

# Technology, Media & Telecom

Quarterly Software Sector Review | Q2 2020



# HW Software Introduction

## HARRIS WILLIAMS (“HW”)

- 25+ years and more than 1,000 closed transactions
- 350+ professionals across eight offices globally
- 170+ closed transactions in the last 24 months
- 10 industry groups

## FOCUSED ADVISORY SERVICES

- Mergers and acquisitions (M&A)
- Capital raises
- Corporate divestitures

## CONSISTENT RECOGNITION FOR QUALITY



## HW TECHNOLOGY, MEDIA & TELECOM (“TMT”) GROUP

- 35+ dedicated TMT professionals
- TMT offices include Boston, San Francisco, and London

## KEY TMT THEMES

- ✓ SaaS / Cloud
- ✓ Data & Analytics
- ✓ Digital Transformation
- ✓ A.I. / Machine Learning

## HORIZONTAL FOCUS SECTORS

- Application Software
- Cloud Managed Services and Hosting Solutions
- Compliance Solutions
- CRM and Marketing Automation
- Human Capital Management
- Infrastructure and Security Software
- IT and Tech-Enabled Services
- Marketing, Research, and Insights Software

## VERTICAL FOCUS SECTORS

- Architecture, Engineering, and Construction Software
- Education Technology and Services
- Energy Technology
- Facilities and Real Estate Software
- Financial Technology and Payments
- Government Technology
- Healthcare IT
- Industrial and Supply Chain Technology
- Internet and eCommerce
- Retail Technology

## HW SOFTWARE TEAM

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## SELECT HW SOFTWARE EXPERIENCE



# HW Current Market Observations and Insights

## HW TECHNOLOGY, MEDIA AND TELECOM MID-YEAR REVIEW

**Optimizing the Outcome: Dealmaking in TMT During COVID-19**  
Q2 Transaction Activity

Completing M&A transactions in the current environment requires more transparency, responsiveness and flexibility than ever before.

Hear from our Technology, Media & Telecom (TMT) Group about recent transaction experience in the TMT industry, including insights that can be applied across industries.

Access Article >

**Select Q2 Harris Williams Software Transactions**

- Capita has been acquired by ACCESS
- SuperOffice has received a majority investment from AXCEL
- and many others.

While detailed data is necessary to achieving an optimal outcome, it's not sufficient on its own: A long-term perspective on the industry and company is also essential. "There's substantial value to be created by buyers who can see the long-term potential of a business right now," says Monjauze. "High transaction volume leading up to COVID-19 left many buyers with well-informed views of sectors and companies—including an acute understanding of valuation dynamics. There are subsectors that less-informed buyers are shying away from. Contrarians who can see past the next couple of quarters have a real advantage."

For access to HW's **Optimizing the Outcome: Dealmaking in TMT During COVID-19**, visit [TMT Mid-Year Review](#)

## LATEST HW MARKET INSIGHTS



For access to HW's latest insights and perspective, email us at [insights@harriswilliams.com](mailto:insights@harriswilliams.com) or visit [www.harriswilliams.com/news-insights](http://www.harriswilliams.com/news-insights)

**M&A Learnings from Past Economic Disruptions**

**Key Takeaways**

- During recent economic disruptions, M&A volumes had already started to increase in advance of the downturn, driven in part by late-cycle market dynamics, and increased sharply when economic conditions improved.
- The lead and lag time of the M&A market has generally shown lower volatility during economic downturns than the broader market.
- M&A transactions executed during the early phases of recovery have generated some of the market's best returns.

**Correlation between GDP and M&A**

As shown in Figure 1, we used the standard deviation M&A activity has mirrored the business cycle, starting as the economy headed toward recession, and then climbing sharply during the recovery. While this correlation between M&A volume and GDP may not look as robust as it has in the past, a correlation at this level indicates a strong relationship between the two.

**Green Shoots Amid the Risks**

Wang notes that China's massive, military-style nationwide shutdown and sequestration appear to be

### Recent Publications:

COVID-19: Consumer Insights, New Normal Trends, & Investment Implications

M&A Learnings from Past Economic Disruptions

The Impact of 5G on Telecom

## Deep Sector Expertise Across Key TMT Focus Areas



- Architecture, Engineering, and Construction
- Education Technology and Services
- Financial Technology and Payments
- Healthcare IT
- Industrial and Supply Chain Technology
- ...and more

For access to HW's TMT content, email us at [TMT\\_Insights@harriswilliams.com](mailto:TMT_Insights@harriswilliams.com)

# Case Study: SuperOffice

HW's TMT Group advised SuperOffice on its majority investment from Axcel.

*Closed April 14, 2020*



*has received a majority  
investment from*

The logo for Axcel, featuring the word "AXCEL" in a bold, red, sans-serif font with a stylized red bird icon integrated into the letter 'A'.

## TRANSACTION OVERVIEW

Headquartered in Oslo, Norway, SuperOffice is a leading provider of cloud-based CRM software for SMBs in Europe. The Company was founded in 1990 and provides a complete range of mission-critical CRM solutions to improve the efficiency of administrative, sales, marketing, and service functions.

Super Office has a high-quality and diversified customer base with over 5,500 primarily SMB customers. The Company offers an intuitive solution interface that enables its customers to seamlessly communicate with consumers.

Founded in 1994, Axcel is a Nordic private equity firm focusing on mid-market companies and has a broad base of both Nordic and international investors. Axcel has raised six funds with total committed capital of just over EUR 2.5 billion. These funds have made 55 platform investments, with almost 100 major add-on investments and 43 exits. Axcel currently owns 12 companies with combined annual revenue of more than EUR 1.3 billion and more than 5,000 employees.

## RELEVANT SUB-SECTORS

SAAS

CRM

HORIZONTAL

## HW DEAL CONTACTS

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# Case Study: Eclipse

HW's TMT Group advised Eclipse Legal Systems on its acquisition by Access.

*Closed June 30, 2020*



*a division of*

**CAPITA**

*has been acquired by*



## TRANSACTION OVERVIEW

Eclipse is a leading mid-market case, matter, and practice management software provider operating primarily in the UK legal market. Eclipse's core product, Proclaim, is in use by over 25,000 professionals in a vast range of sectors. Clients range from household-name commercial organizations and heavyweight law firms, through to niche market operators and sole practitioners.

The Company's fully integrated, end-to-end platform with unparalleled flexibility, scalability, and configurability enables customers to review statuses, view and upload documents, and more.

Access, a portfolio company of HG Capital and TA Associates, has been recognized in The Sunday Times Tech Track 100 in 2019 and is a leading provider of business software to mid-sized UK organizations. It helps more than 35,000 customers across commercial and not-for-profit sectors become more productive and efficient. Its innovative Access Workspace cloud platform transforms the way business software is used, giving every employee the freedom to do more. Founded in 1989, Access employs more than 2,600 staff.

## RELEVANT SUB-SECTORS

SAAS

LEGAL TECH

VERTICAL SOFTWARE

## HW DEAL CONTACTS

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# Case Studies: FMG Suite and Flightdocs

HW's TMT Group advised on two notable buyside transactions.

Closed June 19, 2020



has acquired



## RELEVANT SUB-SECTORS

SAAS

MARKETING TECH

FINTECH

## TRANSACTION OVERVIEW

FMG Suite is a leading, cloud-based marketing automation platform for financial professionals, broker dealers, insurance agents, and enterprises. The Company serves more than 40,000 financial professionals every day to engage with clients and prospects to grow their businesses.

Aurora Capital Partners is a leading private equity firm managing funds with total capital commitments of over \$3 billion. Aurora focuses principally on control investments in middle-market companies with leading market positions, stable industry dynamics, attractive business model characteristics, and actionable opportunities for growth in partnership with management.


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Closed June 18, 2020



has acquired



## RELEVANT SUB-SECTORS

SAAS

AVIATION

DATA ANALYTICS

## TRANSACTION OVERVIEW

Flightdocs is a leading provider of cloud-based maintenance tracking, inventory management, and flight operations software to the aviation industry.

ATP is a global information services and software solutions company focused on making flying safer and more reliable. ATP Information Services is the general and business aviation industry's source for aircraft technical publications and real-time regulatory information. ATP Software Solutions is the leading provider of maintenance tracking, flight operations, inventory management, repetitive defect analysis, and troubleshooting software.

# Select Software M&A Transactions – 2Q 2020

Closed July 7, 2020



## Thoma Bravo's acquisition of Exostar

- Exostar is a provider of cloud-based secure collaboration and information-sharing solutions for highly regulated industries.
- The company's software solutions enable more than 150,000 organizations, across the aerospace and defense, life sciences, and healthcare verticals, to manage the complexity and mitigate the risks involved with sharing information with third-party partners.
- Post-acquisition, Thoma Bravo plans to leverage its experience in identity and access management and security software to rapidly accelerate the company's growth trajectory while continuing to support its customer base through product innovation.

Closed June 25, 2020



## Carlyle's acquisition of Unison

- Unison is a provider of procurement, supply chain, and contract management software to federal government agencies and government contractors.
- The company's cloud-based solutions enable its customers to efficiently navigate the complex rules and compliance requirements mandated by the federal government for procurement, grants, and contract lifecycle management programs.
- Following the acquisition, Carlyle will leverage its deep operational expertise and experience investing in leading industry-specific vertical software companies to continue to accelerate growth and new product development.

Closed June 25, 2020



Enterprise Value: \$330M

EV / Revenue: 8.7x

Revenue: \$38M

## Keysight Technologies' acquisition of Eggplant

- Eggplant is a provider of an artificial intelligence and analytics test execution and automation software platform.
- The company's SaaS solution enables organizations to test, monitor, analyze, and report on the quality and responsiveness of software applications across interfaces, devices, and layers.
- The acquisition of Eggplant will enhance Keysight's existing software testing capabilities and create a highly differentiated solution that provides customers with a comprehensive automated testing platform across physical, protocol, and application layers.

Closed June 16, 2020



## AKKR's growth equity investment in PINC

- PINC is a provider of a cloud-based yard and supply chain management software solutions for the manufacturing and retail industries.
- The company's solution delivers real-time visibility and workflow orchestration to enable clients to identify, locate, and manage inventory throughout the supply chain predictably and cost-effectively.
- Following the acquisition, AKKR will leverage its deep supply chain management expertise to support PINC's growth through focused internal innovations and accretive strategic acquisitions.

Announced May 7, 2020



Enterprise Value: \$715M

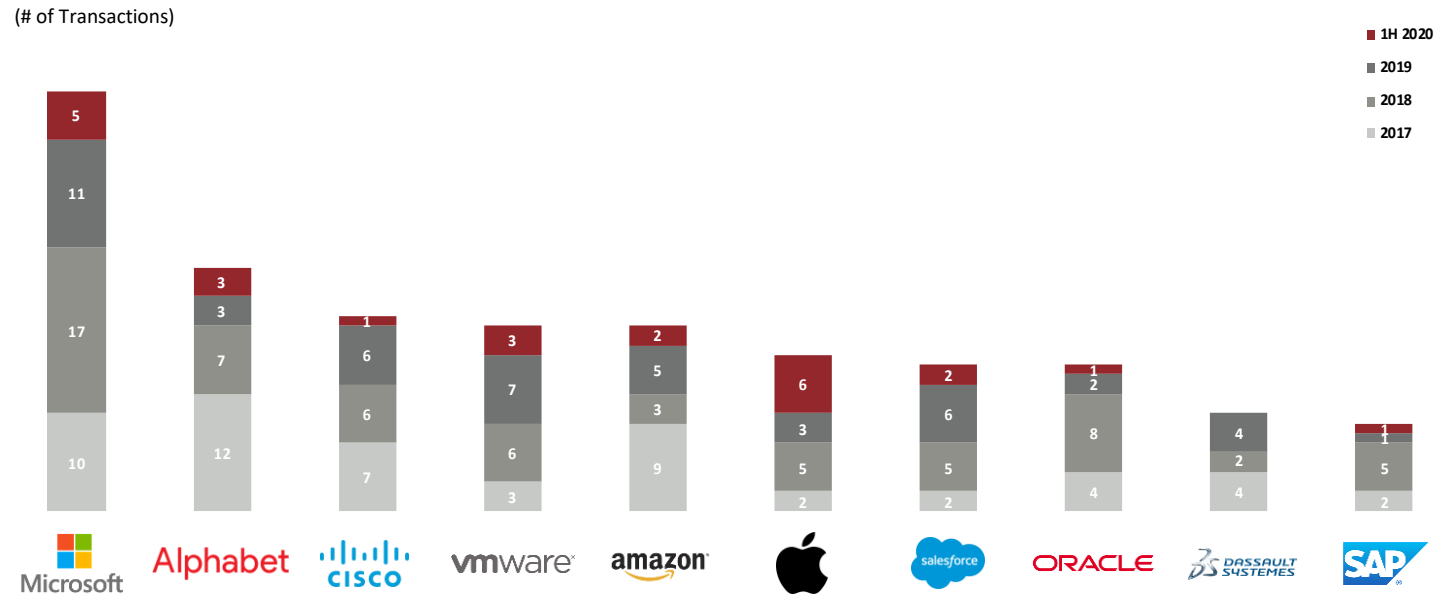
## Apttus' (Thoma Bravo) pending merger with Conga

- Conga is a provider of an intelligent document automation and CRM optimization software platform.
- The combined company will offer solutions for Quote-to-Cash, CLM, document generation, and process automation enabling more than 10,000 enterprise and mid-market customers to streamline workflows and deliver documents more effectively throughout their organizations.
- Following the merger, the combined company, operating under the Conga brand, will offer customers a complete digital transformation solution focused on commercial excellence.

# Software Acquisition Activity – Strategic Acquirers

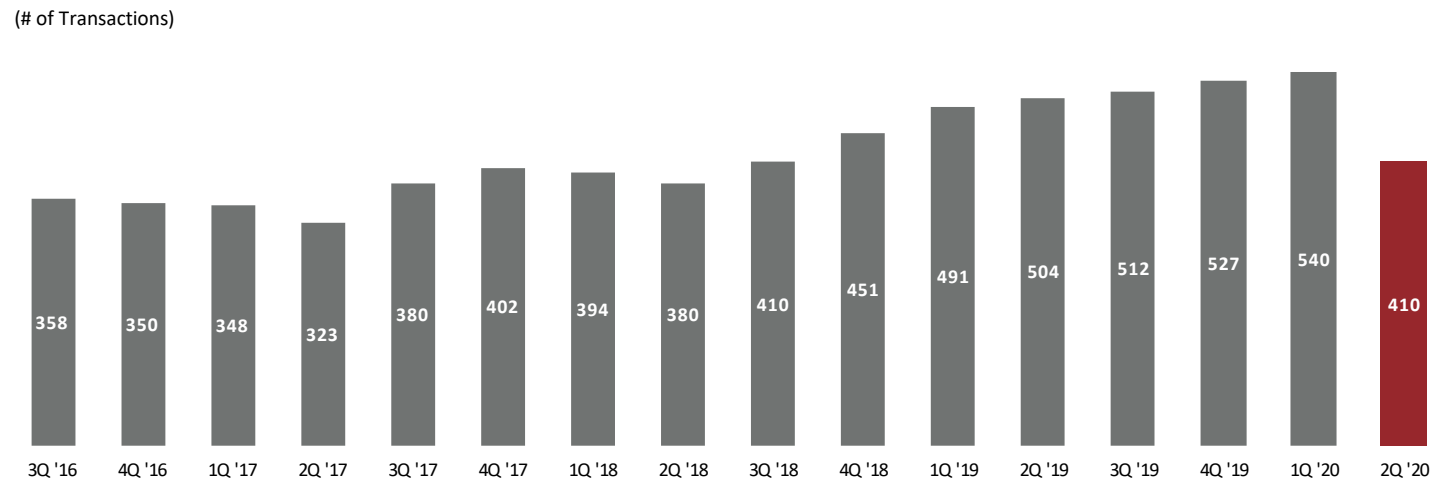
## Most Active Strategic Acquirers of Software Assets by Volume<sup>1</sup>

- > The 10 most active strategic software acquirers registered 24 acquisitions in 1H 2020. M&A activity among large strategic software acquirers lagged the pace set in 2019 as the deal environment felt the impacts of the COVID-19 pandemic.
- > Apple was the most active strategic acquirer in 1H 2020, with six acquisitions including Fleetsmith, Dark Sky, Inductiv, and Voysis.
- > Other notable 2Q 2020 strategic software transactions include Microsoft's acquisition of CyberX and VMware's acquisition of Lastline.



