



TECHNOLOGY, MEDIA & TELECOM

QUARTERLY SOFTWARE SECTOR REVIEW | 2Q 2019

 Harris Williams

HARRIS WILLIAMS OVERVIEW

HARRIS WILLIAMS (“HW”) GLOBAL ADVISORY PLATFORM

KEY FACTS

- Founded in 1991
- 340+ professionals across eight offices globally
- 21st record year in 2018
- 10 industry groups



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

VERTICAL FOCUS AREAS

- Compliance Software
- CRM and Member Management Software
- Data and Analytics
- Enterprise Software
- Human Capital Management
- Infrastructure and Security Software
- IT and Tech Enabled Services
- Managed Services, Hosting, Data Center Solutions
- Online Marketing, Data, and Research

HORIZONTAL FOCUS AREAS

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

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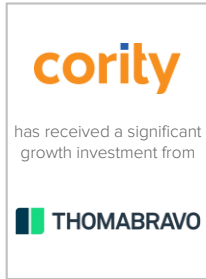
SELECT RECENT HW TMT TRANSACTIONS

 has received a significant growth investment from 	 has been acquired by 	 has been acquired by 	 has made a strategic investment in 	 has been acquired by 	 has acquired 	 has received a strategic investment from 	 has been acquired by 	 has acquired 	 has been acquired by 	 has acquired 	 has been acquired by
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SELECT RECENT HW SOFTWARE TRANSACTIONS

HW continues its momentum as a leading advisor for governance, risk, and compliance (“GRC”) software assets.

CORITY



- Leading provider of SaaS-based environmental, health, safety, and quality (“EHSQ”) software solutions

Company Overview

- Cority’s end-to-end technology platform includes EHSQ, operational risk management, sustainability, and predictive analytics, offering a unified SaaS platform for a global customer base
- The Company’s solutions enable organizations to advance their journey to sustainability and operational excellence by combining deep domain expertise with a comprehensive and secure SaaS platform
- Cority serves over 800 organizations in 100+ countries globally, supporting more than 2.5 million end-users

Relevant Sub-Sectors

COMPLIANCE
SOFTWARE

SAAS

INDUSTRIAL
SOFTWARE

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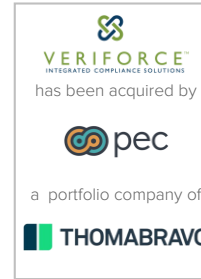
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VERIFORCE



- Leading provider of fully-integrated, SaaS-based operator qualification (“OQ”), drug and alcohol, safety and insurance, and training solutions

Company Overview

- Veriforce’s software platform increases safety for workers and communities while driving efficiencies and reducing costs for hiring clients and contractors
- The Company’s solutions are uniquely positioned to address complex and evolving OQ requirements, with regulation expansion through OQ notice of proposed rulemaking expected to more than triple TAM in the next five years
- Veriforce serves more than 185,000 registered professionals across end-markets and geographies

Relevant Sub-Sectors

COMPLIANCE
SOFTWARE

HUMAN CAPITAL
MANAGEMENT

INDUSTRIAL
SOFTWARE

SELECT SOFTWARE M&A TRANSACTIONS – 2Q 2019

Closed July 2, 2019



Enterprise Value: \$425M EV / Revenue: 4.9x
Revenue: \$86M EV / EBITDA: NM

E2open's take-private of Amber Road

- Amber Road provides cloud-based global trade management solutions to clients in over 80 countries, conducting trade in more than 170 countries.
- The Company's GTM platform plans, optimizes, and executes all aspects of global trade, allowing clients to efficiently and compliantly import and export goods through international borders.
- The acquisition of Amber Road bolsters E2open's global trade management capabilities and extends its reach globally.

Announced June 27, 2019



Enterprise Value: HW Conf. EV / Revenue: HW Conf.
Revenue: HW Conf. EV / EBITDA: HW Conf.

Advent International's pending acquisition of Transaction Services Group

- Transaction Services Group provides business management software and integrated payments solutions to the health and fitness, childcare, education, insurance, and entertainment industries.
- The Company's revenue management solutions help clients manage their members and customers, enabling them to drive improved member retention and revenue performance, and reduce administrative burden and cost.
- Following the acquisition, Transaction Services Group will leverage Advent's capital and industry expertise to continue driving product innovation and further expand its geographical footprint.

Announced June 21, 2019

GI PARTNERS



Enterprise Value: NA EV / Revenue: NA
Revenue: NA EV / EBITDA: NA

GI Partners' pending acquisition of Insurity

- Insurity provides policy and claims administration software to more than 200 clients in the property and casualty insurance industry.
- The Company's cloud-based policy administration, claims, billing, and data analytics tools enable carriers to improve processing speed and enhance customer experience.
- Following the acquisition, Insurity will leverage GI Partners' operational expertise and proven add-on capabilities to continue driving growth and expanding its leadership position in policy administration.

Closed June 19, 2019



Enterprise Value: NA EV / Revenue: NA
Revenue: NA EV / EBITDA: NA

Clearlake Capital's acquisition of Dude Solutions

- Dude Solutions provides end-to-end operations management software to over 12,000 clients in the education, government, healthcare, and manufacturing verticals.
- The Company's solutions automate mission critical enterprise asset management workflows including work order, inventory, energy, capital planning, facility scheduling, and community development.
- Post acquisition, Dude Solutions will leverage Clearlake Capital's global resources and operational expertise to invest in both organic and inorganic initiatives that accelerate the Company's long-term growth.

Announced April 25, 2019



Enterprise Value: \$325M EV / Revenue: NA
Revenue: NA EV / EBITDA: NA

Francisco Partners' pending acquisition of PayScale

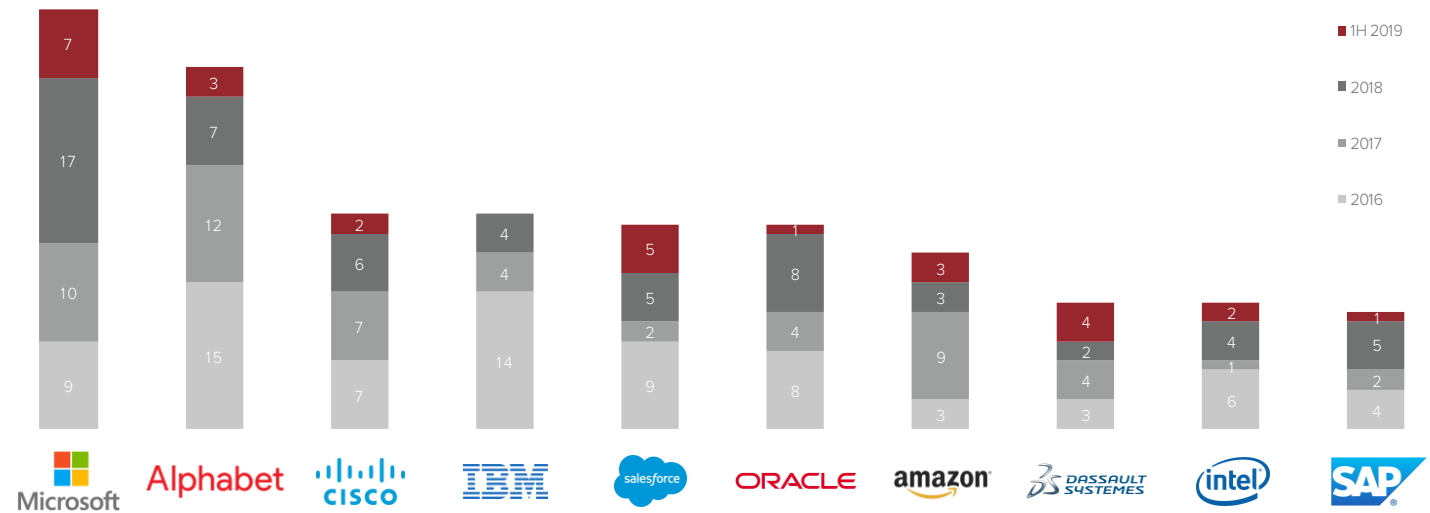
- PayScale provides cloud-based compensation data, analytics, and software to over 8,000 clients, ranging from small businesses to Fortune 500 companies.
- The Company's solutions leverage big data and proprietary algorithms to dynamically acquire, analyze, and aggregate compensation information, enabling employers to make salary decisions supported by real-time data that align to business goals.
- Post acquisition, PayScale will leverage Francisco Partners' operational network and capital to further drive organic growth in a large and expanding market opportunity.

