a repatriation tax on any accumulated offshore earnings and profit. As of December 31, 2017, the Company has reviewed the offshore earnings and profits and has no additional earnings to repatriate and has provided for no tax. The Company continues to review the changes surrounding the deductibility of business expenses and stock compensation for executives as more guidance is issued.

Although PROS has included what it believes to be a reasonable estimate of the impact of the income tax effects of the Act on the Company's consolidated financial statements as of December 31, 2017, it should be considered provisional. As the

Company finalizes certain tax positions and reviews additional guidance available on tax reform, it will be able to conclude whether any further adjustments to current and deferred tax, current tax payable and receivable, and deferred income tax balances are required to the net deferred tax assets as well as to a liability related to the one-time repatriation tax. Any adjustments to these provisional amounts will be reported as a component of income tax expense in the reporting period in which the adjustments are determined, which will occur no later than the fourth quarter of 2018.

The tax effects of temporary differences and other tax attributes that give rise to significant portions of the deferred tax assets and liabilities as of December 31, 2017 and 2016 are as follows (in thousands):

	Year Ended December 31,	
	2017	2016
Noncurrent deferred taxes:		
Property and equipment	\$ (847)	\$ (2,114)
Noncash share based compensation	6,373	8,053
State deferred	—	242
Capitalized software	(1,397)	(1,591)
Amortization	(5,096)	(2,187)
R&E tax credit carryforwards	9,340	6,852
Deferred revenue	2,996	2,265
Federal Net Operating Losses ("NOLs")	46,907	40,671
State NOLs	1,050	1,517
State Credits	1,613	1,348
Foreign NOLs	9,057	10,663
Foreign tax credit carryforward	2,521	1,795
Other	1,425	1,317
Total noncurrent deferred tax assets	73,942	68,831
Less: valuation allowance	(74,153)	(69,049)
Total noncurrent deferred tax liability	(211)	(218)
Total net deferred tax liability	\$ (211)	\$ (218)

The net deferred tax liability is classified as other noncurrent liabilities in the accompanying Consolidated Balance Sheets.

The Company has federal and state net operating loss carryforwards related to past acquisitions and current year losses. Internal Revenue Code Section 382 ("Section 382") places certain limitations on the annual amount of U.S. net operating loss carryforwards that can be utilized when a change of ownership occurs. The Company believes the past acquisitions were changes in ownership pursuant to Section 382, subjecting federal acquired net operating losses to limitations. According to French law the net operating loss carryforwards are not subject to ownership change limitations.

The federal and foreign net operating loss and R&E tax credit carryforward amount available to be used in future periods, taking into account the 382 annual limitation and current year losses, is approximately \$260.1 million and \$11.0 million, respectively. The Company's net operating losses will begin to expire in 2024, R&E credits will begin to expire in 2031, and foreign tax credits will begin to expire in 2022. Also included in net operating losses are \$36.2 million of French carryforwards which have no expiration.

As of December 31, 2014, the Company determined it was more likely than not that it would be unable to fully utilize the majority of its U.S. and state deferred tax assets. As a result, the Company had recorded a valuation allowance against those assets to the extent that they cannot be realized through net operating loss carrybacks to prior years. This valuation allowance is evaluated periodically and will be reversed partially or in whole if business results and the economic environment have sufficiently improved to support realization of some or all of the Company's deferred tax assets. In performing the analysis throughout 2017, the Company determined that there was no sufficient positive evidence to outweigh the current and historic negative evidence to determine that it was more likely than not that the deferred assets would not be realized. Therefore, the Company continues to have a valuation allowance against net deferred tax assets as of December 31, 2017 and 2016.

Undistributed earnings of the Company's foreign subsidiaries are considered permanently reinvested and, accordingly, no provision for U.S. federal or state income taxes has been provided thereon. The cumulative amount of undistributed earnings of the Company's non-U.S. subsidiaries was immaterial for the years ended December 31, 2017 and 2016. The determination of

the related deferred tax liability, which requires complex analysis of international tax situations related to repatriation, is not practical at this time. The Company is presently investing in international operations located in Europe, North America, and Australia. The Company is funding the working capital needs of its foreign operations through its U.S. operations. In the future, the Company plans to utilize its foreign undistributed earnings, as well as continued funding from its U.S. operations, to support its continued foreign investment.

For the years ended December 31, 2017, 2016 and 2015, the Company had \$0.2 million, \$0.2 million and \$0.2 million, respectively, of net unrecognized tax benefits which, if recognized, would impact the Company's effective tax rate. The Company recorded immaterial amounts for interest and penalties as of December 31, 2017, 2016 and 2015, respectively. The Company believes that it is reasonably possible that there will be no change in the unrecognized tax benefits within the next twelve months.

The Company is not aware of any significant income tax examinations in progress at this time. The Company files tax returns in the United States and various state and foreign jurisdictions. The Company is subject to U.S. federal income tax examination for the calendar tax years 2016, 2015 and 2014 and state and foreign income tax examination for various years depending on the statutes of limitation of those jurisdictions.