## Global Strategic Acquirer Software M&A Activity by Volume<sup>1</sup>

- > Globally, strategic software M&A registered 410 acquisitions in 2Q 2020, a decrease from 540 in 1Q 2020.
- > The COVID-19 pandemic temporarily slowed M&A activity as strategics focused internally on assessing potential near-term and long-term implications of the virus.



Note: Includes control investments only.

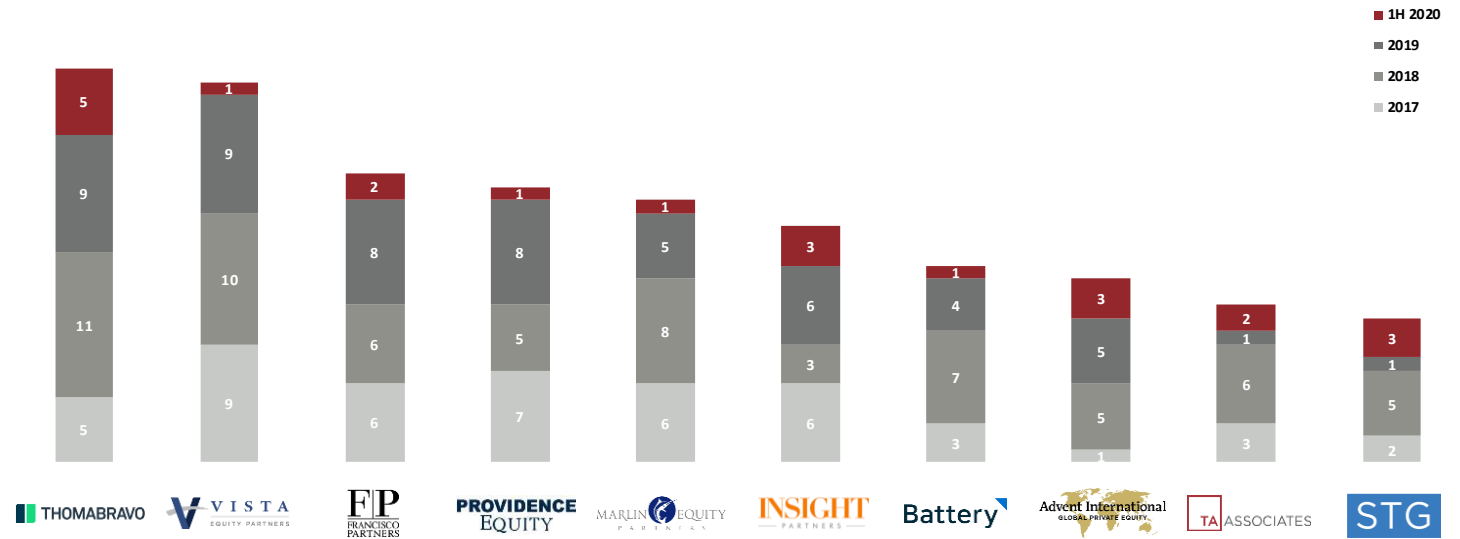


# Software Acquisition Activity – Private Equity

## Most Active Private Equity Buyers of New Software Platforms by Volume<sup>1</sup>

- > The 10 most active software investors completed 22 new platform investments in 1H 2020.
- > Thoma Bravo remained the most active software private equity firm in 1H 2020, completing five platform acquisitions including Command Alkon, Exostar, and Syntellis Performance Solutions.
- > Other notable 2Q 2020 private equity platform acquisitions include Carlyle's acquisition of Unison and Francisco Partners' acquisition of Consignor.

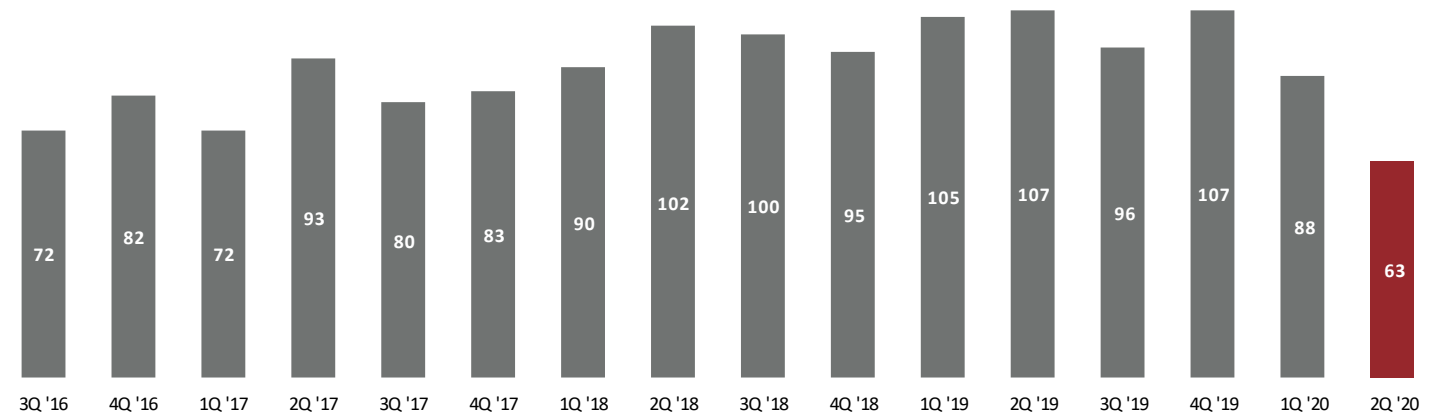
(# of Platform Transactions)



## Global Private Equity New Software Platforms M&A Activity by Volume<sup>1</sup>

- > Globally, private equity buyers registered 63 new software platform investments in 2Q 2020, a 28% decrease from 1Q 2020.
- > New platform activity was meaningfully lower than in previous quarters as private equity investors focused on managing their existing portfolio companies through the initial stages of the COVID-19 shutdown. Following an initial period of internal focus and cost cutting within their portfolios, private equity investors have notably turned their attention to acquiring smaller companies on behalf of their existing portfolio.

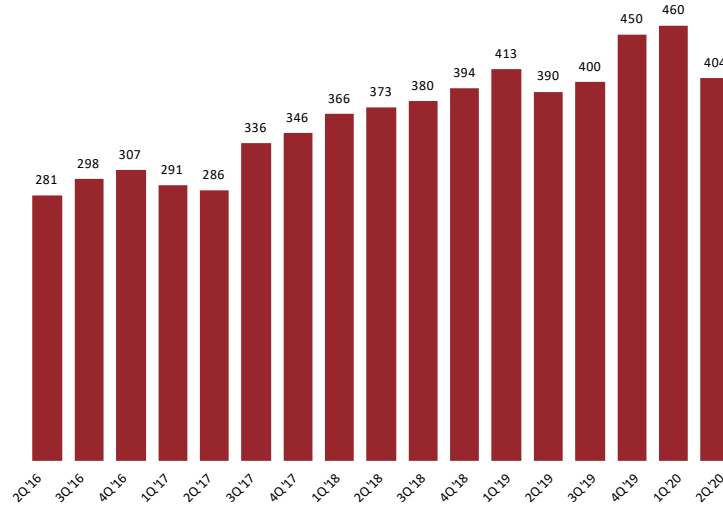
(# of Platform Transactions)



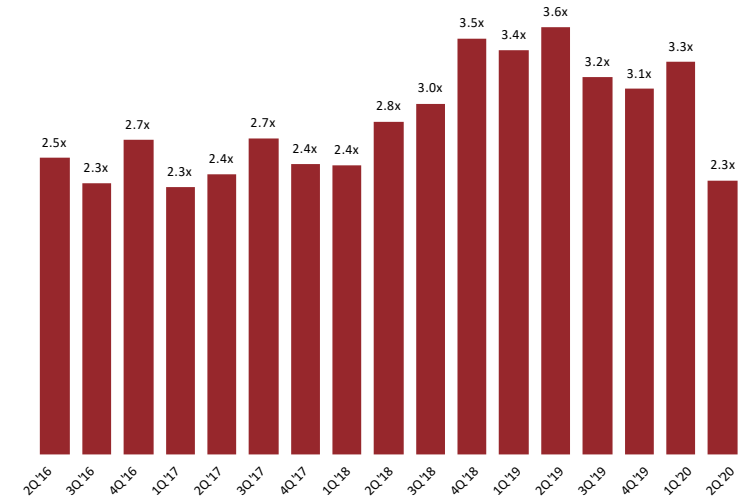
Note: Includes control new platform investments only. Excludes add-on acquisitions.

# Application Software – M&A Market Summary

Application Software M&A Volume<sup>1</sup> (Global)



Median M&A Revenue Multiples<sup>1</sup> (Reported)



- Application Software M&A registered 404 transactions in 2Q 2020, representing a 12% decrease from the prior quarter.
- Median reported Application Software M&A transaction multiples decreased to 2.3x revenue in 2Q 2020.

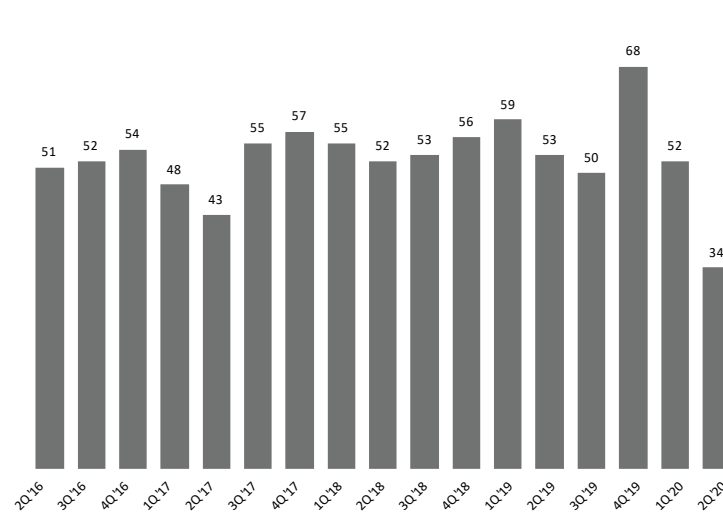
## Notable Application Software M&A Transactions<sup>1,4,5</sup>

- Application Software transaction volume slowed in 2Q 2020, as both strategic and financial buyers focused internally on business operations and navigating the pandemic.
- Notable 2Q 2020 vertical-specific software transactions include Accelya Solutions' (Vista) pending acquisition of Farelogix (Travel), Advent's acquisition of Conserve (Utilities), and Access's acquisition of Eclipse Legal Systems (Legal).

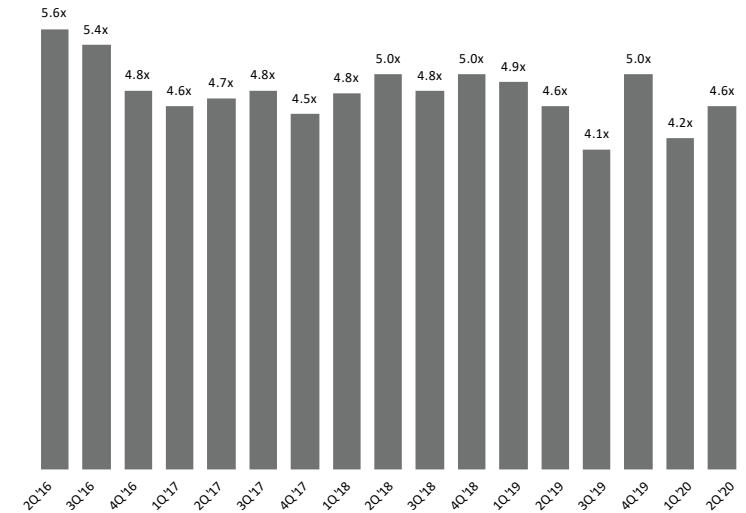
DATE CLOSED	ACQUIRER	TARGET	DESCRIPTION	ENTERPRISE VALUE (MM)	REVENUE MULTIPLE
<b>Application Software</b>					
Pending	Apple	Voysis	Provider of a consumer and enterprise facing voice AI platform.	NA	NA
Pending	Accelya Solutions (Vista)	Farelogix	Provider of airline commerce gateway distribution solutions.	NA	NA
Pending	FOG Software	OptiTex	Provider of fashion design supply chain and workflow management software.	NA	NA
Pending	Panasonic Corporation	Blue Yonder Group	Provider of end-to-end integrated supply chain and retail management software solutions.	\$5,500	NA
6/30/2020	Access (TA Associates; HG)	Eclipse Legal Systems	Provider of legal case, matter, and practice management software.	\$57	HW CONFIDENTIAL
6/29/2020	The Carlyle Group	Unison Software	Provider of procurement, supply chain, and contract management software.	NA	NA
6/19/2020	Ridgemont Equity Partners	American Safety Council	Provider of online courses for traffic school, workplace safety, and continuing education.	NA	NA
6/19/2020	Aurora Capital	FMG Suite	Provider of automated marketing solutions for financial professionals.		HW CONFIDENTIAL
6/16/2020	Accel-KKR	PINC Solutions	Provider of yard management and supply chain management solutions.	NA	NA
6/16/2020	Dairy.com	Orbis MES	Provider of a smart manufacturing execution platform for information control and analytics for the F&B industry.	NA	NA
6/08/2020	Orion Systems Integrators (OEP)	Zodiac Systems	Provider of interactive media software to video service delivery providers.	NA	NA
5/19/2020	Standard Cognition	Checkout Technologies	Provider of retail shopping artificial intelligence (AI) based checkout automation solutions.	NA	NA
5/15/2020	Apple	NextVR	Provider of a virtual reality platform for live and recorded experiences.	\$100	NA
5/14/2020	Advent International	Conserve	Provider of utility management and billing software.	\$2,500	NA
5/07/2020	Right Networks (BV)	Rootworks	Provider of accounting software that manages, organizes, and automates tasks.	NA	NA
5/06/2020	Bregal Sagemount	Corcentric	Provider of technology-enabled process automation, procurement, accounts payable, and billing solutions.	NA	NA
5/05/2020	Sovos Compliance (Hg)	Taxweb Software	Provider of enterprise tax determination ERP software.	NA	NA
4/16/2020	AccuTitle	Closers' Choice	Provider of real estate property closing and title software.	NA	NA
4/06/2020	Koch Equity	Infor	Provider of an enterprise planning program created to provide cloud-based industry-specific business applications.	NA	NA
3/31/2020	MRI Software (GI; Harvest)	Orchard Information Systems	Provider of property management solutions for housing businesses and public sector organizations.	NA	NA
<b>MEDIAN</b>				<b>\$175</b>	<b>4.3x</b>

# SaaS – M&A Market Summary

SaaS M&A Volume<sup>1</sup> (Global)



Median M&A Revenue Multiples<sup>1</sup> (Reported)



- › SaaS M&A volume registered 34 transactions in 2Q 2020, a strong decrease from previous quarters.
- › Median reported SaaS transaction revenue multiples increased slightly to 4.6x in 2Q 2020.

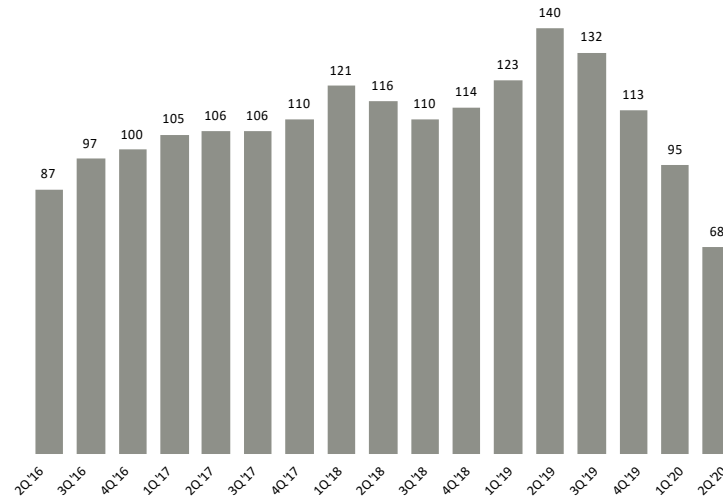
## Notable SaaS M&A Transactions<sup>1,4,5</sup>

- › Cloud adoption continues to drive sector consolidation with both public and PE-backed strategics seeking to bolster their cloud capabilities and fortify their positions in key vertical markets, even during the COVID-19 pandemic.
- › Notable 2Q 2020 SaaS transactions include Apttus' (Thoma Bravo) pending merger with Conga, Thoma Bravo's acquisition of Exostar, and Francisco Partners' acquisition of Consignor.