SOFTWARE ACQUISITION ACTIVITY – STRATEGIC ACQUIRERS

MOST ACTIVE STRATEGIC ACQUIRERS OF SOFTWARE ASSETS BY VOLUME¹

- The 10 most active strategic software acquirers registered 28 acquisitions in 1H 2019. Activity among large strategic software acquirers remains in line with 2018 levels as incumbent players look to M&A to expand technology capabilities and reach new customers.
- Microsoft was the most active strategic acquirer in 1H 2019, completing seven acquisitions.
- Notable 2Q 2019 strategic software transactions include Alphabet's pending acquisition of Looker Data Sciences, salesforce.com's pending acquisition of Tableau Software, and Dassault Systemes' pending acquisition of Medidata.

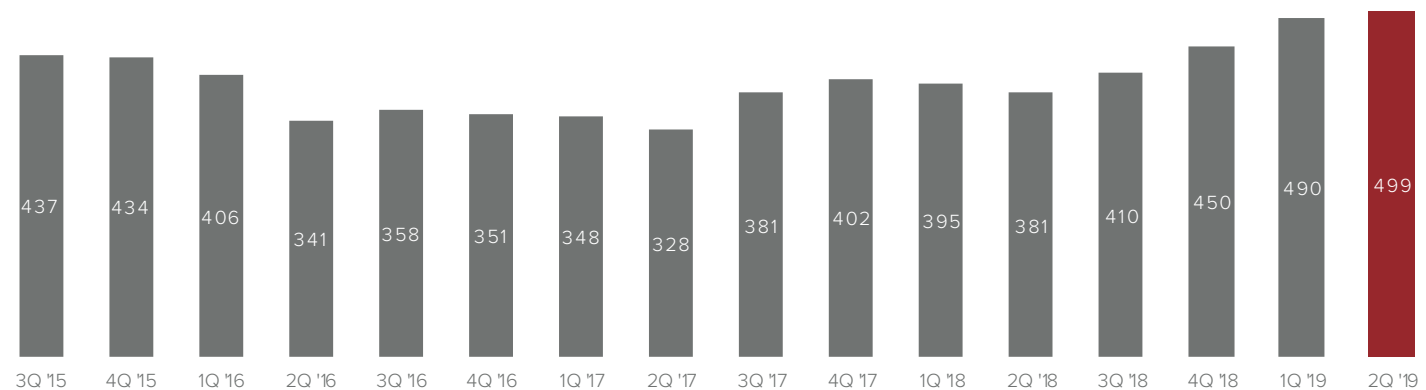
(# of Transactions)



GLOBAL STRATEGIC ACQUIRER SOFTWARE M&A ACTIVITY BY VOLUME¹

- Global strategic software M&A registered 499 acquisitions in 2Q 2019, which is in line with the prior quarter, but represents a 31% increase over 2Q 2018.
- Traditional software bellwethers continue to consolidate niche markets as they look to fill product gaps and maintain competitive advantage against nimbler, more disruptive innovators.

(# of Transactions)



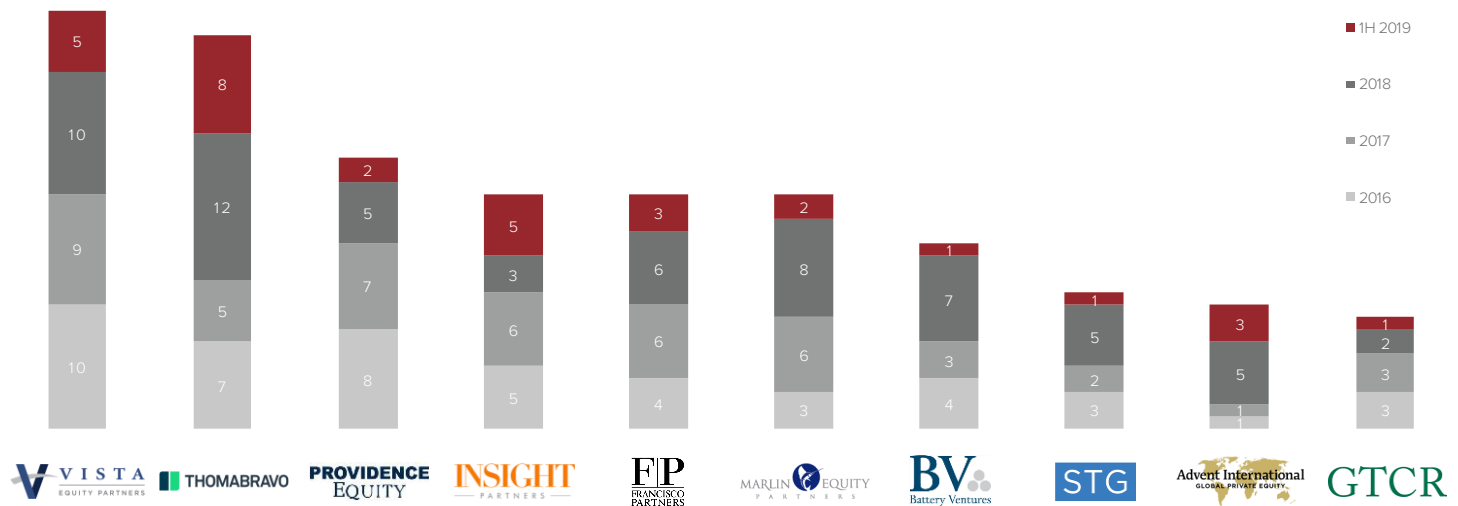
Note: Includes control investments only.

SOFTWARE ACQUISITION ACTIVITY – PRIVATE EQUITY

MOST ACTIVE PRIVATE EQUITY BUYERS OF NEW SOFTWARE PLATFORMS BY VOLUME¹

- The 10 most active software investors completed 26 new platform investments in 1H 2019.
- Thoma Bravo remained the most active software private equity firm in 1H 2019, completing eight platform acquisitions.
- Notable 2Q 2019 private equity platform acquisitions include Advent's pending acquisition of Transaction Services Group, Vista Equity's acquisition of Plansource, Insight Partners' acquisition of Recorded Future, and Thoma Bravo's acquisition of Autodata Solutions.