The following table sets forth the changes to the Company's unrecognized tax benefit for the year ended December 31, 2017, 2016 and 2015 (in thousands):

	Year Ended December 31,		
	2017	2016	2015
Beginning balance	\$ 192	\$ 192	\$ 395
Changes based on tax positions related to prior year	—	—	21
Changes due to settlement	(9)	—	(224)
Ending balance	<u>\$ 183</u>	<u>\$ 192</u>	<u>\$ 192</u>

The table above has been updated to reflect gross tax liability, exclusive of interest and penalties and other offsetting amounts.

12. Convertible Senior Notes

The Company issued \$143.8 million principal amount of convertible senior notes in December 2014 (the "2019 Notes") and \$106.3 million principal amount of convertible senior notes in June 2017 (the "2047 Notes" and collectively with the 2019 Notes, the "Notes"). The interest rates for the Notes are fixed at 2.0% per annum. Interest is payable semi-annually in arrears on June 1 and December 1 of each year, commencing on June 1, 2015 for the 2019 Notes, and on December 1, 2017 for the 2047 Notes. The 2019 Notes mature on December 1, 2019, unless redeemed or converted in accordance with their terms prior to such date. The 2047 Notes mature on June 1, 2047, unless repurchased, redeemed or converted in accordance with their terms prior to such date.

Each \$1,000 of principal of the 2019 Notes will initially be convertible into 29.5972 shares of the Company's common stock, which is equivalent to an initial conversion price of approximately \$33.79 per share. Each \$1,000 of principal amount at maturity of the 2047 Notes had an issue price of \$880, and will initially be convertible into 20.5624 shares of the Company's common stock, which is equivalent to an initial conversion price of approximately \$48.63 per share. The initial conversion price for each of the Notes is subject to adjustment upon the occurrence of certain specified events. An amount equal to the difference between the issue price and the principal amount at maturity will accrete to the 2047 Notes in accordance with the schedule set forth in the 2047 Notes. The issue price plus such accreted amount of the 2047 Notes is referred to herein as the "accreted principal amount." On June 1, 2022, the accreted principal amount will accrete to 100% of the principal amount at maturity.

The Notes are each general unsecured obligations and rank senior in right of payment to all of the Company's indebtedness that is expressly subordinated in right of payment to the Notes, rank equally in right of payment with all of the Company's existing and future liabilities that are not so subordinated, are effectively junior to any of the Company's secured indebtedness to the extent of the value of the assets securing such indebtedness and are structurally subordinated to all indebtedness and other liabilities (including trade payables but excluding intercompany obligations owed to the Company or its subsidiaries).

On or after September 1, 2019 to the close of business on the second scheduled trading day immediately preceding the maturity date, holders may convert all or any portion of their 2019 Notes regardless of the contingent conversion conditions described herein. Upon conversion, the Company will pay or deliver cash, shares of its common stock or a combination of cash and shares of its common stock, at its election, as described in the indenture governing the 2019 Notes.

On or before June 1, 2021, and subject to the satisfaction of certain conditions, the Company is entitled to elect to redeem all or any portion of the 2047 Notes at a redemption price equal to 100% of the accreted principal amount of the 2047 Notes, plus accrued and unpaid interest to, but excluding, the redemption date, if the daily volume weighted average price of the Company's common stock is greater than or equal to 130% of the conversion price for at least 20 trading days during any 30 consecutive trading day period. After June 1, 2021, the Company will be entitled to elect to redeem all or any portion of the 2047 Notes (without regard to the price of the Company's common stock) at a redemption price equal to the then current accreted principal amount of the 2047 Notes, plus accrued and unpaid interest to, but excluding, the redemption date.

Holders may convert their 2019 Notes at their option at any time prior to the close of business on the business day immediately preceding September 1, 2019 only under the following circumstances:

- during any calendar quarter commencing after the calendar quarter ending on March 31, 2015, if the last reported sale price of the common stock for at least 20 trading days (whether or not consecutive) during a period of 30 consecutive trading days ending on the last trading day of the immediately preceding calendar quarter is greater than or equal to 130% of the conversion price on each applicable trading day;
- during the five consecutive business day period immediately following any five consecutive trading day period in which the trading price per \$1,000 principal amount of 2019 Notes for each trading day of the measurement period was less than 98% of the product of the last reported sale price of the Company's common stock and the conversion rate on each such trading day; or
- upon the occurrence of specified corporate events.

Holders may convert their 2047 Notes at their option on any day prior to the close of business on the business day immediately preceding March 1, 2047 under the following circumstances:

- during any calendar quarter commencing after the calendar quarter ending September 30, 2017, if the last reported sale price of the Company's common stock for 20 or more trading days (whether or not consecutive) in a period of 30 consecutive trading days ending on the last trading day of the immediately preceding calendar quarter exceeds 130% of the applicable conversion price in effect on each such trading day;
- during the five consecutive business day period immediately following any five consecutive trading day period (the "Measurement Period") in which the trading price per 2047 Note for each day of that Measurement Period was less than 98% of the product of the last reported sale price of the Company's common stock and the conversion rate on each such day; or
- upon the occurrence of specified corporate events.

The 2047 Notes will also be convertible, regardless of the foregoing circumstances, at any time from, and including, March 1, 2047 until the close of business on the second scheduled trading day immediately preceding the applicable maturity date. Each holder of the 2047 Notes has the right to require the Company to repurchase for cash all or any portion of such holder's 2047 Notes on June 1, 2022 at a price per \$1,000 principal amount of the 2047 Notes equal to the accreted principal amount at maturity plus accrued and unpaid interest to, but excluding, the repurchase date.