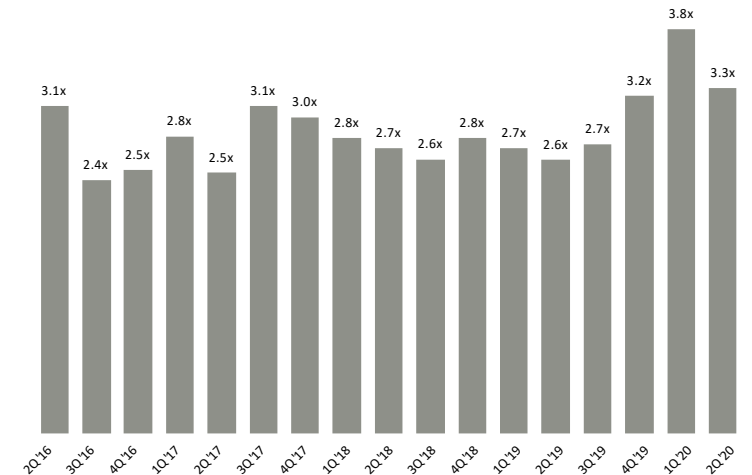
DATE CLOSED	ACQUIRER	TARGET	DESCRIPTION	ENTERPRISE VALUE (MM)	REVENUE MULTIPLE
SaaS					
Pending	Apttus (Thoma Bravo)	Conga	Provider of a cloud-based document generation and reporting automation platform.	\$715	NA
7/07/2020	Thoma Bravo	Exostar	Provider of a cloud platform for information sharing across highly regulated industries.	NA	NA
7/02/2020	Kinaxis	Rubikloud Technologies	Provider of a cloud-based enterprise data and AI software platform for retailers.	\$60	NA
6/23/2020	Intermediate Capital Group	Globoforce	Provider of cloud-based social recognition and performance management software solutions.	\$1,200	2.1x
6/18/2020	Aircraft Technical Publishers	Flightdocs	Provider of maintenance tracking software and solutions for aircraft operators.	HW CONFIDENTIAL	
6/15/2020	Francisco Partners	Consignor	Provider of an integrated and sustainable delivery management software solution.	NA	NA
6/08/2020	Vitruvian Partners	Scribe	Provider of an online e-signing platform for documents.	NA	NA
6/03/2020	Bentley Systems	NoteVault	Provider of voice-based field automation solutions for daily reporting in the construction industry.	NA	NA
6/03/2020	Spectrum Equity	CINC Systems	Provider of cloud-based association management platform for management companies.	NA	NA
5/15/2020	SS&C Technologies	Innovest Systems	Provider of SaaS accounting and wealth management payment and fulfillment software solutions.	\$120	NA
5/13/2020	Serraview (JMI)	SpaceIQ	Provider of web-based workplace management software and operations data solutions.	NA	NA
5/11/2020	Omnicracs (Goldman Sachs)	VisTracks	Provider of a cloud-based fleet management position and movement analytics platform.	NA	NA
5/04/2020	Mobileye (Intel)	Moovit App Global	Provider of real-time public transport mobile solutions.	\$900	NA
4/30/2020	Cove Hill Partners	Kalkomey Enterprises	Provider of online safety certification courses in boating, hunting, bowhunting, and off-road vehicle & snowmobile activities.	HW CONFIDENTIAL	
4/24/2020	BV Investment Partners	StraighterLine	Provider of online and distance learning classroom solutions from accredited colleges and universities.	NA	NA
4/23/2020	Providence Strategic Growth	Next Glass	Provider of a web and mobile-based application for alcoholic beverage insights and recommendations.	NA	NA
4/22/2020	TapClicks	AdStage	Provider of a cloud-based advertisement management, reporting, and automation platform.	NA	NA
4/22/2020	Cornerstone OnDemand	Saba Software	Provider of cloud-based intelligent talent management solution.	\$1,295	NA
4/15/2020	Transaction Services Holdings (Advent)	PerfectMind	Provider of a cloud-based member management, online scheduling, and marketing solution.	NA	NA
4/01/2020	Majesco	InsPro Technologies	Provider of policy administration software applications for insurance administrators.	\$12	0.8x
MEDIAN				\$164	3.9x

# Data and Analytics – M&A Market Summary

Data and Analytics M&A Volume<sup>1</sup> (Global)



Median M&A Revenue Multiples<sup>1</sup> (Reported)



- › Data and Analytics M&A registered 68 transactions in 2Q 2020, continuing the downward trend of the prior three quarters.
- › Median reported Data and Analytics transaction multiples decreased to 3.3x in 2Q 2020.

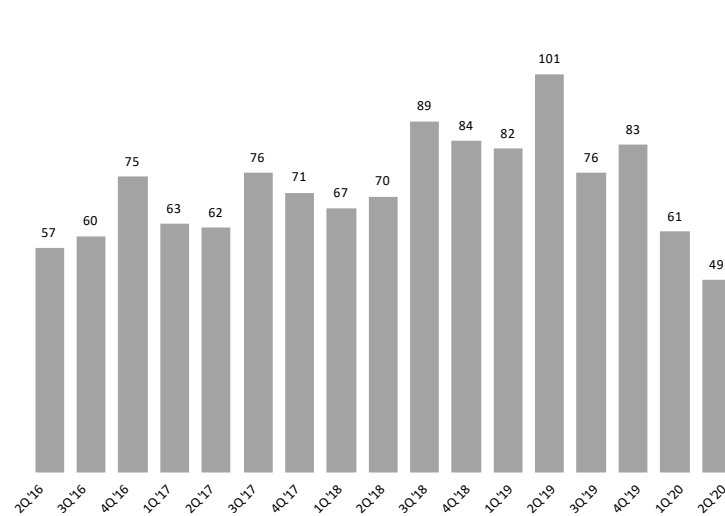
## Notable Data and Analytics M&A Transactions<sup>1,4,5</sup>

- › As the volume of complex data available to enterprises increases, strategic buyers are actively pursuing real-time information and business intelligence solutions to differentiate themselves from their peers.
- › Notable 2Q 2020 Data and Analytics transactions include Bain Capital's acquisition of Agile Sports Technologies, Thompson Street Capital's acquisition of PKWare, and Thoma Bravo and MDP's acquisition of Kaufman Hall Software.

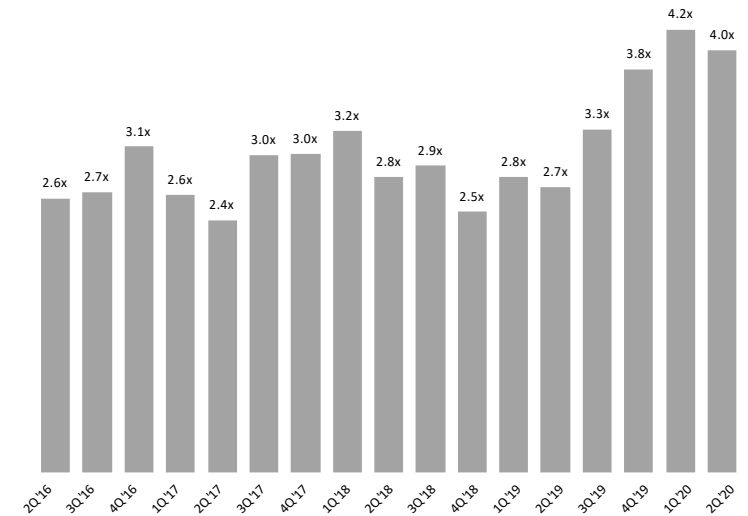
DATE CLOSED	ACQUIRER	TARGET	DESCRIPTION	ENTERPRISE VALUE (MM)	REVENUE MULTIPLE
Data and Analytics					
Pending	MDP, Thoma Bravo	Kaufman Hall Software (nka Syntellis)	Provider of enterprise performance management software and data and analytics solutions.	\$500	NA
7/01/2020	Maxar Technologies	Vricon	Provider of 3D geodata and visualization data software solutions.	\$255	4.7x
6/25/2020	CarteGraph Systems (Pamlico)	PenBay Solutions	Provider of geographic information systems (GIS) public safety and facility management data collection software.	NA	NA
6/24/2020	Databricks	Redash	Provider of an open-source data analysis tool for operational databases, data lakes, and thematic dashboards.	NA	NA
6/18/2020	Microsoft	ADRM Software	Provider of data organization and information architecture software solutions.	NA	NA
6/10/2020	Synopsys	Qualtera	Provider of a big-data analytics platform for production control, smart, and semiconductor manufacturing.	NA	NA
6/09/2020	VertiGIS (Battery)	Mapcom Systems	Provider of data-driven billing, accounting, and network monitoring software solutions.	NA	NA
6/03/2020	Bain Capital	Agile Sports Technologies	Provider of sports analysis software intended to study and improve athlete performance.	NA	NA
6/02/2020	Insightful Science	Statistical Solutions	Provider of statistical and predictive analytics solutions for statisticians, clinical researchers, and data analysts.	NA	NA
5/28/2020	Dairy.com	MyDairyDashboard.com	Provider of a data visualization and trend platform for the dairy industry.	NA	NA
5/28/2020	Maple Media	GeoTerrestrial	Provider of mobile weather visualization and monitoring applications.	NA	NA
5/27/2020	Apple	Inductiv	Provider of AI and machine learning tools that flag and fix errors in datasets.	NA	NA
5/14/2020	iCIMS	Opening HR	Provider of resume evaluation analysis intelligence for talent management teams.	NA	NA
5/13/2020	Thompson Street Capital Partners	PKWare	Provider of data security, management, and compliance enterprise software solutions.	NA	NA
5/07/2020	Price f(x)	Brennus Analytics	Provider of a data-driven price optimization software solution.	NA	NA
5/06/2020	The Vertex Group	WaterSmart Software	Provider of a cloud customer engagement, behavioral water efficiency, and data analytics platform for the water industry.	NA	NA
5/01/2020	Medallia	Voci Technologies	Provider of speech recognition technology that converts speech into text for actionable insight.	\$59	NA
5/01/2020	DocuSign	Seal Software	Provider of contract discovery, data extraction, and analytics software solutions.	\$188	NA
4/17/2020	Mohawk Analytics	Brightmaven	Provider of big data and AI technological solutions for theft and fraud-related damage reduction.	NA	NA
MEDIAN				\$222	4.7x

# Infrastructure Software – M&A Market Summary

Infrastructure Software M&A Volume<sup>1</sup> (Global)



Median M&A Revenue Multiples<sup>1</sup> (Reported)



- › Infrastructure Software M&A registered 49 transactions in 2Q 2020, a decrease from 61 in 1Q 2020.
- › In 2Q 2020, median reported Infrastructure Software transaction multiples decreased slightly to 4.0x revenue.

## Notable Infrastructure Software M&A Transactions<sup>1,4,5</sup>

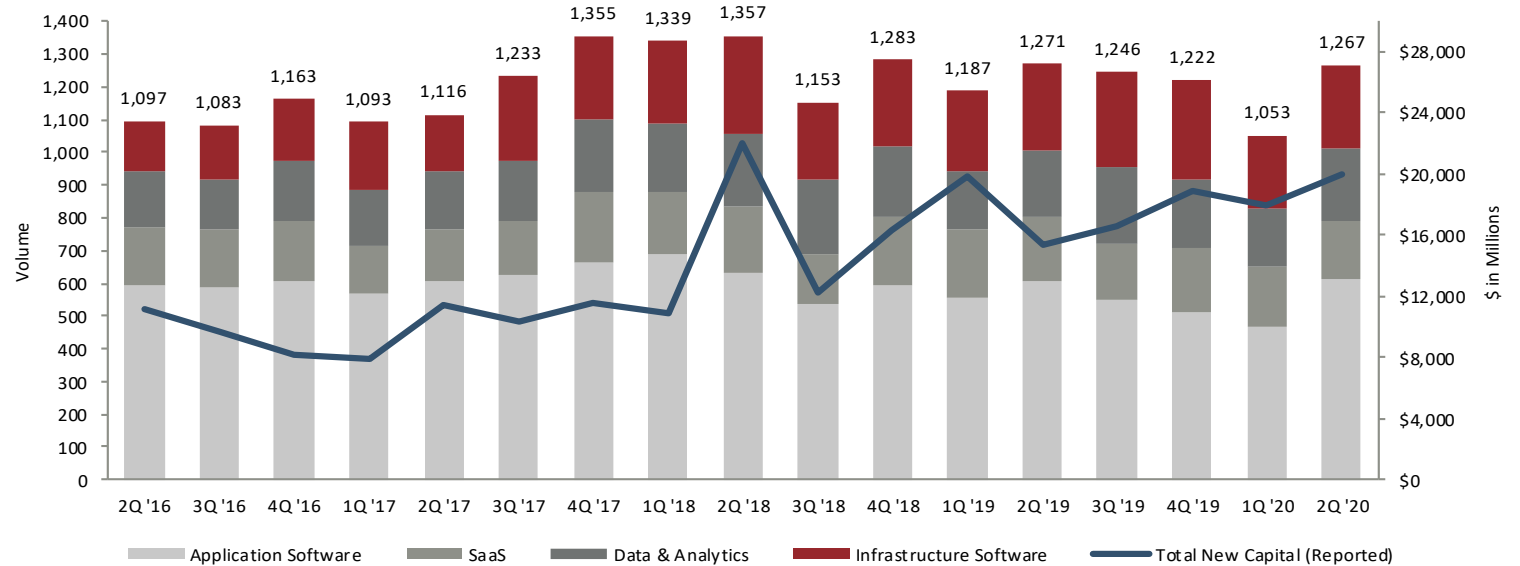
- › Infrastructure Software M&A activity continued to slow in 2Q 2020 after a very active year in 2019.
- › Noteworthy Infrastructure Software M&A transactions in 2Q 2020 include VMware's pending acquisition of Lastline, NVIDIA's acquisition of Cumulus Networks, and Keysight's acquisition of Eggplant.

DATE CLOSED	ACQUIRER	TARGET	DESCRIPTION	ENTERPRISE VALUE (MM)	REVENUE MULTIPLE
Infrastructure Software					
Pending	Sinch AB	SAP Digital Interconnect	Provider of back-end mobile solutions for phone and text communication across carrier networks.	\$225	0.7x
Pending	VMware	Octarine	Provider of a multi-cluster network security platform designed to ensure that cloud-native environments are compliant.	NA	NA
Pending	Cisco Systems	ThousandEyes	Provider of network monitoring software that identifies performance problems with apps and network infrastructure.	NA	NA
Pending	VMware	Lastline	Provider of an enterprise security and malware protection platform for networks.	NA	NA
7/13/2020	NetApp	Spotinst	Provider of a cloud platform designed to improve performance, reduce complexity and lower compute infrastructure costs.	\$450	NA
6/22/2020	Microsoft	Cyber X	Provider of real-time industrial cybersecurity and IoT risk software solutions.	\$170	NA
6/16/2020	NVIDIA	Cumulus Networks	Provider of web-scale networking solutions for networking hardware applications.	NA	NA
6/04/2020	Northstar Capital	PKWare	Provider of enterprise solutions to eliminate security gaps, manage sensitive data, and meet data compliance goals.	NA	NA
5/27/2020	Keysight Technologies	Eggplant Software	Provider of automated software testing tools.	\$330	8.7x
5/15/2020	Verizon Enterprise	Blue Jeans Network	Provider of cloud-based video, audio, and web conferencing meeting solutions.	\$400	NA
5/13/2020	CyberArk Software	Idaptive	Provider of cyber and data protection access applications and endpoints for enterprise users.	\$70	NA
5/07/2020	Zoom Video Communications	Keybase	Provider of web verification and encryption software messaging and communication solutions.	NA	NA
5/01/2020	Rapid7	DivvyCloud	Provider of a cloud automation platform that automates security, compliance, and governance risks.	\$148	23.2x
4/29/2020	MobileIron	incappit Connect	Provider of digital transformation problem resolution software solutions for apps and enterprise mobility.	\$6	NA
4/28/2020	NetApp, Inc.	Cloud Jumper	Provider of cloud-based virtual desktop infrastructure and remote desktop software solutions.	\$34	NA
4/23/2020	Palo Alto Networks	CLOUDGENIX	Provider of a software-defined enterprise wide-area network for hybrid clouds and a mobile workforce.	\$403	NA
4/16/2020	Hellman & Friedman; TPG Capital	Checkmarx	Provider of a static application security testing modules platform intended for source code analysis.	\$1,150	NA
4/06/2020	AEgis Technologies (Arlington)	Excivty	Provider of security applications and situational awareness and assessment toolsets.	\$420	NA
MEDIAN				\$278	8.7x