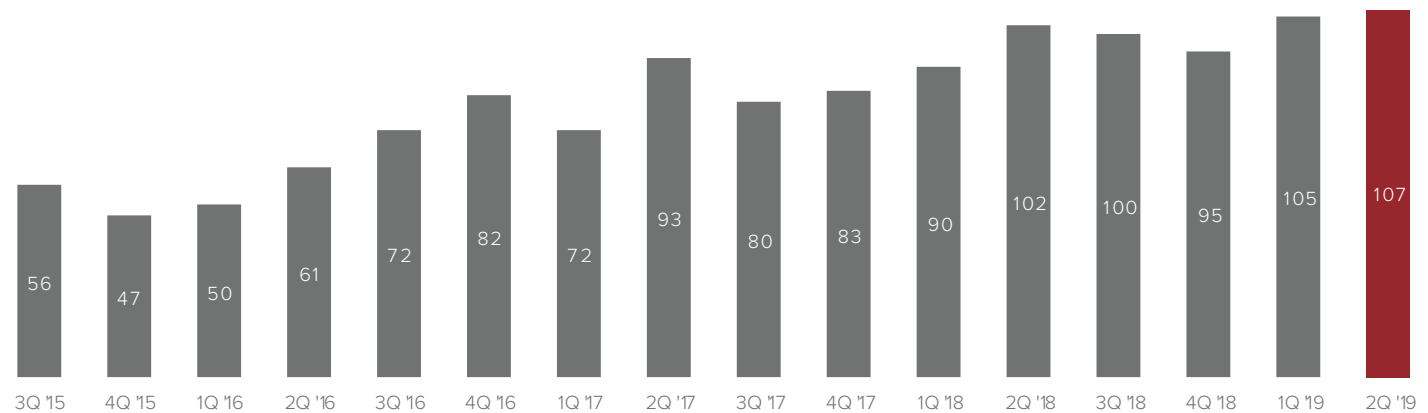
(# of Platform Transactions)



GLOBAL PRIVATE EQUITY NEW SOFTWARE PLATFORMS M&A ACTIVITY BY VOLUME¹

- Globally, private equity buyers registered 107 new software platform investments in 2Q 2019, remaining in line with the prior four quarters.
- Private equity firms continue to exhibit strong interest in the software sector as they seek to deploy record levels of uninvested capital and capitalize on a favorable lending environment, especially for high quality, middle market software companies.

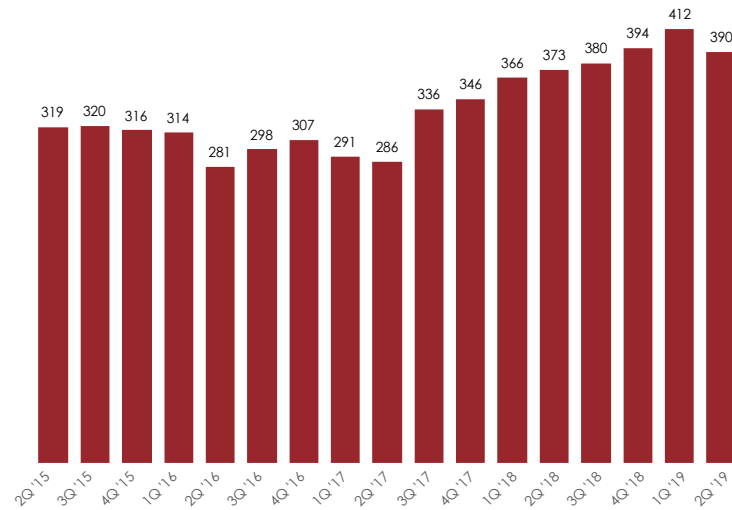
(# of Platform Transactions)



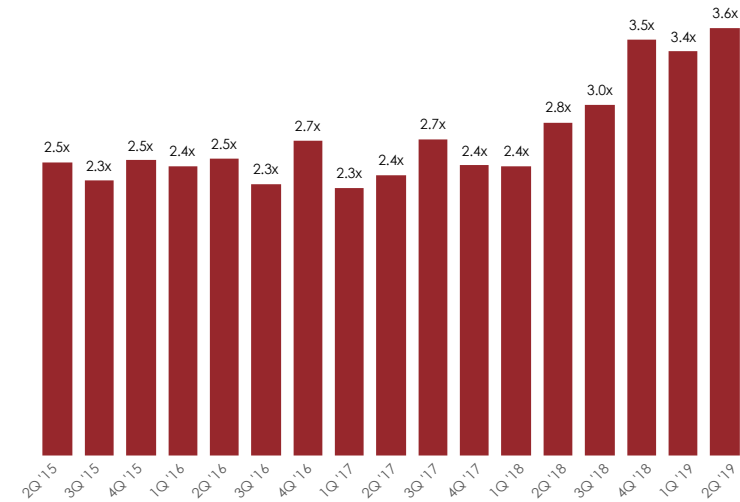
Note: Includes control new platform investments only. Excludes add-on acquisitions.

APPLICATION SOFTWARE – M&A MARKET SUMMARY

APPLICATION SOFTWARE M&A VOLUME¹ (GLOBAL)



MEDIAN M&A REVENUE MULTIPLES¹ (REPORTED)



- Application Software M&A registered 390 transactions in 2Q 2019, representing a 5% decrease from the prior quarter, but remain in line with 2018 activity levels.
- Median reported Application Software M&A transaction multiples increased slightly to 3.6x revenue in 2Q 2019.

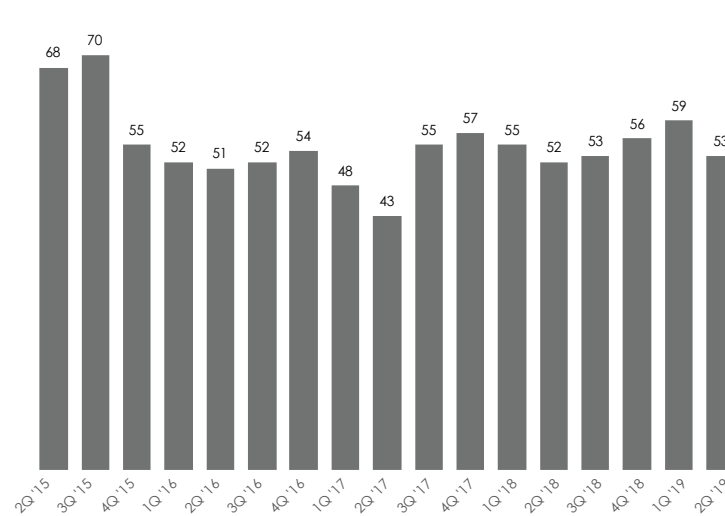
NOTABLE APPLICATION SOFTWARE M&A TRANSACTIONS^{1,5}

- Vertical-specific Application Software companies were in high demand in 2Q 2019, as both strategic and financial buyers seek to build and fortify their market positions.
- Notable vertical-specific Application Software transactions include Advent's pending acquisition of Transaction Services Group (Membership Management), GI Partners' pending acquisition of Insurity (Insurance), and Providence Equity Partners' acquisition of GlobalTranz (Transportation and Logistics).