If a fundamental change (as defined in the relevant indenture governing the applicable series of Notes) occurs prior to the maturity date, holders of each of the 2019 Notes and 2047 Notes may require the Company to repurchase all or a portion of their notes for cash at a repurchase price equal to 100% of the principal amount at maturity of the Notes, plus any accrued and unpaid interest to, but excluding, the repurchase date. If such a fundamental change occurs prior to June 1, 2022, holders of the 2047 Notes may also require the Company to repurchase all or a portion of their notes for cash at a repurchase price equal to the then current accreted principal amount of the Notes, plus any accrued and unpaid interest to, but excluding, the repurchase date. In addition, if specific corporate events occur prior to the applicable maturity date, the Company will be required to increase the conversion rate for holders who elect to convert their notes in certain circumstances. Holders who convert their 2047 Notes in connection with a Make-Whole Fundamental Change (as defined in the indenture governing the 2047 Notes) or in connection with a redemption of such 2047 Notes on or prior to June 1, 2021 will, under certain circumstances, be entitled to a make-whole premium in the form of an increase in the conversion rate determined by reference to a make-whole table set forth in such indenture.

As of December 31, 2017, the 2019 Notes and the 2047 Notes are not yet convertible.

In accordance with accounting guidance on embedded conversion features, the Company valued and bifurcated the conversion options associated with each of the 2019 Notes and 2047 Notes from the respective host debt instrument, which is referred to as debt discount and recorded the conversion option of each of the Notes in stockholders' equity. The equity component for each Note is not remeasured as long as such Note continues to meet the conditions for equity classification.

In accounting for the transaction costs for each of the notes issuance, the Company allocated the costs incurred to the liability and equity components in proportion to the allocation of the proceeds from issuance to the liability and equity components. Issuance costs attributable to the liability component, totaling \$4.3 million for the 2019 Notes and \$2.7 million for the 2047 Notes, are being amortized to expense over the expected life of each notes using the effective interest method. Issuance costs attributable to the equity component related to the conversion option, totaling \$1.2 million for the 2019 Notes and \$0.3 million for the 2047 Notes, were netted with the equity component in stockholders' equity.

The Notes consist of the following (in thousands):

	December 31, 2017	December 31, 2016
Liability component:		
Principal	\$ 250,000	\$ 143,750
Less: debt discount, net of amortization	(36,797)	(21,451)
Net carrying amount	\$ 213,203	\$ 122,299
Equity component ⁽¹⁾	\$ 37,560	\$ 28,714

(1) Recorded within additional paid-in capital in the consolidated balance sheet. As of December 31, 2017, it included \$28.7 million and \$8.8 million related to the 2019 Notes and the 2047 Notes, respectively, net of \$1.2 million and \$0.3 million issuance cost in equity, respectively.

The following table sets forth total interest expense recognized related to the Notes (in thousands):

	Year Ended December 31, 2017	Year Ended December 31, 2016
2.0% coupon	\$ 3,991	\$ 2,880
Amortization of debt issuance costs	1,127	831
Amortization of debt discount	8,100	5,608
Total	\$ 13,218	\$ 9,319

As of December 31, 2017 and December 31, 2016, the fair value of the principal amount of the Notes was \$246.6 million and \$141.1 million, respectively. The estimated fair value was determined based on inputs that are observable in the market or that could be derived from, or corroborated with, observable market data, including the Company's stock price and interest rates, which represents level 2 in the fair value hierarchy.

As of December 31, 2017, the remaining life of the 2019 Notes and the 2047 Notes is approximately 23 months and 53 months, respectively.

Note Hedge and Warrant Transactions

Concurrently with the offering of the 2019 Notes, the Company entered into separate convertible note hedge (the "Note Hedge") and warrant (the "Warrant") transactions. Taken together, the purchase of the Note Hedge and the sale of the Warrant are intended to offset any actual dilution from the conversion of the 2019 Notes and to effectively increase the overall conversion price of the 2019 Notes from \$33.79 to \$45.48 per share. The total cost of the Note Hedge transaction was \$29.4 million. The Company received \$17.1 million in cash proceeds from the sale of the Warrant.

Pursuant to the Warrants, if the average market value per share of the Company's common stock for the reporting period, as measured under the Warrant, exceeds the strike price of the Warrant, the Warrant will have a dilutive effect on the Company's earnings per share. Holders of the 2019 Notes and Note Hedge will not have any rights with respect to the Warrant, as the Note Hedge is not part of the 2019 Notes or the Warrant. The Warrant is not part of the 2019 Notes or Note Hedge. Both the Note Hedge and Warrant have been accounted for as part of additional paid-in capital.

13. Credit Facility

In January 2017, the Company, through its wholly owned subsidiary PROS, Inc., entered into an amendment to extend its \$50 million secured Credit Agreement (the "Revolver") with the lenders party thereto and Wells Fargo Bank, National Association as agent for the lenders party thereto.