# Private Placement Activity by Software Sector

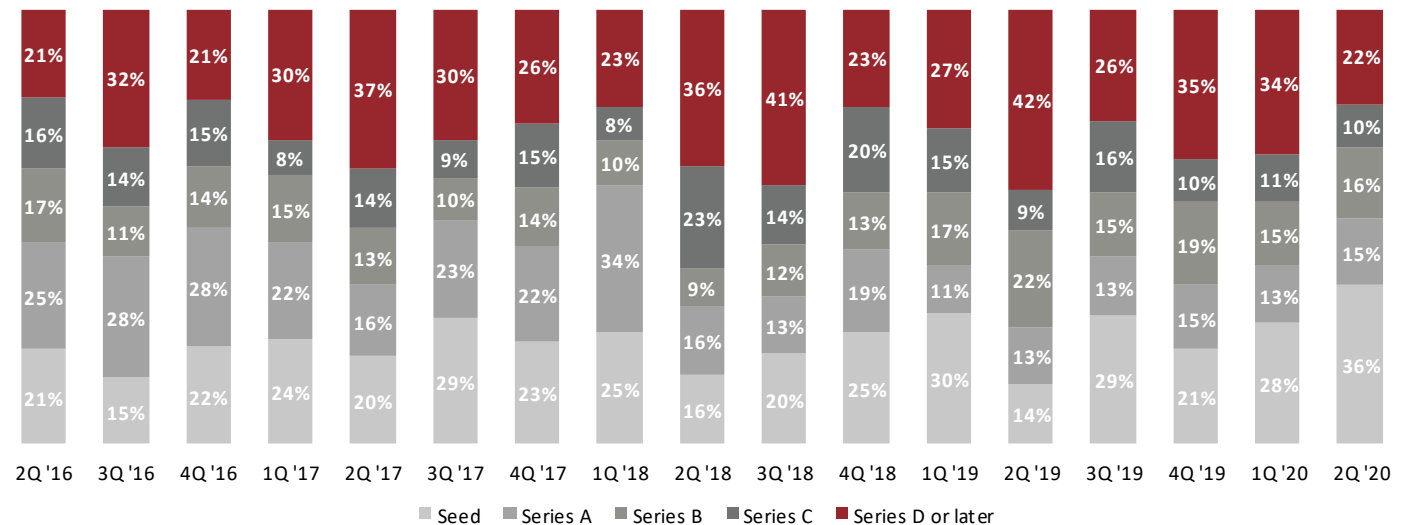
## Private Placements by Software Sub-Sector and New Capital Raised<sup>1,4</sup>

- > There were 1,267 private placement financings in 2Q 2020, which represented a 20% increase compared to 4Q 2019.
- > Total reported capital investment in the software sector rebounded in 2Q 2020, and remains above historical averages.
















## Private Placement Capital Raised by Round<sup>1,4</sup> (As Percentage of Total Reported Private Placement Capital)

- > In 2Q 2020, the majority of private capital invested was in early stage (Seed – B) rounds, comprising 67% of total capital invested.
- > Notable private placements across stages included Onfido's \$100 million Series D led by TPG Growth, Instacart's \$225 million growth investment led by DST Global, and Duck Creek Technologies' \$230 million growth investment led by Kayne Anderson.



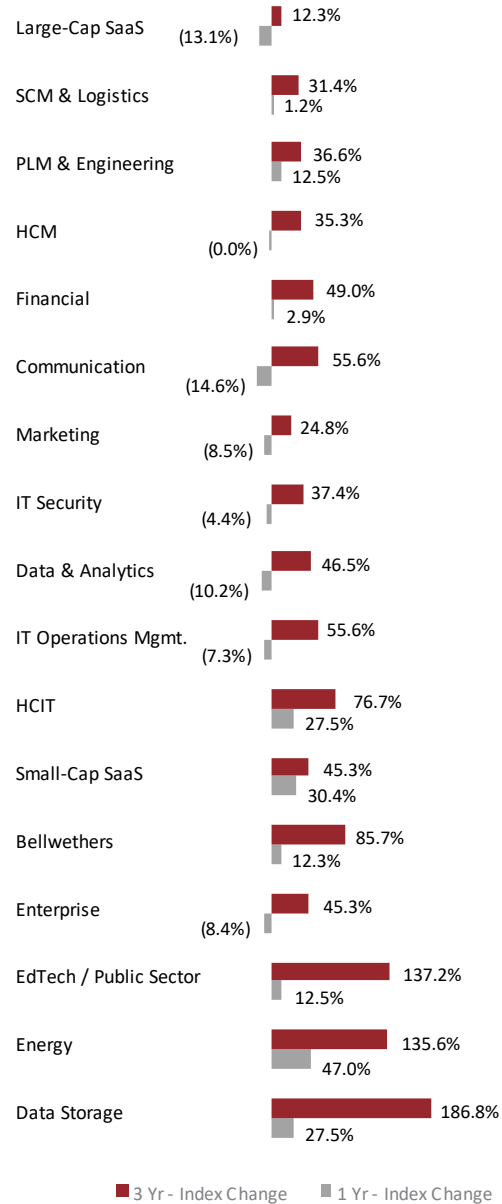
# Select Recent Software Private Placements<sup>1,4</sup>

DATE	COMPANY	SECTOR	ROUND	ROUND SIZE (\$MM)	TOTAL RAISED (\$MM)	INVESTORS (CURRENT ROUND)	DESCRIPTION
06/16/20	 instacart	SaaS	Growth	\$225	\$2,170	DST Global; General Catalyst; D1 Capital	Provider of an on-demand goods delivery software application for grocery delivery from local stores.
05/21/20	 states title	Data & Analytics	C	\$123	\$258	Greenspring Associates; Assurant Growth Investing; Bloomberg Beta; Eminence Capital; Fifth Wall; Foundation Capital; Horizons Ventures; Hudson Structured Capital; Lennar; Scor	Provider of machine intelligence and predictive analytics technologies for residential real estate.
05/12/20	 Dispatch Track	SaaS	Growth	\$144	\$144	Spectrum Equity Management	Provider of web-based routing and logistics delivery management software.
05/12/20	 SLICE	SaaS	C	\$43	\$80	KKR; GGV; Primary Venture Partners; RiverPark Ventures; Teamworthy Ventures	Provider of an online pizza ordering platform.
05/12/20	 UpKeep	SaaS	B	\$36	\$49	Insight Venture Management; Battery Ventures; Emergence Capital Partners; YCombinator Management; MuckerLab; FundersClub	Provider of enterprise asset management and maintenance management software solutions.
05/05/20	 BetterCloud	SaaS	F	\$75	\$187	Warburg Pincus; Accel Partners; e.ventures; Greycroft Partners; Flybridge Capital; Bain Capital Venture Partners; New Amsterdam Growth	Provider of cloud office management and security policy enablement software solutions.
04/27/20	 Duck Creek Technologies	SaaS	Growth	\$230	\$350	Kayne Anderson Rudnick Investment Management; Whale Rock Capital Management	Provider of property and casualty insurance software solutions.
04/21/20	 confluent	Infrastructure	E	\$250	\$456	Coatue Management; Altimeter Capital; Franklin Templeton; Index Ventures; Sequoia Capital	Provider of an enterprise data platform that provides real-time data integration, stream processing, and analytics.
04/21/20	 9 Solutions	Data & Analytics	Growth	\$100	\$125	KKR	Provider of a cloud-based business and operational planning and management platform.
04/15/20	 onfido	Infrastructure	D	\$100	\$266	TPG Growth; Phoenician Funds; More Capital	Provider of an AI-enabled biometric identification system.
04/07/20	 circleci	Infrastructure	E	\$100	\$213	Institutional Venture Partners; Sapphire Ventures	Provider of a continuous delivery automation platform designed to offer automated testing and continuous integration tools.
04/07/20	 shippo	Application	C	\$30	\$59	D1 Capital Partners; Bessemer Venture Partners; Union Square Ventures; Uncork Capital; Version One Ventures	Provider of an API and dashboard for managing multi-carrier shipping.
04/02/20	 collibra™	Data & Analytics	F	\$113	\$389	Durable Capital Partners; ICONIQ Capital; Index Ventures; Battery Ventures; Dawn Capital; CapitalG	Provider of a cloud-based or on-premises data governance platform for data citizens.

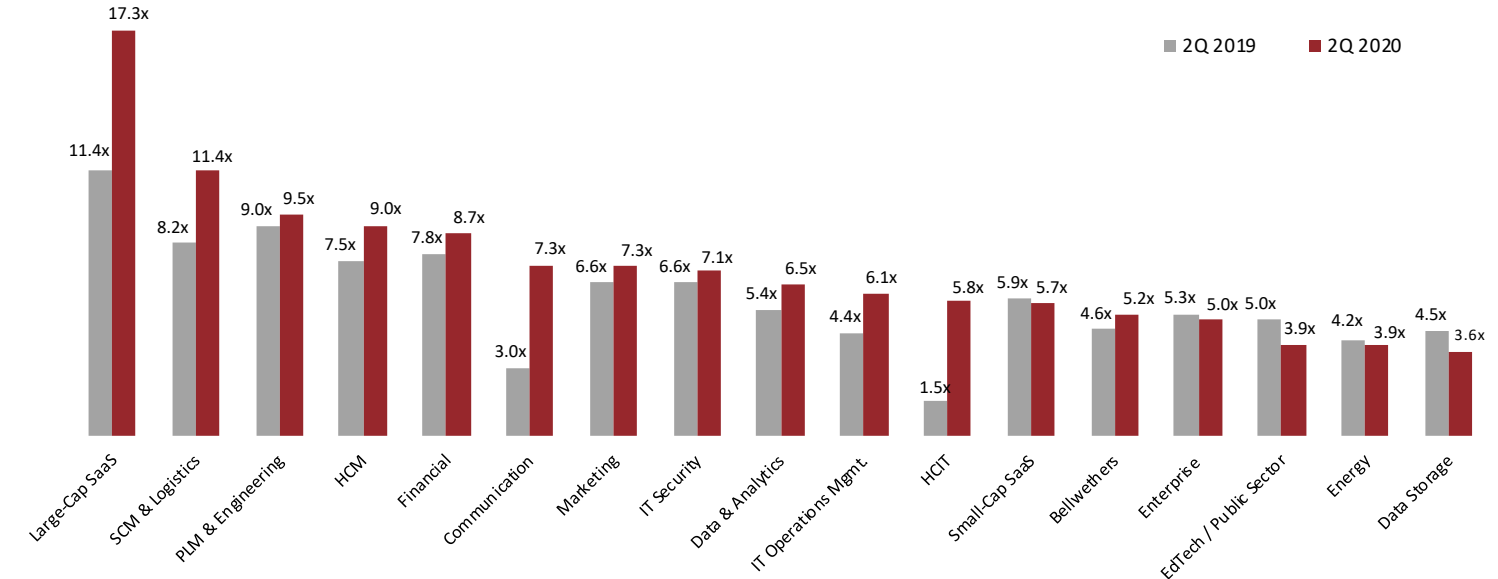
Note: Financial information presented above represents reported capital raised only.

# Public Software Valuation Multiples by Sector<sup>1</sup>

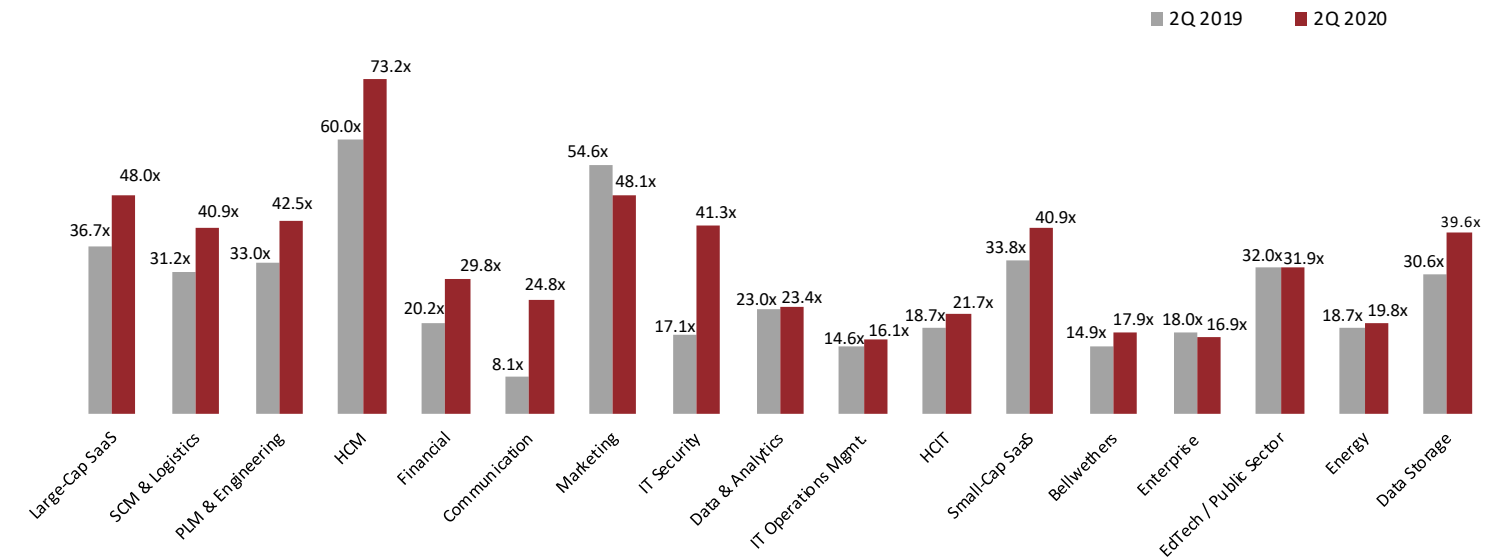
## Stock Performance (1- & 3-Year)



## Revenue Multiple Comparison 2Q 2019 vs. 2Q 2020



## EBITDA Multiple Comparison 2Q 2019 vs. 2Q 2020



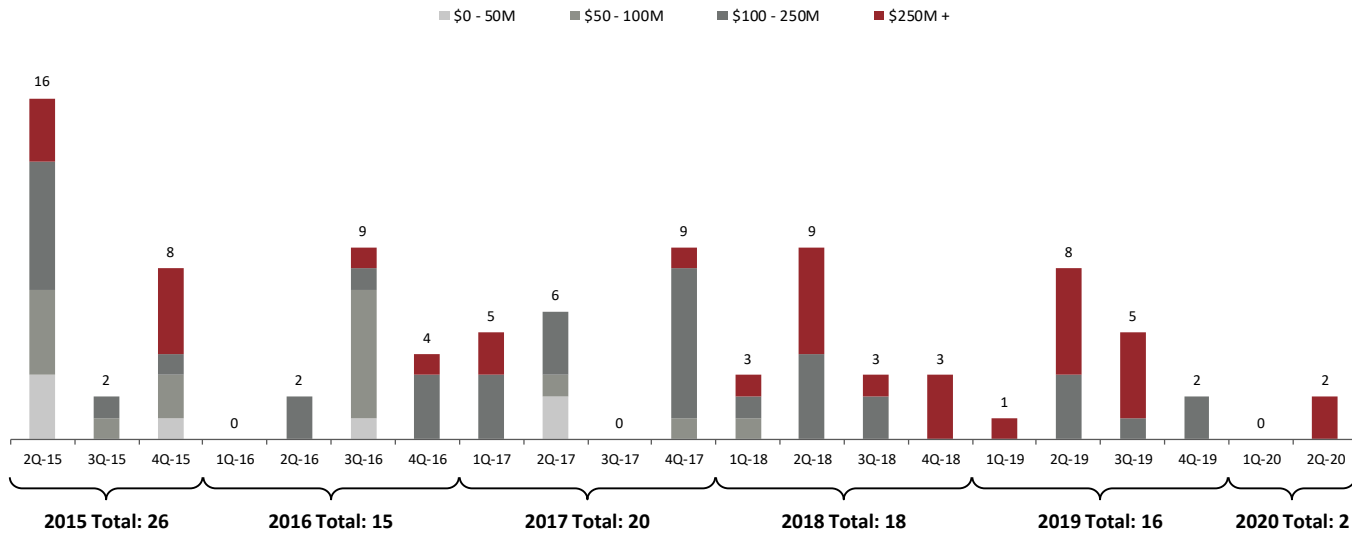


# Key Metrics by Sector – Comparable Public Software Companies<sup>1</sup>

	COMPARABLE COMPANY SET MEDIANS				CORRELATION WITH EV / REVENUE MULTIPLE		
	EV / LTM REVENUE MULTIPLE	NTM REVENUE GROWTH	NTM EBITDA GROWTH	LTM EBITDA MARGIN	NTM REVENUE GROWTH	NTM EBITDA GROWTH	LTM EBITDA MARGIN
Large-Cap SaaS	17.3x	17%	127%	13%	89%	35%	-
SCM & Logistics	11.4x	6%	17%	20%	72%	71%	52%
PLM & Engineering	9.5x	9%	45%	22%	68%	38%	41%
HCM	9.0x	6%	31%	21%	10%	-	26%
Financial	8.7x	5%	32%	33%	44%	-	37%
Communication	7.3x	4%	30%	21%	98%	-	-
Marketing	7.3x	13%	75%	11%	73%	44%	-
IT Security	7.1x	5%	30%	19%	80%	-	-
Data & Analytics	6.5x	7%	29%	9%	94%	-	-
IT Operations Mgmt.	6.1x	2%	30%	23%	91%	93%	-
HGT	5.8x	8%	52%	22%	81%	-	55%
Small-Cap SaaS	5.7x	10%	117%	20%	62%	-	-
Bellwethers	5.2x	5%	15%	29%	87%	-	39%
Enterprise	5.0x	3%	23%	28%	53%	-	22%
EdTech / Public Sector	3.9x	8%	60%	18%	-	-	67%
Energy	3.9x	(5%)	15%	19%	57%	55%	93%
Data Storage	3.6x	6%	150%	14%	56%	-	15%