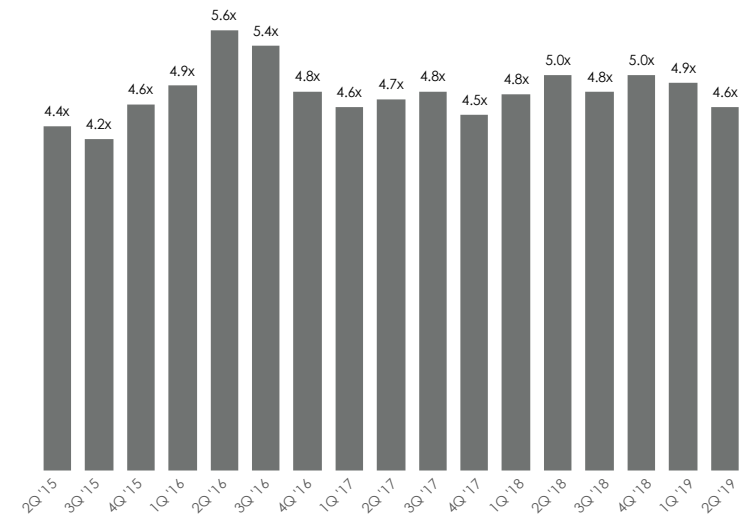
DATE CLOSED	ACQUIRER	TARGET	DESCRIPTION	ENTERPRISE VALUE (MM)	REVENUE MULTIPLE
Application Software					
Pending	Advent International	Transaction Services Group Ltd.	Provider of business management software and integrated payments solutions.		HW CONFIDENTIAL
Pending	GI Partners	Insurity, Inc.	Provider of policy and claims administration software to the property and casualty insurance industry.	NA	NA
Pending	Centerbridge Partners LP	IBM (Marketing and Commerce Software Unit)	Provider of marketing automation tools, marketing analytics, and AI-powered content management solutions.	NA	NA
Pending	TA Associates	Aptean	Provider of industry-specific enterprise resource planning software.	NA	NA
6/29/2019	Providence Equity Partners LLC	GlobalTranz Enterprises, Inc.	Provider of freight management and logistics software and services.		HW CONFIDENTIAL
6/19/2019	Clearlake Capital	Dude Solutions, Inc.	Provider of facilities, energy, safety, and IT operations management software.	NA	NA
6/10/2019	Broadridge Financial Solutions, Inc.	RPM Technologies Corp.	Provider of enterprise wealth management software.	\$300	NA
6/06/2019	RIB Software SE	Building Systems Design, Inc.	Provider of workflow management, collaboration, and project creation software for the construction industry.	\$70	NA
6/06/2019	Passport Labs, Inc.	Complus Data Innovations, Inc.	Provider of parking enforcement and citation management software.	NA	NA
6/03/2019	Hansen Technologies Ltd.	Sigma Systems Canada LP	Provider of catalog-driven software solutions for communications, media, and high-tech companies.	\$117	2.1x
5/22/2019	2U, Inc.	Trilogy Education Services, Inc.	Provider of an education program management and training platform.	\$601	NA
5/13/2019	Oakley Capital	Videotel Marine International	Provider of maritime education and training software.	\$90	NA
5/07/2019	HgCapital LLP	Litéra Corp.	Provider of AI-powered document lifecycle management software.	\$42	NA
4/23/2019	Bow River Capital	AbsenceSoft	Provider of HR management software to manage FMLA and leave of absence programs.	NA	NA
4/18/2019	Roper Technologies, Inc.	The Foundry Visionmongers Ltd.	Provider of computer graphics and visual effects software.	\$544	NA
4/15/2019	CalAmp Corp.	Synovia Solutions LLC	Provider of a GPS-enabled fleet management platform.	\$50	1.8x
4/12/2019	Red Ventures (General Atlantic)	HigherEducation.com	Provider of marketing and enrollment services to post-secondary institutions in the US.	NA	NA
MEDIAN				\$208	2.1x

SaaS – M&A MARKET SUMMARY

SAAS M&A VOLUME¹ (GLOBAL)



MEDIAN M&A REVENUE MULTIPLES¹ (REPORTED)



- SaaS M&A registered 53 transactions in 2Q 2019, slightly below recent averages.
- Median reported SaaS transaction revenue multiples again decreased slightly to 4.6x revenue in 2Q 2019.

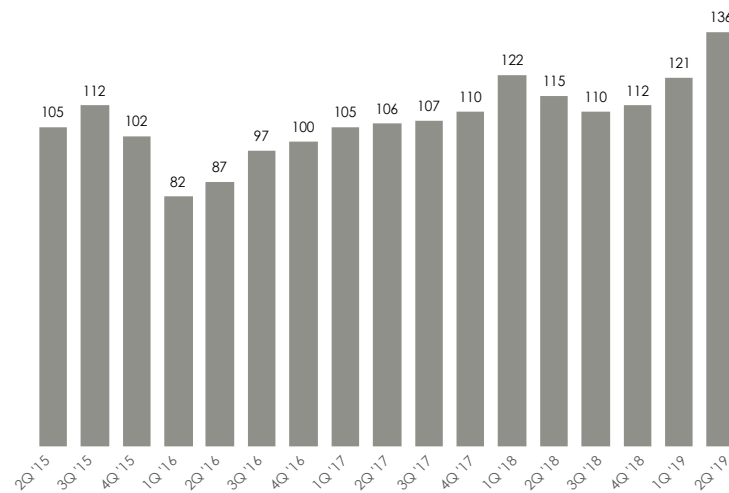
NOTABLE SAAS M&A TRANSACTIONS^{1,5}

- 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.
- Notable 2Q 2019 SaaS transactions include E2open's take-private of Amber Road, Thoma Bravo's majority investment in Cority Software, and Advance Publications' acquisition of Turnitin.