The Revolver is for a five year term expiring in July 2022, with interest paid at the end of the applicable one month, three month or six month interest period at a rate per annum equal to LIBOR plus an applicable margin of 1.5% to 2.25% or the Federal Funds Rate plus an applicable margin of 1.5% to 2.25%. Borrowings under the Revolver are collateralized by a first priority interest in and lien on all of the Company's material assets.

The Revolver contains affirmative and negative covenants, including covenants which restrict the ability of the Company to, among other things, create liens, incur additional indebtedness and engage in certain other transactions, in each case subject to certain exclusions. In addition, the Revolver contains certain financial covenants which become effective in the event the Company's liquidity falls below \$50 million or upon the occurrence of an event of default. As of December 31, 2017, the Company was in compliance with all financial covenants in the Revolver.

As of December 31, 2017 and 2016, \$0.2 million and less than \$0.1 million, respectively, of unamortized debt issuance costs related to the Revolver is included in prepaid and other current assets and other long-term assets in the consolidated balance sheets, respectively. For the years ended December 31, 2017 and 2016, the Company recorded an immaterial amount of amortization of debt issuance cost which is included in Other Expense, net in the Consolidated Statements of Comprehensive Income (Loss).

As of December 31, 2017, the Company had no outstanding borrowings under the Revolver.

14. Commitments and contingencies

Litigation

In the ordinary course of the Company's business, the Company regularly becomes involved in contract and other negotiations and, in more limited circumstances, becomes involved in legal proceedings, claims and litigation. The outcomes of these matters are inherently unpredictable. The Company is not currently involved in any outstanding litigation that it believes, individually or in the aggregate, will have a material adverse effect on its business, financial condition, results of operations or cash flows.

Purchase commitments

In the ordinary course of business, the Company enters in various purchase commitments for goods and services.

In June 2017, the Company entered in a noncancellable agreement with a computing infrastructure vendor that expires on June 30, 2020. The purchase commitment as of December 31, 2017 was \$19.7 million for the remaining period under the three-year agreement.

Indemnification

The Company's software agreements generally include certain provisions for indemnifying customers against liabilities if the Company's software solutions infringe a third party's intellectual property rights. To date, the Company has not incurred any losses as a result of such indemnifications and has not accrued any liabilities related to such obligations in the Company's Consolidated Financial Statements.

Lease commitments

The Company leases office space and office equipment under non-cancellable operating leases that expire at various dates. The Company incurred approximately \$3.9 million, \$4.1 million and \$3.5 million of total rent expense for the years ended December 31, 2017, 2016 and 2015, respectively. As of December 31, 2017, the future minimum lease commitments related to lease agreements were as follows:

Year Ending December 31,	Amount
2018	\$ 3,674
2019	2,964
2020	1,479
2021	969
2022	683
2023 and thereafter	45
Total minimum lease payments	<u>\$ 9,814</u>

The Company's headquarters are located in Houston, Texas, where it leases approximately 98,000 square feet of office space. In June 2016, the Company entered into a fifth amendment to this corporate office lease (the "Fifth Lease Amendment"). The Fifth Lease Amendment, among other things, provides for a three year extension, until October 31, 2019, unless earlier terminated or extended pursuant to the terms of the lease. The Company also has smaller regional offices, including in London, England; Toulouse, France; San Francisco, California; and Sofia, Bulgaria. The Company leases approximately 3,000 square feet of office space in London, approximately 14,000 square feet of space in Toulouse, approximately 6,600 of space in San Francisco, and approximately 23,000 square feet of space in Sofia.

As a result of the Vayant acquisition in August 2017, the Company assumed an operating lease in Sofia, Bulgaria that expires in early 2018. In August 2017, the Company entered into a new operating lease in Sofia to replace the expiring Sofia lease. The new lease expires in January 2023.

The Company had no capital leases at December 31, 2017 and 2016.

15. Segment and geographic information

Operating segments are the components of an enterprise about which separate financial information is available that is evaluated on a regular basis by the chief operating decision-maker ("CODM") in deciding how to allocate resources to an individual segment and in assessing performance of the segment. The Company's CODM is its CEO, who reviews financial information presented on a consolidated basis for purposes of allocating resources and evaluating financial performance. The Company sells its pricing and revenue management software to customers in multiple industries and geographies, but has no segment managers who are held accountable for operations, operating results or components below the consolidated unit level. The company does not allocate costs at a level that would give segment managers the ability to meaningfully evaluate financial performance below the level presented to the CODM. Therefore, the Company believes that it operates in one segment and has a single reporting unit.

Revenue by geography

The Company presents financial information on a consolidated basis and does not assess the profitability of its geographic regions. Accordingly the Company does not attempt to comprehensively assign or allocate costs to these regions and does not produce reports for, or measure the performance of, its geographic regions based on any asset-based metrics.

International revenue for the years ended December 31, 2017, 2016 and 2015, amounted to approximately \$105.7 million, \$96.5 million and \$104.5 million, respectively, representing 63%, 63% and 62%, respectively, of annual revenue.

The following geographic information is presented for the years ended December 31, 2017, 2016 and 2015. The Company categorizes geographic revenues based on the location of the customer's headquarters.