# Summary of Technology IPOs

## Recent U.S. Technology IPO Activity (by Offering Size)<sup>1</sup>

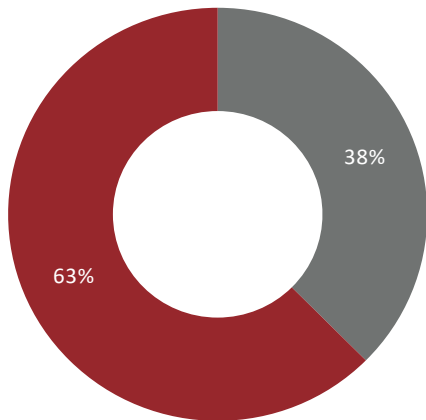


- > The near halt in IPO activity continued into Q2 with two companies listing, ZoomInfo and Lemonade.
- > The IPO freeze shows signs of thawing as public software company valuations approach record highs and notable unicorns signal a willingness to test the markets in the coming quarters.
- > The pipeline of technology remains robust with Snowflake Computing and Palantir filing S-1's this quarter, adding to the backlog that includes Airbnb and Procore.

## Offering Size at IPO (LTM)<sup>1</sup>

(All tech IPOs over the last 12 months)

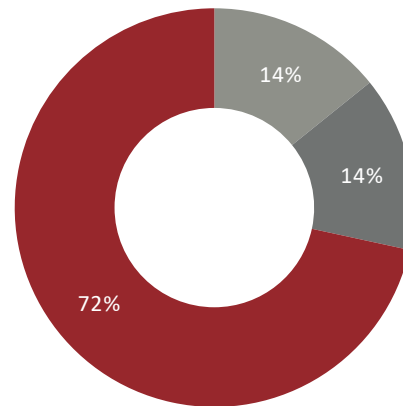
■ \$50 - 100M   ■ \$100 - 250M   ■ \$250M +



## Market Cap at IPO (LTM)<sup>1</sup>

(All tech IPOs over the last 12 months)

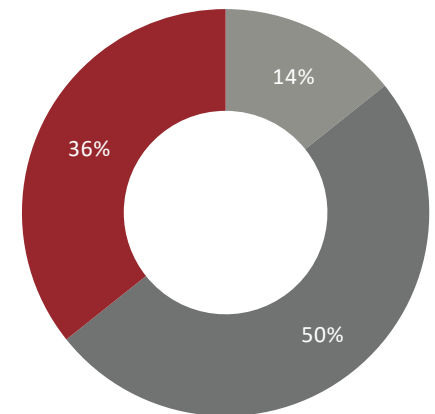
■ \$0-50M   ■ \$50-500M   ■ \$500M-\$1B   ■ \$1B+



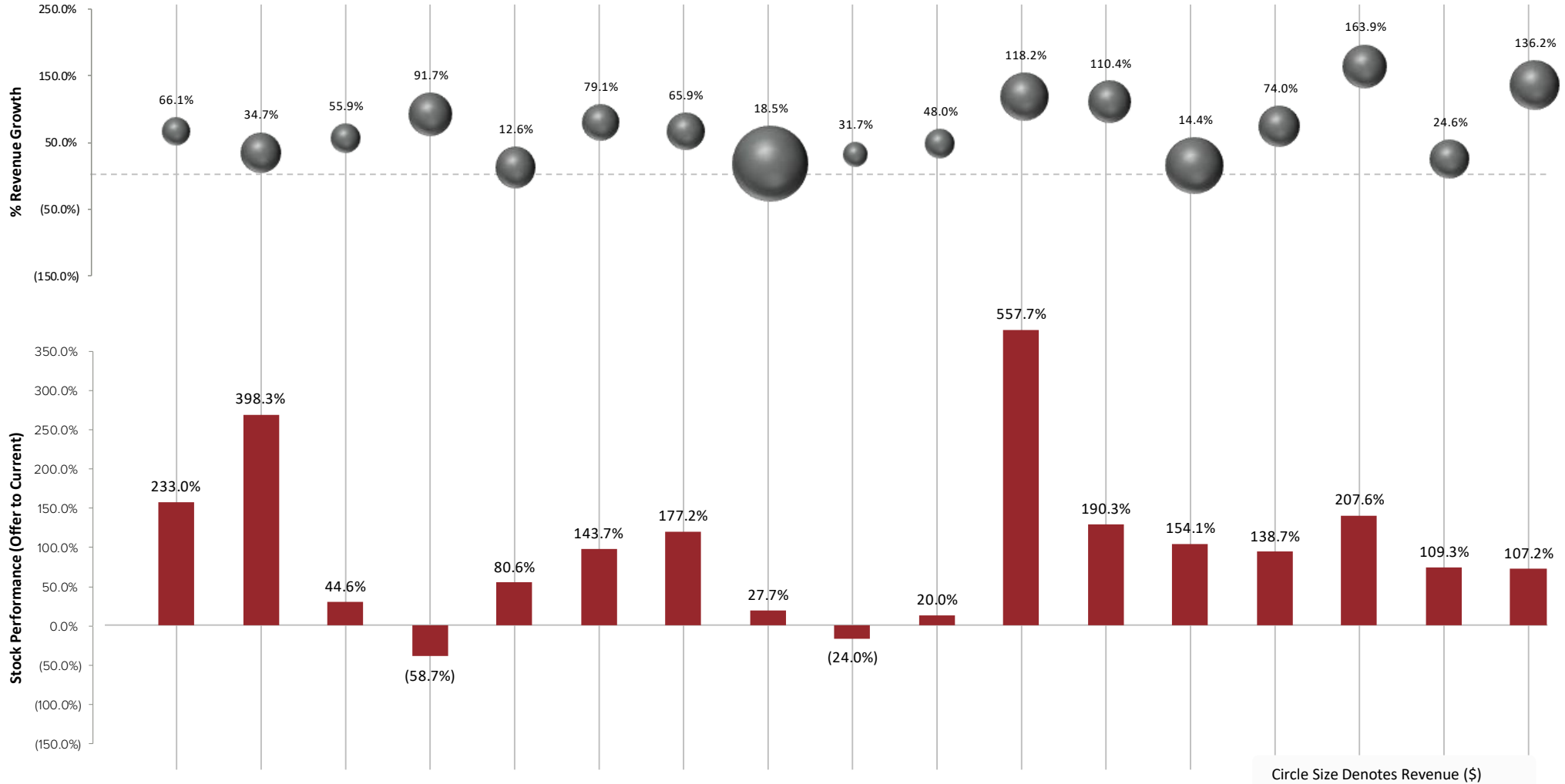
## Revenue Growth (1YR Prior to IPO)<sup>1</sup>

(All tech IPOs over the last 12 months)

■ < 25%   ■ 25 - 75%   ■ > 75%



# Key Performance Metrics for Recent Software IPOs<sup>1</sup>



IPO DATE	4/26/18	6/14/18	6/28/18	9/19/18	9/25/18	10/4/18	10/11/18	10/18/18	4/10/19	4/10/19	4/17/19	6/11/19	7/31/19	9/13/19	9/18/19	9/19/19	6/3/20
OFFER PRICE PER SHARE	\$15.00	\$24.00	\$21.00	\$23.00	\$12.00	\$36.00	\$17.00	\$15.00	\$14.00	\$24.00	\$36.00	\$34.00	\$16.00	\$15.00	\$27.00	\$15.00	\$21.00
MARKET CAP AT OFFER (\$M)	\$174.5	\$1,559.5	\$455.5	\$1,800.0	\$1,493.7	\$2,501.7	\$2,067.9	\$4,649.1	\$454.1	\$1,766.7	\$1,157.2	\$703.8	\$4,486.6	\$1,299.2	\$745.2	\$1,192.7	\$1,092.5
OFFERING SIZE (\$M)	\$174.5	\$180.0	\$193.2	\$230.0	\$180.0	\$252.0	\$263.5	\$375.0	\$107.8	\$217.7	\$751.3	\$612.0	\$569.8	\$525.0	\$648.0	\$187.5	\$934.5
OFFER TO CURRENT	233.0%	398.3%	44.6%	(58.7%)	80.6%	143.7%	177.2%	27.7%	(24.0%)	20.0%	557.7%	190.3%	154.1%	138.7%	207.6%	109.3%	107.2%

# Select HW TMT Transactions

 acquired by 	 acquired 	 acquired 	 acquired by 	 acquired by 	 strategic investment in 	 acquired by 	 investment from   	 acquired by 	 recapitalized by 	 acquired 	 acquired by 	 significant growth investment from 	 acquired by 	 acquired by 
 significant growth investment from 	 acquired by 	 acquired by  	 has received a controlling investment from 	 acquired 	 acquired by 	 acquired 	 strategic investment from 	 acquired by 	 acquired 	 acquired by 	 acquired 	 acquired by 	 acquired by 	 acquired 
 acquired by 	 acquired by 	 acquired 	 acquired by 	 acquired by 	 acquired by 	 acquired 	 a wholly-owned affiliate of  acquired by 	 invested in  	 majority investment from 	 acquired by 	 acquired by 	 acquired by 	 acquired by 	 acquired by 
 investment from 	 acquired 	 acquired by 	 merged with 	 investment from 	 acquired by 	 acquired by 	 acquired 	 acquired by 	 investment from 	 acquired by 	 acquired by 	 acquired by 	 acquired by 	 acquired 
 majority investment from 	 growth investment from 	 acquired by 	 majority investment from 	 acquired by 	 majority investment from 	 recapitalized by 	 acquired by 	 acquired 	 acquired by 	 acquired by 	 acquired by 	 acquired by 	 acquired by 	 recapitalized by 
 acquired by 	 acquired by 	 acquired by 	 acquired by 	 acquired by 	 acquired by 	 acquired by 	 acquired by 	 acquired a majority stake in 	 acquired by 	 majority investment from 	 minority investment from 	 acquired by 	 acquired by 	 acquired by 
 acquired by 	 strategic investment from 	 merged with 	 acquired by 	 acquired by 	 acquired by 	 acquired by 	 acquired by 	 acquired by 	 acquired by 	 acquired by 	 acquired by 	 acquired by 	 acquired by 	 acquired by 

# Appendix: Software Sector Public Company Universe<sup>1</sup>

	Software Bellwethers	Microsoft	Alphabet	Adobe	Cisco	Oracle	Salesforce	SAP	IBM	HPE		
APPLICATION SOFTWARE	HORIZONTAL	Communication Software	Zoom	Twilio	Slack	NICE	Nuance	MobileIron	Synchronoss			
		Enterprise Software	Adobe	Oracle	SAP	IBM	Intuit	ADP	Constellation	Amadeus	OpenText	Sage
		Human Capital Management (HCM)	ADP	Workday	Paychex	Paycom	Ceridian	Paylocity	Comerstone	Benefitfocus		
		Marketing Software	Adobe	Salesforce	HubSpot	ZoomInfo	Acxiom	Criteo	ChannelAdvisor	Marin		
		PLM & Engineering Software	Autodesk	Dassault	Synopsys	Cadence	Ansys	Hexagon AB	Trimble	PTC	Nemetschek	Altair
		Supply Chain & Logistics Software	Coupa	Trimble	Manhattan	Descartes	Wisetech	Kinaxis	SPS	American		
APPLICATION SOFTWARE	VERTICAL	Energy Software	Trimble	AVEVA	AspenTech	Itron	PSI					
		Financial Software	Fiserv	Square	MSCI	SS&C	Jack Henry	Black Knight	Blackline	Q2 Holdings	Envestnet	Oracle FSS
		Healthcare IT (HCIT)	Veeva	Cerner	Change Health	Inovalon	HMS	Health Catalyst	Allscripts	Phreesia	Evolent Health	
		EdTech / Public Sector Software	Constellation	Tyler Tech	Blackbaud	2U	NIC	K12				
SAAS	Large-Cap SaaS (≥ \$3Bn Mkt Cap)	Salesforce	ServiceNow	Zoom	Atlassian	Workday	Veeva	DocuSign	RingCentral	CrowdStrike	Coupa	
	Large-Cap SaaS (cont'd)	Paycom	Check Point	Dynatrace	Avalara	ZenDesk	HubSpot	Guidewire	Xero	Five9	RealPage	
	Large-Cap SaaS (cont'd)	Proofpoint	Anaplan	Smartsheet	AppFolio	Qualys	CyberArk	Q2 Holdings	Medallia	Box	Alarm.Com	
	Small-Cap SaaS (< \$3Bn Mkt Cap)	LivePerson	SPS	Mimecast	Rapid7	Workiva	Comerstone	PagerDuty	Yext	Model N	Talend	
	Small-Cap SaaS (cont'd)	Domo	Upland	Eventbrite	Ebix	Benefitfocus	Castlight Health					
	Data & Analytics	Splunk	Verisk	Datadog	Pegasystems	Inovalon	Verint	Teradata	PROS Holdings	MicroStrategy	Talend	
INFRASTRUCTURE SOFTWARE	IT Operations Management	ServiceNow	VMware	Citrix	Arista	Dynatrace	Fastly	F5 Networks	SolarWinds	New Relic	Software AG	
	IT Operations Management (cont'd)	PagerDuty	NetScout	Micro Focus	Progress	Radware						
	Data Storage	NetApp	Dropbox	Iron Mountain	Nutanix	Pure Storage	Box	CommVault				
	IT Security	Cisco	VeriSign	Fortinet	Palo Alto	CrowdStrike	Check Point	Cloudflare	Trend Micro	Proofpoint	Qualys	
	IT Security (cont'd)	CyberArk	Varonis	FireEye	Mimecast	Rapid7	Ping	SailPoint	SecureWorks	Tufin	Cheetah Mobile	
	IT Security (cont'd)	Symantec										