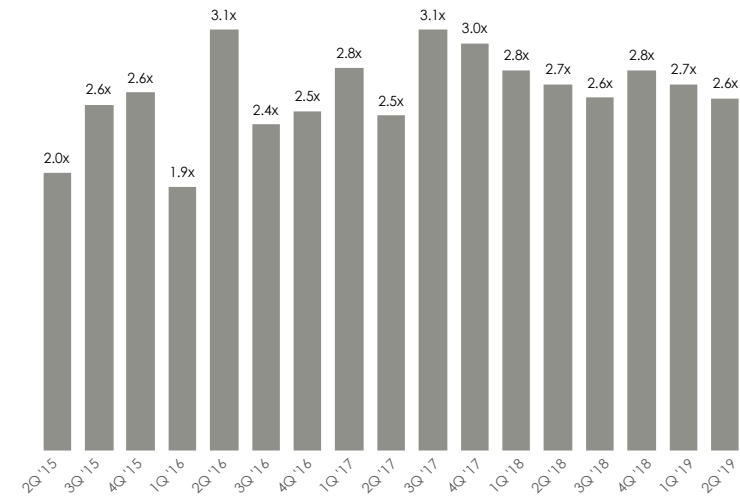
DATE CLOSED	ACQUIRER	TARGET	DESCRIPTION	ENTERPRISE VALUE (MM)	REVENUE MULTIPLE
SaaS					
Pending	Industrial Scientific Corp.	Intelix Technologies, Inc.	Provider of SaaS-based environmental, health and safety, and quality management software.	\$570	NA
7/02/2019	E2open LLC	Amber Road, Inc.	Provider of SaaS-based global trade management software.	\$425	4.9x
6/28/2019	Thoma Bravo LLC	Cority Software, Inc.	Provider of SaaS-based environmental, health, safety, and quality software.	HW CONFIDENTIAL	
6/28/2019	Blue Fountains International	Wave Financial, Inc.	Provider of SaaS-based financial software for small businesses.	\$405	NA
6/18/2019	iCIMS, Inc.	Jibe, Inc.	Provider of a cloud-based job recruiting platform.	NA	NA
6/11/2019	eSolutions (Francisco Partners)	Practice Insight LLC	Provider of integrated EDI and RCM workflow solutions for healthcare providers.	HW CONFIDENTIAL	
6/10/2019	Cvent (Vista Equity Partners)	DoubleDutch, Inc.	Provider of a cloud-based platform to enable promotion, engagement, and management of live events.	NA	NA
5/29/2019	RLDatix (TA Associates)	iContracts, Inc.	Provider of SaaS-based contract management and compliance software.	HW CONFIDENTIAL	
5/20/2019	Acendire (Strattam Capital)	ICS Learning Group	Provider of web-based e-learning solutions to the manufacturing, healthcare, financial services, and government sectors.	NA	NA
5/14/2019	PEC Safety (Thoma Bravo)	Veriforce LLC	Provider of SaaS-based safety, training, and operator qualification management software.	HW CONFIDENTIAL	
5/10/2019	SugarCRM, Inc.	SalesFusion, Inc.	Provider of an enterprise-grade marketing automation platform.	NA	NA
5/03/2019	Hellman & Friedman	The Ultimate Software Group, Inc.	Provider of cloud-based human capital management software.	\$10,352	9.1x
4/30/2019	Advance Publications, Inc.	Turnitin LLC	Provider of cloud-based formative feedback and originality checking software for the education industry.	\$1,750	NA
4/22/2019	Vista Equity Partners	Plansource Benefits Administration, Inc.	Provider of a SaaS-based benefits administration platform to automate benefit transactions and connect with insurance carriers.	NA	NA
4/17/2019	Thoma Bravo LLC	Ellie Mae, Inc.	Provider of on-demand software solutions and services for the residential mortgage industry.	\$3,167	6.6x
4/17/2019	Lear Corp.	Xevo, Inc.	Provider of SaaS-based automotive software to connect drivers and their vehicles to mobile applications, content, and services.	\$320	6.4x
4/17/2019	Sumeru Equity Partners	3Gtms	Provider of SaaS-based transportation management and logistics solutions.	\$87	NA
4/11/2019	Bridgepoint Advisers Ltd.	Kyriba Corp.	Provider of a cloud-based treasury and cash management software platform.	\$160	NA
MEDIAN				\$405	7.0x

DATA AND ANALYTICS – M&A MARKET SUMMARY

DATA AND ANALYTICS M&A VOLUME¹ (GLOBAL)



MEDIAN M&A REVENUE MULTIPLES¹ (REPORTED)



- Data and Analytics M&A remained robust in 2Q 2019, registering 136 transactions, an 18% increase year over year.
- Median reported Data and Analytics transaction multiples decreased slightly to 2.6x in 2Q 2019.

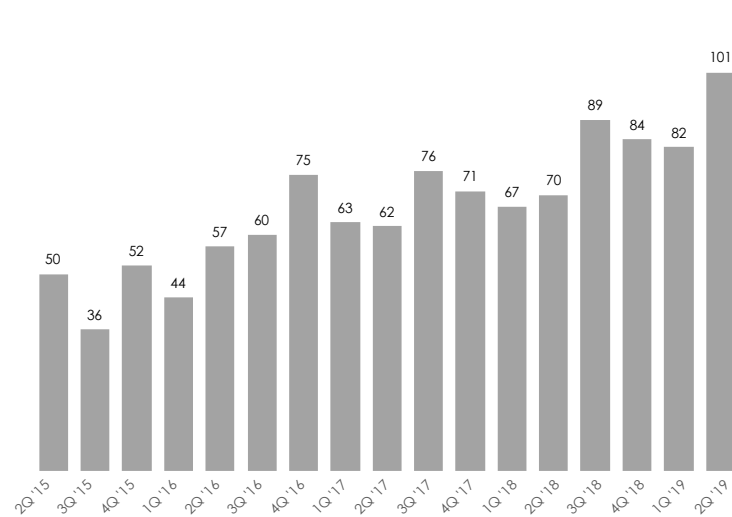
NOTABLE DATA AND ANALYTICS M&A TRANSACTIONS¹

- As the volume of complex data available to enterprises increases, strategic buyers are actively pursuing real-time information and business intelligence solutions to enhance their software solutions.
- Notable recent examples include salesforce.com's pending acquisition of Tableau Software, Alphabet's pending acquisition of Looker Data Sciences, and Atlassian's acquisition of AgileCraft.

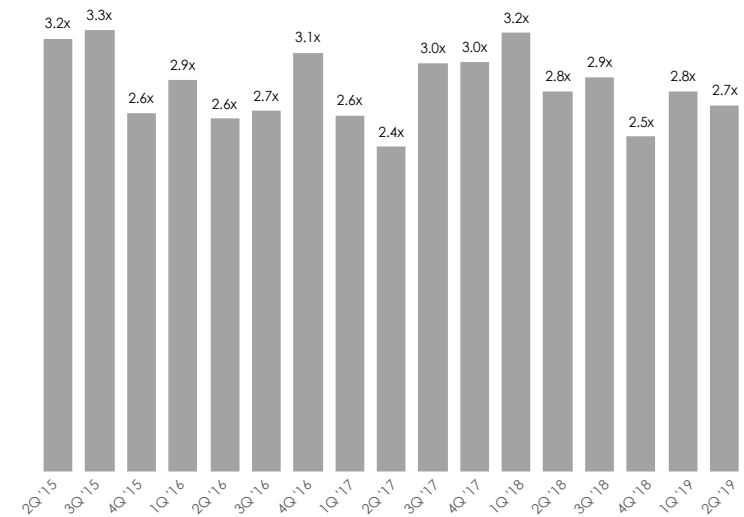
DATE CLOSED	ACQUIRER	TARGET	DESCRIPTION	ENTERPRISE VALUE (MM)	REVENUE MULTIPLE
Data and Analytics					
Pending	salesforce.com, inc.	Tableau Software, Inc.	Provider of an integrated data visualization platform.	\$15,700	13.2x
Pending	Alphabet, Inc.	Looker Data Sciences, Inc.	Provider of a business intelligence and big data analytics platform.	\$2,600	NA
Pending	Francisco Partners	PayScale, Inc.	Provider of cloud-based compensation data, analytics, and software.	\$325	NA
Pending	Elisa Automate	Polystar	Provider of analytics, assurance, and monitoring software.	\$85	2.0x
Pending	Clearlake Capital	Appriss	Provider of operational data and analytics solutions across three main markets - retail, safety, and healthcare.	NA	NA
7/01/2019	Dun & Bradstreet Corp.	Lattice Engines, Inc.	Provider of a data analytics platform to offer predictive marketing and sales services.	NA	NA
6/10/2019	Exterro (Leeds Equity Partners)	Jordan Lawrence Group LC	Provider of regulatory and legal compliance software and services.	NA	NA
6/05/2019	Mapp Digital (Marlin Equity Partners)	Webtrekk GmbH	Provider of marketing analytics and customer intelligence software.	NA	NA
5/31/2019	salesforce.com, inc.	MapAnything, Inc.	Provider of a SaaS-based geo-analytics and location intelligence platform.	NA	NA
5/30/2019	Thoma Bravo LLC	Autodata Solutions, Inc.	Provider of vehicle and automotive data to the retail automotive market.	NA	NA
5/14/2019	Sisense, Inc.	Periscope, Inc.	Provider of a data visualization and analytics platform.	NA	NA
5/14/2019	Thoma Bravo LLC	Aucerna	Provider of integrated strategy, planning, and execution management software.	NA	NA
5/06/2019	Qlik Technologies (Thoma Bravo; CPPIB)	Attunity Ltd.	Provider of data integration and big data management software solutions.	\$472	5.5x
5/03/2019	ClearCourse (Aquiline Capital Partners)	Crafty Clicks Ltd.	Provider of a specialist data and API address validation platform.	NA	NA
4/09/2019	Syndigo (The Jordan Company)	Content Analytics, Inc.	Provider of an end-to-end e-commerce content analytics platform.	NA	NA
4/03/2019	Atlassian Corp. Plc	AgileCraft LLC	Provider of an all-in-one agile management solution suite for scaled agile software services.	\$166	NA
4/03/2019	Horizon Capital	STRAT7	Provider of market research and consumer data analytics solutions.	NA	NA
MEDIAN				\$398	5.5x