	Year Ended December 31,					
	2017		2016		2015	
	Revenue	Percent	Revenue	Percent	Revenue	Percent
The Americas:						
United States of America	\$ 63,097	37%	\$ 56,774	37%	\$ 63,754	38%
Other	13,645	8%	9,335	6%	10,680	6%
Subtotal	76,742	45%	66,109	43%	74,434	44%
Europe	51,273	30%	44,655	29%	47,514	28%
Asia Pacific	26,528	16%	30,457	20%	30,110	18%
The Middle East	11,437	7%	10,567	7%	14,198	8%
Africa	2,836	2%	1,488	1%	1,990	1%
Total revenue	<u>\$ 168,816</u>	100%	<u>\$ 153,276</u>	100%	<u>\$ 168,246</u>	100%

16. Concentrations of credit risk

For the years ended December 31, 2017, 2016 and 2015, no customer accounted for 10% or more of revenue. For the year ended December 31, 2017, no customer accounted for 10% or more of accounts receivables, net and unbilled.

The Company's cash and cash equivalents and short-term investments on deposit with any one party and at any point in time may exceed federally insured limits. To date, the Company has not incurred any losses in connection with short-term investments.

17. Related-party transactions

The Company currently has employment agreements with its executive officers. The employment agreements provide for twelve to eighteen months of salary upon termination without cause or, in some cases, for good reason and the vesting of certain stock options or other equity awards.

18. Employee retirement savings plan

The Company sponsors a 401(k) savings plan ("401(k) Plan"). The 401(k) Plan is available to substantially all United States employees and is designed to provide eligible employees with an opportunity to make regular contributions to a long-term investment and savings program. Historically, the Company's matching contribution is defined as 50% of the first 6% of employee contributions. The Company may also make discretionary contributions. Matching contributions by the Company in 2017, 2016 and 2015 totaled approximately \$2.0 million, \$1.9 million and \$1.8 million, respectively.

19. Quarterly results (Unaudited)

The following table presents certain unaudited quarterly financial data for the years ended December 31, 2017 and 2016. This information has been prepared on the same basis as the accompanying Consolidated Financial Statements and all necessary adjustments have been included in the amounts below to state fairly the selected quarterly information when read in conjunction with the accompanying Consolidated Financial Statements and Notes thereto.

	Quarter Ended			
	December 31, 2017	September 30, 2017	June 30, 2017	March 31, 2017
Total revenue	\$ 46,344	\$ 41,937	\$ 40,406	\$ 40,129
Gross profit	\$ 28,197	\$ 24,213	\$ 24,320	\$ 23,520
Loss from operations	\$ (12,815)	\$ (17,750)	\$ (16,710)	\$ (17,668)
Net loss attributable to PROS Holdings, Inc.	\$ (16,980)	\$ (21,226)	\$ (19,513)	\$ (20,207)
Net loss attributable to common stockholders per share:				
Basic	\$ (0.53)	\$ (0.67)	\$ (0.62)	\$ (0.65)
Diluted	\$ (0.53)	\$ (0.67)	\$ (0.62)	\$ (0.65)

	Quarter Ended			
	December 31, 2016	September 30, 2016	June 30, 2016	March 31, 2016
Total revenue	\$ 39,926	\$ 38,384	\$ 37,038	\$ 37,928
Gross profit	\$ 23,974	\$ 22,742	\$ 20,990	\$ 22,217
Loss from operations	\$ (16,258)	\$ (13,116)	\$ (18,050)	\$ (17,974)
Net loss attributable to PROS Holdings, Inc.	\$ (18,513)	\$ (15,708)	\$ (20,527)	\$ (20,477)
Net loss attributable to common stockholders per share:				
Basic	\$ (0.61)	\$ (0.52)	\$ (0.68)	\$ (0.68)
Diluted	\$ (0.61)	\$ (0.52)	\$ (0.68)	\$ (0.68)

Schedule II
Valuation and Qualifying Accounts

	Balance at beginning of period	Additions charged to costs and expenses	Deductions (1)	Other (2)	Balance at end of period
Allowance for doubtful accounts					
2017	\$ 760	\$ —	\$ —	\$ —	\$ 760
2016	\$ 586	\$ 887	\$ (713)	\$ —	\$ 760
2015	\$ 868	\$ 319	\$ (601)	\$ —	\$ 586
Valuation allowance					
2017	\$ 69,049	\$ 5,872	\$ —	\$ (768)	\$ 74,153
2016	\$ 44,321	\$ 26,634	\$ —	\$ (1,906)	\$ 69,049
2015	\$ 24,027	\$ 20,890	\$ —	\$ (596)	\$ 44,321

(1) Deductions column represents the reversal of additions previously charged to costs and expenses and uncollectible accounts written off, net of recoveries.

(2) Other column represents the cumulative translation adjustment impact on the valuation allowance.

Item 16. Form 10-K summary

Registrants may voluntarily include a summary of information required by Form 10-K under this Item 16. The Registrant has elected not to include such summary information.

Signatures

Pursuant to the requirements of Section 13 or 15(d) of the Exchange Act, the Registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized, on February 15, 2018.

PROS Holdings, Inc.