# Appendix: Software Sector Public Company Metrics<sup>1</sup>

Company	Ticker	Enterprise	Market	% of 52	1-Year Stock	3-Year Stock	Revenue Growth		LTM EBITDA	Enterprise Value /				Price /	
		Value (\$mm)	Cap (\$mm)	Week High	Performance	Performance	LTM	NTM	Margin	LTM Rev.	NTM Rev.	LTM EBITDA	NTM EBITDA	Earnings	
<b>SOFTWARE BELLWETHERS</b>															<b>Software Bellwethers</b>
Microsoft Corporation	MSFT	\$1,489,461	\$1,543,078	99.5%	51.9%	195.2%	13.5%	9.5%	46.2%	10.7x	9.8x	23.2x	21.6x	33.4x	
Alphabet Inc.	GOOG.L	866,072	966,497	92.6%	31.0%	52.5%	17.4%	5.2%	29.0%	5.2x	4.9x	17.9x	14.7x	28.0x	<b>Communication</b>
Adobe Inc.	ADBE	209,149	208,803	97.6%	47.7%	207.8%	19.3%	12.9%	36.1%	17.4x	15.4x	48.1x	31.5x	56.4x	
Cisco Systems, Inc.	CSCO	185,427	196,928	80.1%	(14.8%)	49.0%	(1.5%)	(3.3%)	32.0%	3.7x	3.8x	11.5x	10.6x	18.3x	<b>Enterprise</b>
Oracle Corporation	ORCL	200,904	169,606	91.4%	(3.0%)	10.2%	(1.1%)	0.5%	41.8%	5.1x	5.1x	12.3x	10.7x	16.7x	
salesforce.com, inc.	CRM	165,194	168,784	95.7%	23.5%	116.3%	30.1%	13.7%	11.3%	9.1x	8.0x	80.5x	25.8x	NM	<b>HCM</b>
SAP SE	SAP	177,348	166,603	95.9%	2.9%	35.9%	7.3%	4.7%	25.7%	5.8x	5.5x	22.4x	16.8x	35.7x	
IBM Corporation	IBM	164,948	107,231	76.1%	(12.4%)	(21.5%)	(2.8%)	(3.4%)	20.9%	2.2x	2.2x	10.3x	9.0x	11.9x	<b>Marketing</b>
Hewlett Packard Enterprise Co.	HPE	25,246	12,501	55.3%	(34.9%)	(41.4%)	(9.9%)	(7.3%)	17.6%	0.9x	1.0x	5.2x	5.8x	NM	
<b>Median</b>		<b>\$185,427</b>	<b>\$169,606</b>	<b>92.6%</b>	<b>2.9%</b>	<b>49.0%</b>	<b>7.3%</b>	<b>4.7%</b>	<b>29.0%</b>	<b>5.2x</b>	<b>5.1x</b>	<b>17.9x</b>	<b>14.7x</b>	<b>28.0x</b>	<b>PLM &amp; Engineering</b>
<b>COMMUNICATION SOFTWARE</b>															
Zoom Video Communications, Inc.	ZM	\$70,491	\$71,524	96.9%	185.6%	NA	111.2%	140.0%	7.6%	85.0x	35.4x	NM	131.9x	NM	<b>SCM &amp; Logistics</b>
Twilio, Inc.	TWLO	29,535	30,730	98.7%	60.9%	653.8%	67.9%	26.4%	NM	23.3x	18.5x	NM	NM	NM	
Slack Technologies, Inc.	WORK	16,857	17,525	77.6%	(17.1%)	NA	53.4%	33.8%	NM	24.2x	18.1x	NM	NM	NM	
NICE Systems Ltd.	TASE:NICE	11,768	11,634	93.9%	30.4%	130.5%	8.2%	4.4%	26.3%	7.3x	7.0x	27.8x	21.4x	59.6x	<b>Energy</b>
Nuance Communications, Inc.	NUAN	8,476	7,118	97.3%	58.5%	45.3%	10.0%	(23.0%)	20.9%	4.6x	5.9x	21.8x	24.4x	46.7x	
MobileIron, Inc.	MOBL	484	569	63.3%	(20.5%)	(18.5%)	4.7%	(4.6%)	NM	2.3x	2.5x	NM	NM	NM	<b>Financial</b>
Synchronoss Technologies, Inc.	SNCR	415	146	39.0%	(55.4%)	(78.5%)	(9.8%)	2.7%	NM	1.4x	1.4x	NM	13.2x	NM	
<b>Median</b>		<b>\$11,768</b>	<b>\$11,634</b>	<b>93.9%</b>	<b>30.4%</b>	<b>45.3%</b>	<b>10.0%</b>	<b>4.4%</b>	<b>20.9%</b>	<b>7.3x</b>	<b>7.0x</b>	<b>24.8x</b>	<b>22.9x</b>	<b>53.2x</b>	<b>HCIT</b>
<b>ENTERPRISE SOFTWARE</b>															
Adobe Inc.	ADBE	\$209,149	\$208,803	97.6%	47.7%	207.8%	19.3%	12.9%	36.1%	17.4x	15.4x	48.1x	31.5x	56.4x	<b>EdTech / Public Sector</b>
Oracle Corporation	ORCL	200,904	169,606	91.4%	(3.0%)	10.2%	(1.1%)	0.5%	41.8%	5.1x	5.1x	12.3x	10.7x	16.7x	
SAP SE	SAP	177,348	166,603	95.9%	2.9%	35.9%	7.3%	4.7%	25.7%	5.8x	5.5x	22.4x	16.8x	35.7x	<b>Large-Cap SaaS</b>
IBM Corporation	IBM	164,948	107,231	76.1%	(12.4%)	(21.5%)	(2.8%)	(3.4%)	20.9%	2.2x	2.2x	10.3x	9.0x	11.9x	
Intuit Inc.	INTU	73,930	77,238	96.5%	13.3%	123.0%	3.1%	22.3%	25.4%	10.8x	8.8x	42.4x	21.5x	57.8x	<b>Small-Cap SaaS</b>
Automatic Data Processing, Inc.	ADP	64,745	63,989	81.7%	(9.9%)	45.3%	5.8%	(2.8%)	25.0%	4.4x	4.5x	17.6x	19.1x	25.3x	
Constellation Software Inc.	TSX:CSU	24,117	23,881	93.6%	24.2%	126.0%	14.6%	14.3%	17.6%	6.7x	5.8x	37.8x	21.5x	72.6x	<b>Data &amp; Analytics</b>
Amadeus IT Group	BME:AMS	26,893	23,483	58.8%	(33.4%)	(11.4%)	(0.7%)	(31.1%)	38.3%	4.7x	6.8x	12.3x	22.5x	22.9x	
Open Text Corporation	OTEX	14,522	11,503	88.8%	3.1%	34.7%	5.4%	8.0%	29.6%	4.8x	4.4x	16.2x	12.4x	41.1x	<b>IT Operations</b>
Sage Group plc	LSE:SGE	9,366	9,072	81.3%	(16.3%)	(2.4%)	(1.9%)	(5.3%)	30.1%	3.9x	4.1x	12.8x	16.4x	21.7x	
<b>Median</b>		<b>\$69,337</b>	<b>\$70,613</b>	<b>90.1%</b>	<b>(0.0%)</b>	<b>35.3%</b>	<b>4.2%</b>	<b>2.6%</b>	<b>27.6%</b>	<b>5.0x</b>	<b>5.3x</b>	<b>16.9x</b>	<b>18.0x</b>	<b>30.5x</b>	<b>Data Storage</b>
															<b>IT Security</b>

# Appendix: Software Sector Public Company Metrics (Cont'd)<sup>1</sup>

Company	Ticker	Enterprise	Market	% of 52	1-Year Stock	3-Year Stock	Revenue Growth		LTM EBITDA	Enterprise Value /				Price /	
		Value (\$mm)	Cap (\$mm)	Week High	Performance	Performance	LTM	NTM	Margin	LTM Rev.	NTM Rev.	LTM EBITDA	NTM EBITDA	Earnings	
<b>HUMAN CAPITAL MANAGEMENT SOFTWARE</b>															Software Bellwethers
Automatic Data Processing, Inc.	ADP	\$64,745	\$63,989	81.7%	(9.9%)	45.3%	5.8%	(2.8%)	25.0%	4.4x	4.5x	17.6x	19.1x	25.3x	
Workday, Inc.	WDAY	43,562	44,061	82.6%	(8.9%)	93.2%	26.1%	13.4%	NM	11.4x	10.1x	NM	41.7x	NM	Communication
Paychex, Inc.	PAYX	27,309	27,173	83.7%	(7.9%)	33.0%	12.9%	(5.7%)	41.3%	6.7x	7.1x	16.1x	17.9x	24.5x	
Paycom Software, Inc.	PAYC	17,661	17,789	90.6%	36.6%	352.8%	27.4%	9.5%	35.8%	22.6x	20.7x	63.3x	50.3x	90.6x	Enterprise
Ceridian HCM Holding, Inc.	CDAY	12,410	11,949	94.5%	57.9%	NA	11.6%	2.5%	14.3%	14.7x	14.4x	103.2x	75.6x	157.0x	
Paylocity Holding Corp.	PCTY	7,735	7,832	96.8%	55.5%	222.9%	24.2%	9.1%	16.5%	14.0x	12.9x	85.0x	52.2x	112.3x	
Cornerstone OnDemand, Inc.	CSOD	2,372	2,461	59.8%	(33.4%)	7.9%	7.6%	38.5%	4.9%	4.0x	2.9x	83.1x	9.1x	NM	HCM
Benefitfocus, Inc.	BNFT	523	345	38.1%	(60.4%)	(70.4%)	10.9%	(9.8%)	NM	1.8x	2.0x	NM	18.9x	NM	
<b>Median</b>		<b>\$15,035</b>	<b>\$14,869</b>	<b>83.1%</b>	<b>(8.4%)</b>	<b>45.3%</b>	<b>12.2%</b>	<b>5.8%</b>	<b>20.8%</b>	<b>9.0x</b>	<b>8.6x</b>	<b>73.2x</b>	<b>30.4x</b>	<b>90.6x</b>	Marketing
<b>MARKETING SOFTWARE</b>															PLM & Engineering
Adobe Inc.	ADBE	\$209,149	\$208,803	97.6%	47.7%	207.8%	19.3%	12.9%	36.1%	17.4x	15.4x	48.1x	31.5x	56.4x	
salesforce.com, inc.	CRM	165,194	168,784	95.7%	23.5%	116.3%	30.1%	13.7%	11.3%	9.1x	8.0x	80.5x	25.8x	NM	
HubSpot, Inc.	HUBS	9,430	9,788	97.0%	31.6%	241.2%	31.2%	15.6%	NM	13.1x	11.3x	NM	116.8x	NM	SCM & Logistics
ZoomInfo Technologies Inc.	ZI	9,082	7,663	79.2%	NA	NA	NM	36.2%	27.9%	26.6x	19.6x	95.6x	40.2x	NM	
Axiom Holdings, Inc.	ACXM	2,089	2,786	NA	NA	NA	33.2%	10.4%	NM	5.5x	5.0x	NM	NM	NM	Energy
Criteo SA	CRTO	462	703	54.9%	(33.8%)	(76.8%)	(3.8%)	(67.5%)	11.0%	0.2x	0.6x	1.9x	3.1x	8.1x	
ChannelAdvisor Corporation	ECOM	408	449	99.7%	80.8%	37.1%	(0.7%)	1.1%	11.3%	3.1x	3.1x	27.8x	15.9x	57.5x	Financial
Marin Software, Inc.	MRIN	15	10	42.4%	(42.3%)	(84.4%)	(21.9%)	NM	NM	0.3x	NM	NM	NM	NM	
<b>Median</b>		<b>\$5,586</b>	<b>\$5,224</b>	<b>95.7%</b>	<b>27.5%</b>	<b>76.7%</b>	<b>19.3%</b>	<b>12.9%</b>	<b>11.3%</b>	<b>7.3x</b>	<b>8.0x</b>	<b>48.1x</b>	<b>28.6x</b>	<b>56.4x</b>	HCIT
<b>PLM &amp; ENGINEERING SOFTWARE</b>															EdTech / Public Sector
Autodesk, Inc.	ADSK	\$53,046	\$52,430	96.8%	46.8%	137.2%	24.7%	12.7%	16.4%	15.5x	13.7x	94.4x	43.9x	171.8x	
Dassault Systemes SA	ENXTPA:DSY	47,726	44,997	93.6%	9.5%	95.7%	13.5%	14.3%	24.5%	10.4x	9.1x	42.3x	28.4x	72.2x	
Synopsys, Inc.	SNPS	29,324	29,404	98.7%	51.5%	167.4%	5.2%	13.4%	20.3%	8.6x	7.6x	42.4x	23.3x	62.0x	Large-Cap SaaS
Cadence Design Systems, Inc.	CDNS	26,699	26,949	99.4%	35.5%	186.5%	8.2%	10.3%	26.9%	11.2x	10.2x	41.7x	27.2x	27.2x	
ANSYS, Inc.	ANSS	24,802	24,971	97.5%	42.4%	139.8%	13.2%	8.4%	35.0%	16.5x	15.2x	47.1x	34.8x	60.7x	Small-Cap SaaS
Hexagon AB	OM:HEXA B	23,925	21,499	92.9%	5.5%	35.8%	(1.1%)	(2.0%)	28.7%	5.6x	5.7x	19.6x	17.7x	28.4x	
Trimble Inc.	TRMB	12,652	10,787	92.5%	(4.3%)	21.1%	2.8%	(8.3%)	19.7%	3.9x	4.2x	19.8x	19.6x	21.0x	Data & Analytics
PTC Inc.	PTC	9,994	9,000	83.3%	(13.3%)	41.1%	7.5%	9.2%	17.4%	7.4x	6.8x	42.6x	21.0x	NM	
Nemetschek SE	XTRA:NEM	8,112	7,955	82.3%	15.6%	181.6%	14.8%	7.6%	22.8%	12.8x	11.9x	56.3x	42.8x	56.1x	
Altair Engineering Inc.	ALTR	2,857	2,896	91.8%	(1.6%)	NA	12.5%	(1.4%)	5.3%	6.2x	6.3x	116.5x	82.6x	NM	IT Operations
<b>Median</b>		<b>\$24,364</b>	<b>\$23,235</b>	<b>93.2%</b>	<b>12.5%</b>	<b>137.2%</b>	<b>10.4%</b>	<b>8.8%</b>	<b>21.6%</b>	<b>9.5x</b>	<b>8.3x</b>	<b>42.5x</b>	<b>27.8x</b>	<b>58.4x</b>	Data Storage
															IT Security