INFRASTRUCTURE SOFTWARE – M&A MARKET SUMMARY

INFRASTRUCTURE SOFTWARE M&A VOLUME¹ (GLOBAL)



MEDIAN M&A REVENUE MULTIPLES¹ (REPORTED)



- Infrastructure Software M&A registered 101 transactions in 2Q 2019, marking the most active quarter in the last three years.
- In 2Q 2019, median reported Infrastructure Software transaction multiples decreased slightly to 2.7x revenue.

NOTABLE INFRASTRUCTURE SOFTWARE M&A TRANSACTIONS¹

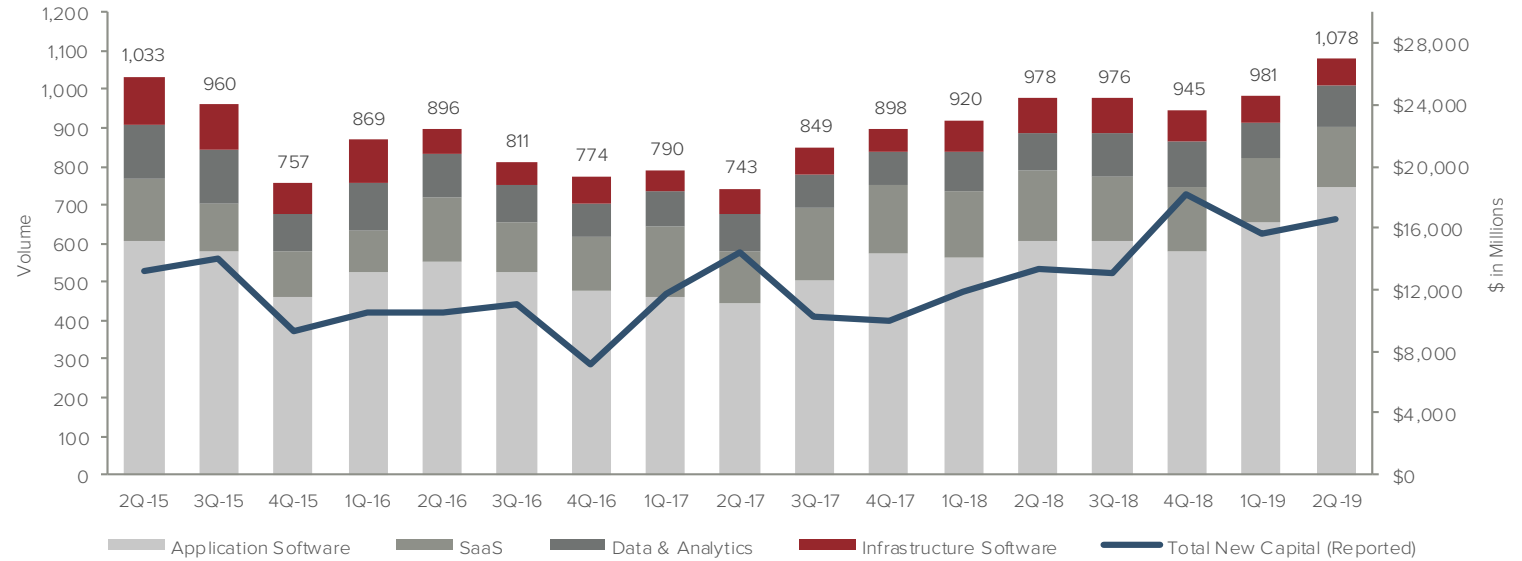
- Infrastructure Software M&A activity remained robust in 2Q 2019, as both private equity investors and established software vendors continue to view M&A as an attractive strategy to accelerate growth and market share.
- Noteworthy Infrastructure Software M&A transactions in 2Q 2019 include Palo Alto Networks' acquisition of Twistlock, Insight Partners' acquisition of Recorded Future, and Francisco Partners' acquisition of Perforce.

DATE CLOSED	ACQUIRER	TARGET	DESCRIPTION	ENTERPRISE VALUE (MM)	REVENUE MULTIPLE
Infrastructure Software					
Pending	Deutsche Börse AG	Axioma, Inc.	Provider of risk management, portfolio construction, and risk and regulatory reporting software.	\$850	NA
Pending	Elastic NV	Endgame, Inc.	Provider of an endpoint security platform to provide early prevention from known and unknown threats.	\$234	NA
Pending	VMware, Inc.	Bitnami	Provider of a cloud hosting platform to manage multi-cloud, cross-platform environments.	NA	NA
7/09/2019	Palo Alto Networks, Inc.	Twistlock, Inc.	Provider of a comprehensive cloud native cybersecurity platform.	\$410	NA
7/08/2019	Francisco Partners	Perforce Software	Provider of cloud-based testing, automation, and monitoring technology.	NA	NA
6/26/2019	Great Hill Partners LP	EnterpriseDB Corp.	Provider of an enterprise-class open source database management system.	NA	NA
6/04/2019	Imperva, Inc.	Distil Networks, Inc.	Provider of cloud-based cyber security software.	NA	NA
5/31/2019	Validity, Inc.	Return Path, Inc.	Provider of an email marketing, engagement, and data analytics platform.	NA	NA
5/30/2019	Insight Partners	Recorded Future, Inc.	Provider of a threat intelligence analytics platform to lower the risk of cyber attacks.	\$780	NA
5/28/2019	FireEye, Inc.	Verodin, Inc.	Provider of a cybersecurity platform to test and identify vulnerabilities.	\$250	NA
5/09/2019	Pitrusight, Inc.	GitPrime, Inc.	Provider of productivity analytics software to create visibility into the software development process.	\$170	NA
5/08/2019	F5 Networks, Inc.	NGINX Software, Inc.	Provider of an open source enterprise application platform designed to help in developing and delivering modern applications.	\$670	NA
5/01/2019	Progress Software Corp.	Ipswitch, Inc.	Provider of secure data file transfer and network management software.	\$225	3.0x
4/30/2019	SolarWinds Corp.	Samange Ltd.	Provider of a service management and automation platform.	\$350	NA
4/16/2019	Marlin Equity Partners	Skuid	Provider of a cloud application development platform to create and optimize enterprise applications.	NA	NA
4/05/2019	Carbonite, Inc.	Webroot, Inc.	Provider of internet threat detection and endpoint security solutions.	\$619	2.9x
4/05/2019	NTT Security	WhiteHat Security, Inc.	Provider of a risk management platform intended to offer website security services.	NA	NA
4/02/2019	Vista Equity Partners	QuickBase, Inc.	Provider of a low-code application development platform.	\$1,000	8.0x
4/01/2019	CloudBees, Inc.	Electric Cloud, Inc.	Provider of release automation software to enhance the processing of software delivery.	NA	NA
MEDIAN				\$410	3.0x