By: /s/ Andres Reiner

Andres Reiner

President and Chief Executive Officer

KNOW BY THESE PRESENT, that each person whose signature appears below constitutes and appoints each of Andres Reiner and Stefan Schulz, his attorney-in-fact, with the power of substitution, for him in any and all capacities, to sign any amendments to this report on Form 10-K and to file the same, with exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission, hereby ratifying and confirming all that each of the attorney-in-fact, or his substitute or substitutes, may do or cause to be done by virtue hereof.

Pursuant to the requirement of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the Registrant and in the capacities and on the dates indicated.

<u>Signatures</u>	<u>Title</u>	<u>Date</u>
<u>/s/ Andres Reiner</u> Andres Reiner	President, Chief Executive Officer, and Director (Principal Executive Officer)	February 15, 2018
<u>/s/ Stefan Schulz</u> Stefan Schulz	Executive Vice President and Chief Financial Officer (Principal Accounting Officer)	February 15, 2018
<u>/s/ William Russell</u> William Russell	Chairman of the Board	February 15, 2018
<u>/s/ Ellen Keszler</u> Ellen Keszler	Director	February 15, 2018
<u>/s/ Greg B. Petersen</u> Greg B. Petersen	Director	February 15, 2018
<u>/s/ Leslie J. Rechan</u> Leslie J. Rechan	Director	February 15, 2018
<u>/s/ Timothy V. Williams</u> Timothy V. Williams	Director	February 15, 2018
<u>/s/ Mariette M. Woestemeyer</u> Mariette M. Woestemeyer	Director	February 15, 2018
<u>/s/ Ronald F. Woestemeyer</u> Ronald Woestemeyer	Director	February 15, 2018

Exhibit Index

Exhibit No.	Description	Provided Herewith	Incorporated by Reference	
			Form	Filing Date
3.1	<u>Amended and Restated Certificate of Incorporation.</u>		S-1/A	6/15/2007
3.2	<u>Amended and Restated Bylaws.</u>		8-K	8/21/2013
4.1	<u>Specimen certificate for shares of common stock.</u>		S-1/A	6/11/2007
4.2	<u>Indenture, dated December 10, 2014, between Registrant and Wilmington Trust, National Association, as trustee.</u>		8-K	12/10/2014
4.3	<u>Global Note, dated December 10, 2014, between Registrant and Wilmington Trust, National Association, as trustee.</u>		8-K	12/10/2014
4.4	<u>Indenture, dated June 21, 2017, between Registrant and Wilmington Trust, National Association, as trustee.</u>		8-K	6/22/2017
10.1+	<u>1999 Equity Incentive Plan, as amended to date, and form of stock option agreement.</u>		S-1	4/4/2007
10.2+	<u>2007 Equity Incentive Plan.</u>		S-1/A	6/11/2007
10.3+	<u>Form of Non-Qualified Stock Option Agreement under the 2007 Equity Incentive Plan.</u>		10-K	2/22/2013
10.4+	<u>Form of Stock Appreciation Rights Agreement under the 2007 Equity Incentive Plan.</u>		10-K	2/22/2013
10.5+	<u>Form of Restricted Stock Units Agreement under the 2007 Equity Incentive Plan.</u>		10-K	2/22/2013
10.10+	<u>Form of Market Stock Units Agreement under the 2007 Equity Incentive Plan.</u>		10-Q	5/2/2013
10.11+	<u>Form of Market Stock Units Agreement under the 2007 Equity Incentive Plan.</u>		10-K	2/15/2017
10.12+	<u>2017 Equity Incentive Plan.</u>		10-Q	8/3/2017
10.13+	<u>Form of Notice of Grant of Market Stock Units and Award Agreement under the 2017 Equity Incentive Plan.</u>		10-Q	8/3/2017
10.14+	<u>Form of Notice of Grant of Stock Option and Award Agreement under the 2017 Equity Incentive Plan.</u>		10-Q	8/3/2017
10.15+	<u>Form of Notice of Grant of Performance Restricted Stock Units and Award Agreement under the 2017 Equity Incentive Plan.</u>		10-Q	8/3/2017
10.16+	<u>Form of Notice of Grant of Restricted Stock Units and Award Agreement under the 2017 Equity Incentive Plan.</u>		10-Q	8/3/2017
10.17+	<u>Form of Notice of Grant of Stock Appreciation Rights and Award Agreement under the 2017 Equity Incentive Plan.</u>		10-Q	8/3/2017
10.18+	<u>Form of Non-Plan Market Stock Units Agreement.</u>		S-8	2/24/2014
10.19+	<u>Form of Non-Plan Restricted Stock Units Agreement.</u>		S-8	2/24/2014
10.20+	<u>Form of Non-Plan Restricted Stock Units Agreement (France).</u>		S-8	2/24/2014
10.21+	<u>Form of Non-Plan Restricted Stock Units Agreement (Performance France).</u>		S-8	2/24/2014
10.22+	<u>Form of Performance Restricted Stock Unit Agreement.</u>		8-K	9/12/2016
10.23+	<u>2013 Employee Stock Purchase Plan.</u>		8-K	6/7/2013
10.24+	<u>Stock Purchase and Stockholders Agreement, dated June 8, 1998, by and among Registrant (as successor in interest to PROS Strategic Solutions, Inc.) and certain stockholders.</u>		S-1	4/4/2007
10.24.1+	<u>Amendment to Stock Purchase and Stockholders Agreement, dated March 26, 2007, by and among Registrant and certain stockholders.</u>		S-1	4/4/2007
10.25+	<u>Registration Rights Agreement, dated June 8, 2007, by and among Registrant, Mariette M. Woestemeyer and Ronald F. Woestemeyer.</u>		S-1/A	6/11/2007