# Appendix: Software Sector Public Company Metrics (Cont'd)<sup>1</sup>

Company	Ticker	Enterprise	Market	% of 52	1-Year Stock	3-Year Stock	Revenue Growth		LTM EBITDA	Enterprise Value /				Price /	
		Value (\$mm)	Cap (\$mm)	Week High	Performance	Performance	LTM	NTM	Margin	LTM Rev.	NTM Rev.	LTM EBITDA	NTM EBITDA	Earnings	
<b>SUPPLY CHAIN AND LOGISTICS SOFTWARE</b>															Software Bellwethers
Coupa Software, Inc.	COUP	\$18,594	\$18,582	98.9%	118.8%	856.0%	49.8%	20.6%	NM	43.5x	36.0x	NM	NM	NM	
Trimble Inc.	TRMB	12,652	10,787	92.5%	(4.3%)	21.1%	2.8%	(8.3%)	19.7%	3.9x	4.2x	19.8x	19.6x	21.0x	Communication
Manhattan Associates, Inc.	MANH	5,943	5,981	98.9%	35.9%	96.0%	8.1%	(12.1%)	19.3%	9.5x	10.8x	49.4x	42.2x	68.5x	Enterprise
Descartes Systems Group Inc.	TSX:DSG	4,400	4,434	99.2%	47.9%	127.2%	15.8%	4.5%	36.7%	13.3x	12.7x	36.2x	31.3x	108.9x	
Wisetech Global Ltd.	ASX:WTC	4,171	4,302	49.9%	(30.2%)	179.6%	39.0%	15.5%	26.6%	14.9x	12.9x	56.1x	43.9x	67.3x	
Kinaxis, Inc.	TSX:KXS	3,550	3,785	96.7%	137.6%	140.4%	24.4%	13.1%	19.3%	17.9x	15.8x	92.6x	68.7x	172.5x	HCM
SPS Commerce, Inc.	SPSC	2,432	2,624	97.7%	47.0%	135.6%	11.8%	7.4%	20.8%	8.5x	7.9x	40.9x	29.4x	72.1x	
American Software, Inc.	AMSWA	416	507	NA	NA	NA	6.2%	1.3%	12.3%	3.6x	3.6x	29.4x	29.2x	75.2x	
<b>Median</b>		<b>\$4,285</b>	<b>\$4,368</b>	<b>97.7%</b>	<b>47.0%</b>	<b>135.6%</b>	<b>13.8%</b>	<b>5.9%</b>	<b>19.7%</b>	<b>11.4x</b>	<b>11.8x</b>	<b>40.9x</b>	<b>31.3x</b>	<b>72.1x</b>	Marketing
<b>ENERGY SOFTWARE</b>															PLM & Engineering
Trimble Inc.	TRMB	\$12,652	\$10,787	92.5%	(4.3%)	21.1%	2.8%	(8.3%)	19.7%	3.9x	4.2x	19.8x	19.6x	21.0x	
AVEVA Group plc	LSE:AVV	8,107	8,162	76.5%	1.2%	NA	4.0%	(4.9%)	18.7%	7.8x	8.2x	41.8x	28.8x	93.9x	
Aspen Technology, Inc.	AZPN	7,283	7,004	72.5%	(16.6%)	87.5%	4.4%	0.7%	43.5%	12.4x	12.3x	28.6x	24.4x	30.2x	SCM & Logistics
Itron, Inc.	ITRI	3,535	2,664	75.0%	5.9%	(2.2%)	4.3%	(9.4%)	10.4%	1.4x	1.6x	13.6x	18.3x	44.7x	Energy
PSI Aktiengesellschaft	XTRA:PSAN	329	352	83.8%	11.8%	41.6%	6.8%	(1.3%)	9.4%	1.3x	1.4x	14.3x	12.4x	23.2x	
<b>Median</b>		<b>\$7,283</b>	<b>\$7,004</b>	<b>76.5%</b>	<b>1.2%</b>	<b>31.4%</b>	<b>4.3%</b>	<b>(4.9%)</b>	<b>18.7%</b>	<b>3.9x</b>	<b>4.2x</b>	<b>19.8x</b>	<b>19.6x</b>	<b>30.2x</b>	Financial
<b>FINANCIAL SOFTWARE</b>															Financial
Fiserv, Inc.	FISV	\$88,130	\$65,355	78.1%	7.1%	59.6%	111.6%	20.2%	32.2%	7.1x	5.9x	22.0x	15.0x	61.7x	HCM
Square, Inc.	SQ	45,770	46,106	97.3%	44.7%	347.3%	43.1%	5.0%	0.3%	8.9x	8.5x	NM	154.0x	149.8x	
MSCI Inc.	MSCI	30,192	27,906	93.6%	39.8%	224.1%	10.3%	4.9%	54.0%	18.8x	17.9x	34.9x	32.4x	52.3x	
SS&C Technologies Holdings, Inc.	SSNC	21,737	14,473	84.6%	(2.0%)	47.0%	12.9%	(1.3%)	36.7%	4.7x	4.7x	12.7x	12.3x	31.7x	EdTech / Public Sector
Jack Henry & Associates, Inc.	JKHY	14,113	14,100	94.4%	37.4%	77.2%	9.3%	4.6%	28.1%	8.4x	8.0x	29.8x	25.6x	47.6x	
Black Knight Financial Services, Inc.	BKFS	12,895	11,276	NA	NA	NA	5.1%	0.7%	33.9%	10.9x	10.8x	32.1x	21.9x	84.8x	Large-Cap SaaS
BlackLine, Inc.	BL	4,472	4,675	97.6%	54.9%	132.0%	27.8%	14.4%	NM	14.5x	12.7x	NM	107.6x	NM	
Q2 Holdings, Inc.	QTWO	4,925	4,565	91.4%	12.3%	132.2%	30.7%	23.6%	NM	14.6x	11.8x	NM	NM	NM	Small-Cap SaaS
Envestnet, Inc.	ENV	4,562	3,935	83.8%	7.6%	85.7%	16.3%	0.9%	11.5%	4.8x	4.8x	42.0x	22.5x	NM	
Oracle Financial Services Software Ltd.	BSE:532466	2,701	3,249	83.4%	(9.9%)	(20.7%)	(9.8%)	(0.3%)	45.6%	4.2x	4.2x	9.2x	8.9x	16.7x	Data & Analytics
<b>Median</b>		<b>\$13,504</b>	<b>\$12,688</b>	<b>91.4%</b>	<b>12.3%</b>	<b>85.7%</b>	<b>14.6%</b>	<b>4.8%</b>	<b>33.0%</b>	<b>8.7x</b>	<b>8.3x</b>	<b>29.8x</b>	<b>22.5x</b>	<b>52.3x</b>	IT Operations
															Data Storage
															IT Security



# Appendix: Software Sector Public Company Metrics (Cont'd)<sup>1</sup>

Company	Ticker	Enterprise	Market	% of 52	1-Year Stock	3-Year Stock	Revenue Growth		LTM EBITDA	Enterprise Value /				Price /	
		Value (\$mm)	Cap (\$mm)	Week High	Performance	Performance	LTM	NTM	Margin	LTM Rev.	NTM Rev.	LTM EBITDA	NTM EBITDA	Earnings	
<b>HEALTHCARE IT</b>															Software Bellwethers
Veeva Systems Inc	VEEV	\$33,869	\$35,197	96.0%	44.6%	282.4%	31.3%	21.1%	27.4%	28.3x	23.4x	103.3x	62.8x	112.0x	
Cerner Corporation	CERN	21,983	20,863	84.7%	(6.5%)	3.1%	4.6%	(1.2%)	20.5%	3.8x	3.9x	18.8x	12.4x	40.9x	Communication
Change Healthcare, Inc.	CHNG	8,026	3,399	63.7%	(23.3%)	NA	NM	1,422%	NM	40.8x	2.7x	NM	9.5x	NM	
Inovalon Holdings, Inc.	INOV	3,946	2,993	83.8%	32.7%	46.5%	12.2%	7.2%	27.9%	6.1x	5.7x	21.7x	16.9x	NM	Enterprise
HMS Holdings Corp.	HMSY	2,976	2,864	79.6%	NA	75.1%	7.4%	7.7%	21.7%	4.6x	4.3x	21.1x	16.1x	35.7x	
Health Catalyst, Inc.	HCAT	956	1,109	58.5%	NA	NA	29.6%	12.0%	NM	5.8x	5.2x	NM	NM	NM	HCM
Allscripts Healthcare Solutions, Inc.	MDRX	2,077	1,100	57.0%	(41.8%)	(46.9%)	0.5%	(2.8%)	4.8%	1.2x	1.2x	24.7x	7.0x	NM	
Phreesia, Inc.	PHR	1,002	1,066	81.1%	NA	NA	24.5%	8.8%	NM	7.7x	7.1x	NM	NM	NM	
Evolent Health Inc.	EVH	903	609	59.3%	(10.4%)	(71.9%)	30.8%	6.1%	NM	1.0x	0.9x	NM	34.3x	NM	Marketing
<b>Median</b>		<b>\$2,976</b>	<b>\$2,864</b>	<b>79.6%</b>	<b>(8.5%)</b>	<b>24.8%</b>	<b>18.3%</b>	<b>7.7%</b>	<b>21.7%</b>	<b>5.8x</b>	<b>4.3x</b>	<b>21.7x</b>	<b>16.1x</b>	<b>40.9x</b>	
<b>EDTECH / PUBLIC SECTOR SOFTWARE</b>															PLM & Engineering
Constellation Software Inc.	TSX:CSU	\$24,117	\$23,881	93.6%	24.2%	126.0%	14.6%	14.3%	17.6%	6.7x	5.8x	37.8x	21.5x	72.6x	SCM & Logistics
Tyler Technologies, Inc.	TYL	13,474	13,793	90.6%	60.6%	97.5%	16.1%	5.3%	18.3%	12.1x	11.5x	66.1x	41.5x	82.7x	
Blackbaud, Inc.	BLKB	3,380	2,757	58.6%	(31.6%)	(33.4%)	5.6%	(1.7%)	11.7%	3.7x	3.8x	31.9x	20.0x	156.0x	Energy
2U, Inc.	TWOU	2,616	2,428	93.6%	0.9%	(19.1%)	42.2%	18.5%	NM	4.2x	3.5x	NM	NM	NM	
NIC Inc.	EGOV	1,330	1,538	88.5%	43.1%	21.2%	4.9%	7.7%	19.0%	3.7x	3.4x	19.5x	14.5x	30.3x	Financial
K12 Inc.	LRN	1,168	1,074	86.3%	(10.4%)	52.0%	3.0%	7.5%	5.0%	1.1x	1.1x	22.5x	8.0x	46.8x	
<b>Median</b>		<b>\$2,998</b>	<b>\$2,593</b>	<b>89.6%</b>	<b>12.5%</b>	<b>36.6%</b>	<b>10.1%</b>	<b>7.6%</b>	<b>17.6%</b>	<b>3.9x</b>	<b>3.7x</b>	<b>31.9x</b>	<b>20.0x</b>	<b>72.6x</b>	
															HCM
															EdTech / Public Sector
															Large-Cap SaaS
															Small-Cap SaaS
															Data & Analytics
															IT Operations
															Data Storage
															IT Security

# Appendix: Software Sector Public Company Metrics (Cont'd)<sup>1</sup>

Company	Ticker	Enterprise	Market	% of 52	1-Year Stock	3-Year Stock	Revenue Growth		LTM EBITDA	Enterprise Value /				Price /	
		Value (\$mm)	Cap (\$mm)	Week High	Performance	Performance	LTM	NTM	Margin	LTM Rev.	NTM Rev.	LTM EBITDA	NTM EBITDA	Earnings	
<b>LARGE-CAP SAAS (Market Cap &gt; \$3Bn)</b>															Software Bellwethers
salesforce.com, inc.	CRM	\$165,194	\$168,784	95.7%	23.5%	116.3%	30.1%	13.7%	11.3%	9.1x	8.0x	80.5x	25.8x	NM	
ServiceNow, Inc.	NOW	76,591	77,246	98.8%	47.5%	282.1%	32.4%	23.1%	10.2%	20.6x	16.7x	NM	54.7x	114.2x	Communication
Zoom Video Communications, Inc.	ZM	70,491	71,524	96.9%	185.6%	NA	111.2%	140.0%	7.6%	85.0x	35.4x	NM	131.9x	NM	
Atlassian Corp. Plc	TEAM	43,578	44,499	94.0%	37.8%	412.4%	35.3%	21.4%	1.1%	28.7x	23.7x	NM	91.5x	NM	Enterprise
Workday, Inc.	WDAY	43,562	44,061	82.6%	(8.9%)	93.2%	26.1%	13.4%	NM	11.4x	10.1x	NM	41.7x	NM	
Veeva Systems Inc	VEEV	33,869	35,197	96.0%	44.6%	282.4%	31.3%	21.1%	27.4%	28.3x	23.4x	103.3x	62.8x	112.0x	HCM
DocuSign, Inc.	DOCU	31,518	31,602	95.4%	246.4%	NA	39.2%	32.6%	NM	29.8x	22.5x	NM	NM	NM	
RingCentral, Inc.	RNG	25,375	25,053	96.2%	148.0%	679.8%	33.7%	21.4%	NM	26.2x	21.6x	NM	163.6x	NM	
CrowdStrike Holdings, Inc.	CRWD	20,698	21,662	92.6%	46.9%	NA	88.7%	46.1%	NM	36.7x	25.1x	NM	NM	NM	Marketing
Coupa Software, Inc.	COUP	18,594	18,582	98.9%	118.8%	856.0%	49.8%	20.6%	NM	43.5x	36.0x	NM	NM	NM	
Paycom Software, Inc.	PAYC	17,661	17,789	90.6%	36.6%	352.8%	27.4%	9.5%	35.8%	22.6x	20.7x	63.3x	50.3x	90.6x	PLM & Engineering
Check Point Software Technologies Ltd.	CHKP	13,888	15,631	88.8%	(7.1%)	(1.5%)	3.8%	0.8%	44.6%	6.9x	6.9x	15.5x	14.1x	19.0x	
Dynatrace, Inc.	DT	11,700	11,403	91.9%	NA	NA	26.6%	17.2%	NM	21.4x	18.3x	NM	71.0x	NM	SCM & Logistics
Avalara Inc	AVLR	10,056	10,437	95.9%	84.3%	NA	38.3%	17.6%	NM	24.6x	20.9x	NM	NM	NM	
Zendesk, Inc.	ZEN	10,242	10,112	93.3%	(0.6%)	218.7%	34.1%	21.4%	NM	11.7x	9.7x	NM	103.4x	NM	Energy
HubSpot, Inc.	HUBS	9,430	9,788	97.0%	31.6%	241.2%	31.2%	15.6%	NM	13.1x	11.3x	NM	116.8x	NM	
Guidewire Software, Inc.	GWRE	8,613	9,220	89.3%	9.3%	61.3%	(6.0%)	5.7%	NM	12.2x	11.5x	NM	84.7x	NM	
Xero Limited	ASX:XRO	8,791	8,817	97.9%	50.3%	272.5%	13.3%	28.3%	6.5%	20.6x	16.0x	NM	72.3x	NM	Financial
Five9, Inc.	FIVN	7,067	7,166	99.5%	115.8%	414.3%	27.5%	13.0%	3.9%	20.3x	17.9x	NM	109.5x	NM	
RealPage, Inc.	RP	7,534	6,436	93.2%	10.5%	80.8%	14.2%	12.8%	16.9%	7.3x	6.5x	43.4x	24.6x	122.5x	HcIT
Proofpoint, Inc.	PFPT	6,237	6,368	83.2%	(7.6%)	28.0%	23.4%	12.6%	NM	6.7x	5.9x	NM	40.1x	NM	
Anaplan, Inc.	PLAN	5,981	6,232	71.1%	(10.2%)	NA	41.9%	20.4%	NM	15.9x	13.2x	NM	NM	NM	EdTech / Public Sector
Smartsheet, Inc.	SMAR	5,628	6,098	84.2%	5.2%	NA	51.9%	28.7%	NM	18.7x	14.6x	NM	NM	NM	
AppFolio Inc	APPF	5,642	5,573	90.1%	59.1%	399.1%	32.5%	22.3%	6.6%	20.8x	17.0x	NM	113.5x	161.3x	Large-Cap SaaS
Qualys, Inc.	QLYS	3,770	4,053	87.3%	19.5%	155.0%	14.9%	10.5%	32.6%	11.3x	10.3x	34.8x	24.5x	54.2x	
CyberArk Software Ltd.	CYBR	3,244	3,845	66.7%	(22.3%)	98.7%	21.1%	6.1%	13.8%	7.3x	6.9x	52.7x	34.7x	74.3x	Small-Cap SaaS
Q2 Holdings, Inc.	QTWO	4,925	4,565	91.4%	12.3%	132.2%	30.7%	23.6%	NM	14.6x	11.8x	NM	NM	NM	
Medallia, Inc.	MDLA	3,206	3,562	56.4%	NA	NA	25.2%	14.0%	NM	7.6x	6.7x	NM	95.1x	NM	Data & Analytics
Box, Inc.	BOX	3,388	3,186	94.0%	17.9%	13.8%	13.6%	9.2%	NM	4.7x	4.3x	NM	23.8x	NM	
Alarm.com Holdings, Inc.	ALRM	3,161	3,160	99.6%	21.1%	72.2%	23.2%	(2.6%)	16.0%	5.8x	6.0x	36.5x	31.3x	59.3x	IT Operations
<b>Median</b>		<b>\$9,743</b>	<b>\$9,950</b>	<b>93.2%</b>	<b>27.5%</b>	<b>186.8%</b>	<b>30.4%</b>	<b>17.4%</b>	<b>12.5%</b>	<b>17.3x</b>	<b>13.9x</b>	<b>48.0x</b>	<b>62.8x</b>	<b>90.6x</b>	Data Storage
															IT Security