PRIVATE PLACEMENT ACTIVITY BY SOFTWARE SECTOR

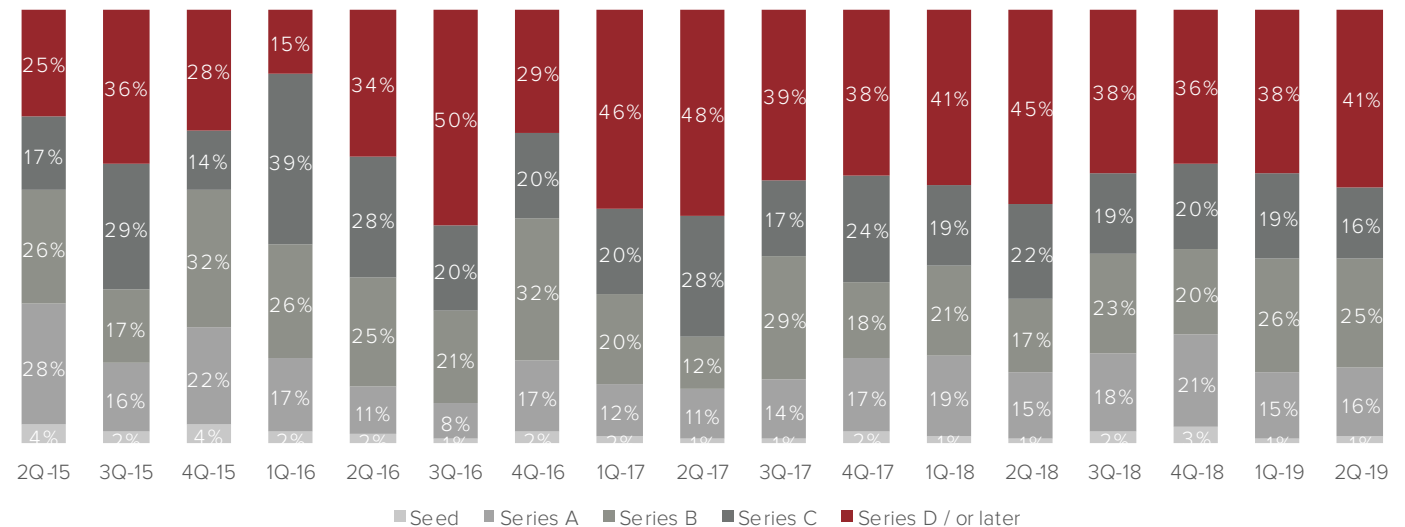
PRIVATE PLACEMENTS BY SOFTWARE SUB-SECTOR AND NEW CAPITAL RAISED^{1,4}

- There were 1,078 private placement financings in 2Q 2019, which represents a 10% increase over 2Q 2018.
- Total reported capital investment in the software sector rebounded in 2Q 2019, and remains above historical averages.



PRIVATE PLACEMENT CAPITAL RAISED BY ROUND^{1,4} (AS PERCENTAGE OF TOTAL REPORTED PRIVATE PLACEMENT CAPITAL)

- In 2Q 2019, the majority of private capital invested was in late stage (C – later) rounds, comprising 57% of total capital invested.
- Notable late stage rounds included SalesLoft's \$70 million Series D investment led by Insight Partners, Toast's \$250 million Series E investment led by TCV, and Sumo Logic's \$110 million Series G investment led by Battery Ventures.



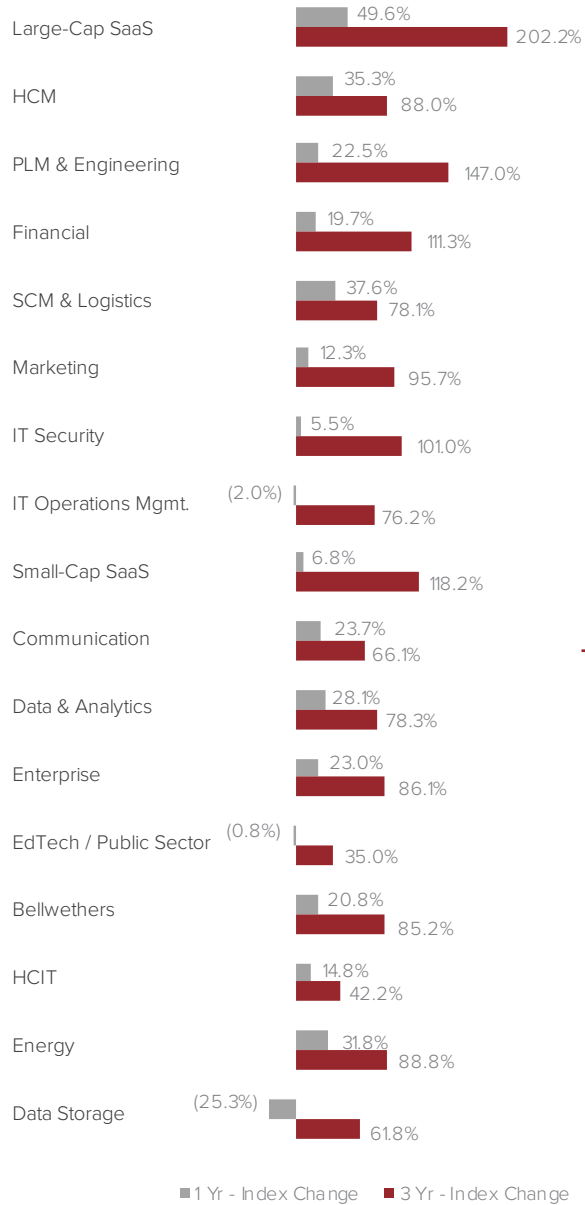
SELECT RECENT SOFTWARE PRIVATE PLACEMENTS^{1,4}

DATE	COMPANY	SECTOR	ROUND	ROUND SIZE (\$MM)	TOTAL RAISED (\$MM)	INVESTORS (CURRENT ROUND)	DESCRIPTION
05/22/19	eSUB construction software	SaaS	B	\$12	\$21	Catalyst Investors; Revolution Ventures	Provider of project management and document control software for construction contractors.
05/21/19	Motionsoft	SaaS	Late Stage	\$17	\$65	Edison Partners; Route 66 Ventures; Roofdeck Partners	Provider of membership management and payment processing software for gyms and wellness centers.
05/13/19	CIVICPLUS	SaaS	Growth Capital	NA	NA	BV Investment Partners	Provider of a cloud-based, integrated software platform for cities and counties across North America.
05/08/19	sumo logic	Data & Analytics	G	\$110	\$346	Battery Ventures; Tiger Global Management; Franklin Templeton Investments	Provider of a SaaS-based machine data analytics platform for DevSecOps of cloud applications.
04/25/19	Coursera	SaaS	E	\$103	\$333	SEEK Group; Australia Future Fund; NEA	Provider of an online education and learning platform that offers courses on a global scale.
04/25/19	SalesLoft	SaaS	D	\$70	\$147	Insight Partners; HarbourVest Partners	Provider of a cloud-based sales engagement platform for marketing outreach and analytics.
04/11/19	ARMIS	Infrastructure	C	\$65	\$112	Sequoia Capital; Insight Partners; Bain Capital Ventures; Red Dot Capital Partners; Tenava Capital; Intermountain Ventures	Provider of an agentless IoT security platform for enterprises to identify unmanaged and compromised devices or networks.
04/11/19	Mavenlink	SaaS	E	\$48	\$121	Carrick Capital Partners; Goldman Sachs; ORIX Growth Capital	Provider of cloud-based collaboration, project management, and resource planning software.
04/08/19	KLAVIYO	SaaS	B	\$150	\$159	Summit Partners; Acadian Software	Provider of a SaaS-based marketing automation and data platform for e-commerce.
04/05/19	fleetsmith	Infrastructure	B	\$30	\$41	Menlo Ventures; Tiger Global Management; Upfront Ventures; Harrison Metal Capital	Provider of a cloud-based device management and processing platform for the Apple product ecosystem.
04/03/19	RIPPLING	SaaS	A	\$45	\$60	Kleiner Perkins; Initialized Capital Management; Threshold Ventures; Y Combinator; Palm Drive Capital; S28 Capital	Provider of a cloud-based, integrated HR and IT asset management solution.
04/02/19	Segment	Data & Analytics	D	\$175	\$284	Accel; Google Ventures; Meritech Capital Partners; Thrive Capital; Y Combinator; eVentures; Sapphire Ventures	Provider of a customer data infrastructure platform providing integration and governance capabilities into third-party tools.
04/01/19	toast	SaaS	E	\$250	\$497	TCV; Tiger Global Management; Bessemer Venture Partners; Lead Edge Capital	Provider of a cloud-based point-of-sale restaurant management platform.