10.26	<u>Office Lease, dated January 31, 2001, by and between PROS, Inc. (as successor in interest to PROS Revenue Management L.P.) and Houston Community College System.</u>	S-1	4/7/2007
10.26.1	<u>First Amendment to Office Lease, dated March 31, 2006, by and between PROS, Inc. (as successor in interest to PROS Revenue Management L.P.) and Houston Community College System.</u>	S-1	4/7/2007
10.26.2	<u>Second Amendment to Office Lease, dated March 1, 2007, by and between PROS, Inc. (as successor in interest to PROS Revenue Management L.P.) and Houston Community College System.</u>	10-K	2/22/2013
10.26.3	<u>Third Amendment to Office Lease, dated July 29, 2011, by and between PROS, Inc. (as successor in interest to PROS Revenue Management L.P.) and Houston Community College System.</u>	8-K	8/3/2011
10.26.4	<u>Fourth Amendment to Office Lease, dated June 27, 2012, by and between PROS, Inc. (as successor in interest to PROS Revenue Management L.P.) and Houston Community College System.</u>	10-K	2/22/2013
10.26.5	<u>Fifth Amendment to Office Lease, dated June 9, 2016, by and between PROS, Inc., and Houston Community College System.</u>	8-K	6/14/2016
10.27+	<u>Amended and Restated Employment Agreement, dated May 2, 2013, by and between PROS, Inc., Registrant and Andres Reiner.</u>	10-Q	5/2/2013
10.28+	<u>Offer Letter, dated as of January 15, 2015, by and between PROS, Inc. and Stefan Schulz.</u>	8-K	1/20/2015
10.29+	<u>Employment Agreement, dated March 3, 2015, by and between PROS, Inc., Registrant, and Stefan B. Schulz.</u>	8-K	3/5/2015
10.30+	<u>Offer Letter by and between PROS, Inc. and Thomas Dziersk, dated as of October 6, 2017.</u>	8-K	10/6/2017
10.31+	<u>Employment Agreement by and between PROS, Inc., Registrant and Thomas Dziersk, dated as of October 9, 2017.</u>	8-K	10/10/2017
10.32+	<u>Form of Indemnity Agreement entered into among Registrant, its affiliates and its directors and officers.</u>	8-K	8/21/2013
10.33+	<u>Form of Indemnification Agreement to be entered into among Registrant, its affiliates and its directors and officers.</u>	10-K	2/15/2017
10.34	<u>Tender Offer Agreement, dated October 24, 2013, by and between Registrant and Cameleon Software.</u>	8-K	10/24/2013
10.35	<u>Agreement and Plan of Merger, dated December 16, 2013, by and among PROS, Inc., Pandora Merger Sub Corporation, SignalDemand, Inc. and Fortis Advisors LLC.</u>	8-K	12/16/2013
10.36	<u>Agreement and Plan of Merger, dated August 3, 2017, by and among Registrant, Wisdom U.S. Merger Sub Corporation, Vayant Travel Technologies, Inc. and NEVEQ Capital Partners, as agent for Target's securityholders thereunder.</u>	8-K	8/3/2017
10.37	<u>Credit Agreement, dated July 2, 2012, by and among PROS, Inc., Wells Fargo Bank, National Association, as administrative agent, and the Lenders party thereto.</u>	8-K	7/9/2012
10.37.1	<u>Third Amendment to Credit Agreement, dated December 3, 2014, by and among PROS, Inc., Wells Fargo Bank, National Association, as administrative agent, and the Lenders party thereto.</u>	8-K	12/5/2014
10.37.2	<u>Seventh Amendment to Credit Agreement, dated January 27, 2017, by and among PROS, Inc., Wells Fargo Bank, National Association, as administrative agent, and the Lenders party thereto.</u>	8-K	2/2/2017
10.37.3	<u>Ninth Amendment to Credit Agreement, dated June 15, 2017, by and between PROS, Inc., Wells Fargo Bank, National Association, as administrative agent, and the Lenders party thereto.</u>	8-K	6/16/2017
10.38	<u>Purchase Agreement, dated December 4, 2014 by and among Registrant, Goldman, Sachs & Co. and Deutsche Bank Securities Inc., as representatives of the several initial purchasers named therein.</u>	8-K	12/10/2014
10.39	<u>Base Bond Hedge Confirmation, dated December 4, 2014 by and between Registrant and Goldman, Sachs & Co.</u>	8-K	12/10/2014
10.40	<u>Base Bond Hedge Confirmation, dated December 4, 2014 by and between Registrant and Deutsche Bank AG, London Branch.</u>	8-K	12/10/2014
10.41	<u>Additional Bond Hedge Confirmation, dated December 5, 2014 by and between Registrant and Goldman, Sachs & Co.</u>	8-K	12/10/2014
10.42	<u>Additional Bond Hedge Confirmation, dated December 5, 2014 by and between Registrant and Deutsche Bank AG, London Branch.</u>	8-K	12/10/2014