# Appendix: Software Sector Public Company Metrics (Cont'd)<sup>1</sup>

Company	Ticker	Enterprise	Market	% of 52	1-Year Stock	3-Year Stock	Revenue Growth		LTM EBITDA	Enterprise Value /				Price /	
		Value (\$mm)	Cap (\$mm)	Week High	Performance	Performance	LTM	NTM	Margin	LTM Rev.	NTM Rev.	LTM EBITDA	NTM EBITDA	Earnings	
<b>SMALL-CAP SAAS (Market Cap &lt; \$3Bn)</b>															Software Bellwethers
LivePerson, Inc.	LPSN	\$2,772	\$2,743	91.6%	47.8%	276.6%	17.6%	20.1%	NM	9.1x	7.6x	NM	NM	NM	Software Bellwethers
SPS Commerce, Inc.	SPSC	2,432	2,624	97.7%	47.0%	135.6%	11.8%	7.4%	20.8%	8.5x	7.9x	40.9x	29.4x	72.1x	Communication
Mimecast Limited	MIME	2,679	2,623	76.6%	(10.8%)	55.6%	25.4%	12.4%	8.9%	6.3x	5.6x	70.5x	28.1x	NM	Enterprise
Rapid7 Inc.	RPD	2,604	2,577	77.3%	(11.8%)	203.1%	32.5%	16.6%	NM	7.5x	6.4x	NM	NM	NM	Enterprise
Workiva, Inc.	WK	2,350	2,521	83.4%	(7.9%)	180.8%	23.3%	10.0%	NM	7.5x	6.8x	NM	NM	NM	Enterprise
Cornerstone OnDemand, Inc.	CSOD	2,372	2,461	59.8%	(33.4%)	7.9%	7.6%	38.5%	4.9%	4.0x	2.9x	83.1x	9.1x	NM	HCM
PagerDuty, Inc.	PD	1,937	2,253	55.2%	(39.2%)	NA	37.4%	21.2%	NM	10.8x	8.9x	NM	NM	NM	HCM
Yext, Inc.	YEXT	1,838	1,955	73.3%	(17.3%)	24.6%	28.2%	16.9%	NM	5.8x	5.0x	NM	NM	NM	Marketing
Model N, Inc.	MODN	1,176	1,191	97.0%	78.3%	161.4%	2.3%	6.8%	NM	7.9x	7.4x	NM	83.6x	NM	Marketing
Talend SA	TLND	1,066	1,086	80.8%	(10.2%)	(0.3%)	19.2%	8.2%	NM	4.1x	3.8x	NM	NM	NM	Marketing
Domo, Inc.	DOMO	953	927	90.3%	17.8%	NA	19.7%	10.4%	NM	5.3x	4.8x	NM	NM	NM	PLM & Engineering
Upland Software, Inc.	UPLD	1,350	880	71.4%	(23.7%)	58.1%	45.2%	9.2%	20.2%	5.6x	5.1x	27.6x	15.0x	NM	PLM & Engineering
Eventbrite, Inc.	EB	427	777	37.4%	(47.1%)	NA	(1.3%)	(53.3%)	NM	1.5x	3.1x	NM	NM	NM	SCM & Logistics
Ebix, Inc.	EBIX	1,391	682	43.5%	(55.5%)	(58.5%)	8.1%	(2.9%)	25.8%	2.4x	2.5x	9.4x	NM	7.1x	SCM & Logistics
Benefitfocus, Inc.	BNFT	523	345	38.1%	(60.4%)	(70.4%)	10.9%	(9.8%)	NM	1.8x	2.0x	NM	18.9x	NM	Energy
Castlight Health, Inc.	CSLT	99	124	25.4%	(74.3%)	(80.0%)	(5.5%)	(15.8%)	NM	0.7x	0.8x	NM	NM	NM	Energy
<b>Median</b>		<b>\$2,350</b>	<b>\$2,461</b>	<b>80.8%</b>	<b>(10.2%)</b>	<b>135.6%</b>	<b>19.7%</b>	<b>12.4%</b>	<b>8.9%</b>	<b>7.5x</b>	<b>6.4x</b>	<b>70.5x</b>	<b>28.7x</b>	<b>72.1x</b>	Financial
															Financial
															HCIT
															EdTech / Public Sector
															Large-Cap SaaS
															<b>Small-Cap SaaS</b>
															Data & Analytics
															IT Operations
															Data Storage
															IT Security

# Appendix: Software Sector Public Company Metrics (Cont'd)<sup>1</sup>

Company	Ticker	Enterprise	Market	% of 52	1-Year Stock	3-Year Stock	Revenue Growth		LTM EBITDA	Enterprise Value /				Price /	
		Value (\$mm)	Cap (\$mm)	Week High	Performance	Performance	LTM	NTM	Margin	LTM Rev.	NTM Rev.	LTM EBITDA	NTM EBITDA	Earnings	
<b>DATA &amp; ANALYTICS</b>															Software Bellwethers
Splunk Inc.	SPLK	\$31,968	\$31,567	99.7%	58.0%	249.3%	23.6%	6.8%	NM	13.5x	12.6x	NM	NM	NM	
Verisk Analytics Inc	VRSK	30,743	27,617	97.9%	16.2%	101.7%	9.6%	4.7%	40.9%	11.5x	11.0x	28.1x	23.3x	56.7x	Communication
Datadog, Inc.	DDOG	25,296	26,031	93.5%	NA	NA	85.6%	42.7%	1.5%	59.7x	41.8x	NM	NM	NM	
Pegasystems Inc.	PEGA	8,133	8,103	98.1%	42.1%	73.4%	11.0%	14.0%	NM	8.4x	7.4x	NM	162.5x	NM	Enterprise
Inovalon Holdings, Inc.	INOV	3,946	2,993	83.8%	32.7%	46.5%	12.2%	7.2%	27.9%	6.1x	5.7x	21.7x	16.9x	NM	
Verint Systems Inc.	VRNT	3,456	2,915	75.5%	(16.0%)	11.0%	1.6%	0.3%	11.6%	2.7x	2.7x	23.4x	10.4x	138.2x	HCM
Teradata Corporation	TDC	2,558	2,257	55.3%	(42.0%)	(29.5%)	(12.3%)	(3.6%)	7.0%	1.4x	1.4x	19.7x	8.0x	14.3x	
PROS Holdings, Inc.	PRO	1,813	1,923	58.9%	(29.8%)	62.2%	26.9%	0.3%	NM	7.0x	6.9x	NM	NM	NM	
MicroStrategy Incorporated	MSTR	726	1,155	71.7%	(17.5%)	(38.3%)	(1.6%)	NM	5.6%	1.5x	NM	26.8x	NM	26.9x	Marketing
Talend SA	TLND	1,066	1,086	80.8%	(10.2%)	(0.3%)	19.2%	8.2%	NM	4.1x	3.8x	NM	NM	NM	
<b>Median</b>		<b>\$3,701</b>	<b>\$2,954</b>	<b>82.3%</b>	<b>(10.2%)</b>	<b>46.5%</b>	<b>11.6%</b>	<b>6.8%</b>	<b>9.3%</b>	<b>6.5x</b>	<b>6.9x</b>	<b>23.4x</b>	<b>16.9x</b>	<b>41.8x</b>	PLM & Engineering
<b>IT OPERATIONS MANAGEMENT</b>															SCM & Logistics
ServiceNow, Inc.	NOW	\$76,591	\$77,246	98.8%	47.5%	282.1%	32.4%	23.1%	10.2%	20.6x	16.7x	NM	54.7x	114.2x	
VMware, Inc.	VMW	67,622	64,894	84.4%	(7.4%)	77.1%	10.3%	6.2%	19.6%	6.1x	5.7x	31.1x	17.2x	10.1x	
Citrix Systems, Inc.	CTXS	19,691	18,260	95.4%	50.7%	85.9%	5.2%	(1.3%)	24.6%	6.2x	6.3x	25.4x	20.2x	24.3x	Energy
Arista Networks, Inc.	ANET	13,342	15,900	72.6%	(19.1%)	40.2%	2.8%	(2.7%)	34.5%	5.7x	5.9x	16.5x	15.2x	19.9x	
Dynatrace, Inc.	DT	11,700	11,403	91.9%	NA	NA	26.6%	17.2%	NM	21.4x	18.3x	NM	71.0x	NM	Financial
Fastly, Inc.	FSLY	8,763	8,848	95.6%	319.8%	NA	38.2%	40.4%	NM	40.2x	28.6x	NM	NM	NM	
F5 Networks, Inc.	FFIV	8,475	8,494	90.6%	(4.2%)	9.8%	5.1%	2.4%	23.3%	3.7x	3.6x	15.8x	10.4x	24.9x	HCIT
SolarWinds Corp.	SWI	7,292	5,510	81.6%	(3.7%)	NA	13.1%	6.8%	22.8%	7.6x	7.1x	33.3x	15.2x	NM	
New Relic, Inc.	NEWR	3,813	4,123	71.4%	(20.4%)	60.2%	25.1%	11.7%	NM	6.4x	5.7x	NM	58.2x	NM	EdTech / Public Sector
Software AG	XTRA:SOW	2,685	2,989	99.3%	18.9%	NA	(0.3%)	(2.1%)	26.1%	2.7x	2.8x	10.4x	12.6x	18.7x	
PagerDuty, Inc.	PD	1,937	2,253	55.2%	(39.2%)	NA	37.4%	21.2%	NM	10.8x	8.9x	NM	NM	NM	Large-Cap SaaS
NetScout Systems, Inc.	NTCT	1,991	1,846	86.3%	0.7%	(25.7%)	(2.0%)	(1.2%)	15.2%	2.2x	2.3x	14.6x	10.2x	NM	
Micro Focus International plc	LSE:MCRO	5,980	1,790	19.9%	(79.1%)	(85.4%)	4.4%	(11.0%)	30.9%	1.8x	2.0x	5.8x	5.5x	1.2x	Small-Cap SaaS
Progress Software Corporation	PRGS	1,850	1,736	73.8%	(11.2%)	25.4%	8.9%	1.3%	33.3%	4.3x	4.2x	12.8x	10.6x	37.0x	
Radware Ltd.	RDWR	949	1,093	87.4%	(4.6%)	34.5%	3.9%	0.5%	10.6%	3.8x	3.8x	35.7x	27.5x	52.6x	Data & Analytics
<b>Median</b>		<b>\$7,292</b>	<b>\$5,510</b>	<b>86.3%</b>	<b>(4.4%)</b>	<b>37.4%</b>	<b>8.9%</b>	<b>2.4%</b>	<b>23.3%</b>	<b>6.1x</b>	<b>5.7x</b>	<b>16.1x</b>	<b>15.2x</b>	<b>24.3x</b>	IT Operations
															Data Storage
															IT Security

# Appendix: Software Sector Public Company Metrics (Cont'd)<sup>1</sup>

Company	Ticker	Enterprise	Market	% of 52	1-Year Stock	3-Year Stock	Revenue Growth		LTM EBITDA	Enterprise Value /				Price /	
		Value (\$mm)	Cap (\$mm)	Week High	Performance	Performance	LTM	NTM	Margin	LTM Rev.	NTM Rev.	LTM EBITDA	NTM EBITDA	Earnings	
<b>DATA STORAGE</b>															Software Bellwethers
NetApp, Inc.	NTAP	\$8,766	\$9,842	67.9%	(28.1%)	10.8%	(11.9%)	(5.2%)	20.0%	1.6x	1.7x	8.1x	7.7x	12.0x	
Dropbox	DBX	8,979	8,996	83.1%	(13.1%)	NA	18.5%	12.1%	7.8%	5.2x	4.6x	66.6x	16.9x	NM	Communication
Iron Mountain, Inc.	IRM	18,272	7,514	75.7%	(16.6%)	(24.0%)	1.0%	(6.8%)	33.9%	4.3x	4.6x	12.6x	13.2x	24.9x	
Nutanix, Inc.	NTNX	4,639	4,731	62.6%	(8.6%)	17.6%	3.2%	7.9%	NM	3.6x	3.4x	NM	NM	NM	Enterprise
Pure Storage, Inc.	PSTG	3,928	4,593	84.5%	13.5%	35.3%	17.7%	5.6%	NM	2.3x	2.2x	NM	31.4x	NM	
Box, Inc.	BOX	3,388	3,186	94.0%	17.9%	13.8%	13.6%	9.2%	NM	4.7x	4.3x	NM	23.8x	NM	HCM
CommVault Systems, Inc.	CVLT	1,472	1,787	74.6%	(22.0%)	(31.4%)	(5.6%)	(2.5%)	1.8%	2.2x	2.2x	120.4x	17.0x	NM	
<b>Median</b>		<b>\$4,639</b>	<b>\$4,731</b>	<b>75.7%</b>	<b>(13.1%)</b>	<b>12.3%</b>	<b>3.2%</b>	<b>5.6%</b>	<b>13.9%</b>	<b>3.6x</b>	<b>3.4x</b>	<b>39.6x</b>	<b>17.0x</b>	<b>18.5x</b>	Marketing
<b>IT SECURITY</b>															PLM & Engineering
Cisco Systems, Inc.	CSCO	\$185,427	\$196,928	80.1%	(14.8%)	49.0%	(1.5%)	(3.3%)	32.0%	3.7x	3.8x	11.5x	10.6x	18.3x	
VeriSign, Inc.	VRSN	24,551	23,897	93.3%	(1.1%)	122.5%	1.3%	2.4%	69.3%	19.8x	19.4x	28.6x	27.1x	30.5x	
Fortinet, Inc.	FTNT	20,831	22,189	91.7%	78.7%	266.6%	20.6%	14.2%	19.3%	9.2x	8.1x	47.8x	29.0x	59.7x	SCM & Logistics
Palo Alto Networks, Inc.	PANW	21,995	22,155	91.5%	12.7%	71.6%	18.6%	15.9%	1.1%	6.7x	5.8x	NM	26.1x	NM	
CrowdStrike Holdings, Inc.	CRWD	20,698	21,662	92.6%	46.9%	NA	88.7%	46.1%	NM	36.7x	25.1x	NM	NM	NM	Energy
Check Point Software Ltd.	CHKP	13,888	15,631	88.8%	(7.1%)	(1.5%)	3.8%	0.8%	44.6%	6.9x	6.9x	15.5x	14.1x	19.0x	
Cloudflare, Inc.	NET	10,376	10,916	93.4%	NA	NA	48.9%	32.2%	NM	32.8x	24.8x	NM	NM	NM	Financial
Trend Micro Incorporated	TSE:4704	6,314	7,772	95.6%	25.3%	4.0%	6.8%	4.7%	32.8%	4.0x	3.9x	12.3x	12.4x	28.0x	
Proofpoint, Inc.	PFPT	6,237	6,368	83.2%	(7.6%)	28.0%	23.4%	12.6%	NM	6.7x	5.9x	NM	40.1x	NM	HCM
Qualys, Inc.	QLYS	3,770	4,053	87.3%	19.5%	155.0%	14.9%	10.5%	32.6%	11.3x	10.3x	34.8x	24.5x	54.2x	
CyberArk Software Ltd.	CYBR	3,244	3,845	66.7%	(22.3%)	98.7%	21.1%	6.1%	13.8%	7.3x	6.9x	52.7x	34.7x	74.3x	
Varonis Systems, Inc.	VRNS	2,721	2,784	94.8%	42.8%	137.8%	(7.7%)	3.5%	NM	10.8x	10.4x	NM	NM	NM	EdTech / Public Sector
FireEye, Inc.	FEYE	2,803	2,673	66.4%	(17.8%)	(20.0%)	7.2%	(1.4%)	NM	3.1x	3.1x	NM	30.8x	NM	
Mimecast Limited	MIME	2,679	2,623	76.6%	(10.8%)	55.6%	25.4%	12.4%	8.9%	6.3x	5.6x	70.5x	28.1x	NM	Large-Cap SaaS
Rapid7 Inc.	RPD	2,604	2,577	77.3%	(11.8%)	203.1%	32.5%	16.6%	NM	7.5x	6.4x	NM	NM	NM	
Ping Identity Holding Corp.	PING	2,566	2,567	90.8%	NA	NA	25.5%	(1.2%)	8.5%	10.1x	10.2x	118.7x	91.3x	NM	Small-Cap SaaS
SailPoint Technologies	SAIL	2,280	2,387	94.5%	32.1%	NA	16.4%	6.3%	3.8%	7.5x	7.1x	196.2x	NM	NM	
SecureWorks Corp.	SCWX	812	939	62.7%	(14.0%)	23.0%	6.8%	0.5%	NM	1.4x	1.4x	NM	58.1x	NM	Data & Analytics
Tufin Software Technologies Ltd	TUFN	246	340	30.8%	(63.1%)	NA	14.0%	0.8%	NM	2.4x	2.4x	NM	NM	NM	
Cheetah Mobile, Inc.	CMCM	(75)	237	37.6%	(51.5%)	(84.0%)	(41.7%)	(9.6%)	NM	-0.2x	-0.2x	NM	NM	NM	IT Operations
Symantec Corporation	SYMC	75	47	71.6%	(28.4%)	(71.9%)	(3.0%)	NM	43.3%	1.9x	NM	4.3x	NM	23.1x	
<b>Median</b>		<b>\$3,244</b>	<b>\$3,845</b>	<b>87.3%</b>	<b>(7.6%)</b>	<b>52.3%</b>	<b>14.9%</b>	<b>5.4%</b>	<b>25.6%</b>	<b>6.9x</b>	<b>6.6x</b>	<b>34.8x</b>	<b>28.1x</b>	<b>29.2x</b>	Data Storage
<b>IT Security</b>															IT Security

# Harris Williams Capabilities and Locations

Harris Williams has a broad range of industry expertise, which creates powerful opportunities. Our clients benefit from our deep-sector experience, integrated industry intelligence, and collaboration across the firm, and our commitment to learning what makes them unique. For more information, visit our website at [www.harriswilliams.com/industries](http://www.harriswilliams.com/industries).



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# Sources & Disclosures

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## Sources

1. S&P Capital IQ.
2. PNC Capital Markets.
3. S&P LCD stats.
4. PitchBook.
5. HW proprietary transaction information.

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