10.43	<u>Base Warrant Confirmation, dated December 4, 2014 by and between Registrant and Goldman, Sachs & Co.</u>	8-K	12/10/2014
10.44	<u>Base Warrant Confirmation, dated December 4, 2014 by and between Registrant and Deutsche Bank AG, London Branch.</u>	8-K	12/10/2014
10.45	<u>Additional Warrant Confirmation, dated December 5, 2014 by and between Registrant and Goldman, Sachs & Co.</u>	8-K	12/10/2014
10.46	<u>Additional Warrant Confirmation, dated December 5, 2014 by and between Registrant and Deutsche Bank AG, London Branch.</u>	8-K	12/10/2014
10.47	<u>Form of Private Placement Purchase Agreement, dated June 15, 2017, between Registrant and each purchaser named therein.</u>	8-K	6/21/2017
21.1	<u>List of Subsidiaries.</u>	X	
23.1	<u>Consent of PricewaterhouseCoopers LLP.</u>	X	
24.1*	<u>Power of Attorney.</u>	X	
31.1	<u>Certification of Chief Executive Officer Pursuant to Exchange Act Rule 13a-14(a)/15d-14(a).</u>	X	
31.2	<u>Certification of Chief Financial Officer Pursuant to Exchange Act Rule 13a-14(a)/ 15d-14(a).</u>	X	
32.1**	<u>Certifications of Chief Executive Officer and Chief Financial Officer Pursuant to 18 U.S.C. Section 1350.</u>	X	

Exhibit No.	Description
101.INS	XBRL Instance Document.
101.SCH	XBRL Taxonomy Extension Schema Document.
101.CAL	XBRL Taxonomy Extension Calculation Linkbase Document.
101.DEF	XBRL Taxonomy Extension Definition Linkbase Document.
101.LAB	XBRL Taxonomy Extension Label Linkbase Document.
101.PRE	XBRL Taxonomy Extension Presentation Linkbase Document.

* Reference is made to page F-38 of this Annual Report on Form 10-K.

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

+ Indicates a management contract or compensatory plan or arrangement.



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Corporate Information

EXECUTIVE OFFICERS

Andres D. Reiner

President, Chief Executive
Officer and Director

Stefan B. Schulz

Executive Vice President and
Chief Financial Officer

Tom Dziersek

Executive Vice President
Worldwide Sales

For additional listing of PROS senior management, visit <http://www.PROS.com/company/>

BOARD OF DIRECTORS

William Russell ⁽²⁾ ⁽³⁾

Non-Executive Chairman

Andres D. Reiner

President, Chief Executive Officer and
Director

Ellen Keszler ⁽¹⁾ ⁽³⁾

Director

Greg B. Petersen ⁽¹⁾ ⁽²⁾

Director

Timothy V. Williams ⁽¹⁾ ⁽³⁾

Director

Leslie Rechan ⁽²⁾ ⁽³⁾

Director

Penelope Herscher

Director

Mariette M. Woestemeyer

Non-Independent Director

Ronald F. Woestemeyer

Non-Independent Director

⁽¹⁾ *Audit Committee*

⁽²⁾ *Compensation and Leadership Development Committee*

⁽³⁾ *Nominating and Corporate Governance Committee*



Stockholder Information

CORPORATE OFFICES

PROS Holdings, Inc.

3100 Main Street, Suite 900

Houston, TX 77002

713.335.5151

www.PROS.com

INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Pricewaterhouse Coopers, LLP

488 Almaden Boulevard, Suite 1800

San Jose, CA 95110

408.817.3700

www.pwc.com

COMMON STOCK LISTING

Our Common Stock is traded on the New York Stock Exchange under the symbol “PRO”.

ANNUAL MEETING

Our 2018 annual stockholders meeting will be held at 8:00 a.m. Central Daylight Time on Friday, May 11, 2018 at our corporate offices in Houston, Texas. Only stockholders of record at the close of business on March 16, 2018 will be entitled to vote at the annual meeting.

TRANSFER AGENT AND REGISTRAR

Shareholders with inquiries regarding address corrections, lost certificates or changes in registered ownership should contact our stock transfer agent:

Computershare

P.O. Box 30170

College Station, TX 77842-3170

www.computershare.com/investor

CONTACTS

Investor Relations

713.335.5151

IR@PROS.com

Corporate Communications

713.335.5151

CorpComm@PROS.com

A blurred background image of an office environment. In the foreground on the right, the back of a person's head with curly hair and a patterned shirt is visible. In the background, two other people are seen in profile, looking towards the right. The office has large windows and modern lighting.

POWERING MODERN COMMERCE WITH DYNAMIC SCIENTIFIC PRICING

About PROS

PROS Holdings, Inc. (NYSE: PRO) is a revenue and profit realization company that helps B2B and B2C customers consistently realize their potential through the perfect blend of simplicity and data science. PROS offers solutions to accelerate sales, formulate winning pricing strategies and align product, demand and availability. PROS customers experience meaningful revenue growth, sustained profitability and modernized business processes because of PROS revenue and profit realization solutions.

3100 Main Street, Suite #900
Houston, TX 77002
PROS.COM