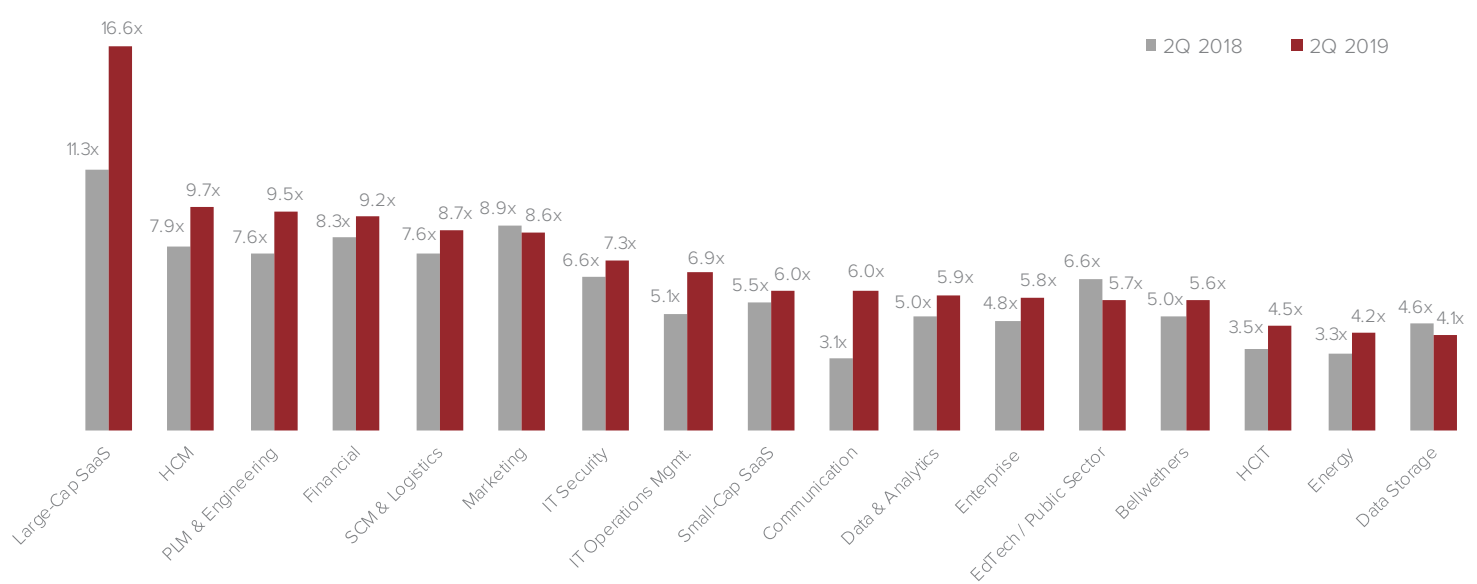
Note: Financial information presented above represents reported capital raised only.

PUBLIC SOFTWARE VALUATION MULTIPLES BY SECTOR¹

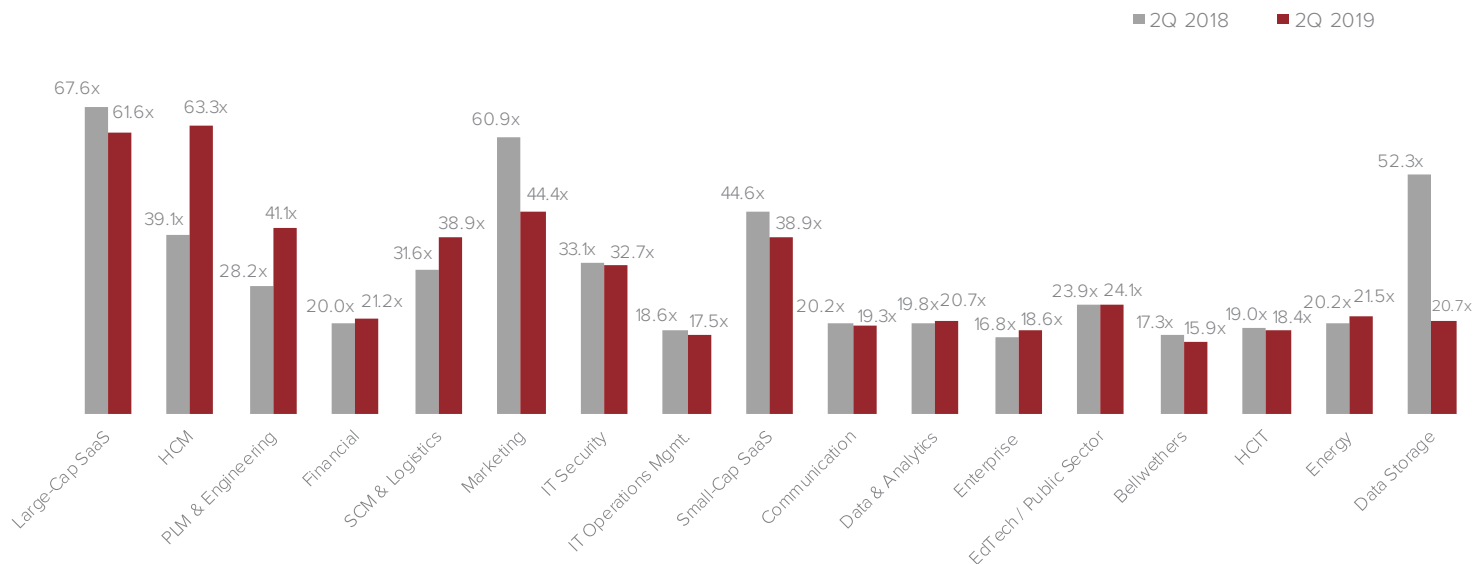
STOCK PERFORMANCE (1- & 3-YEAR)



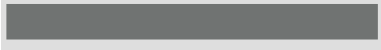














REVENUE MULTIPLE COMPARISON 2Q 2018 VS. 2Q 2019



EBITDA MULTIPLE COMPARISON 2Q 2018 VS. 2Q 2019

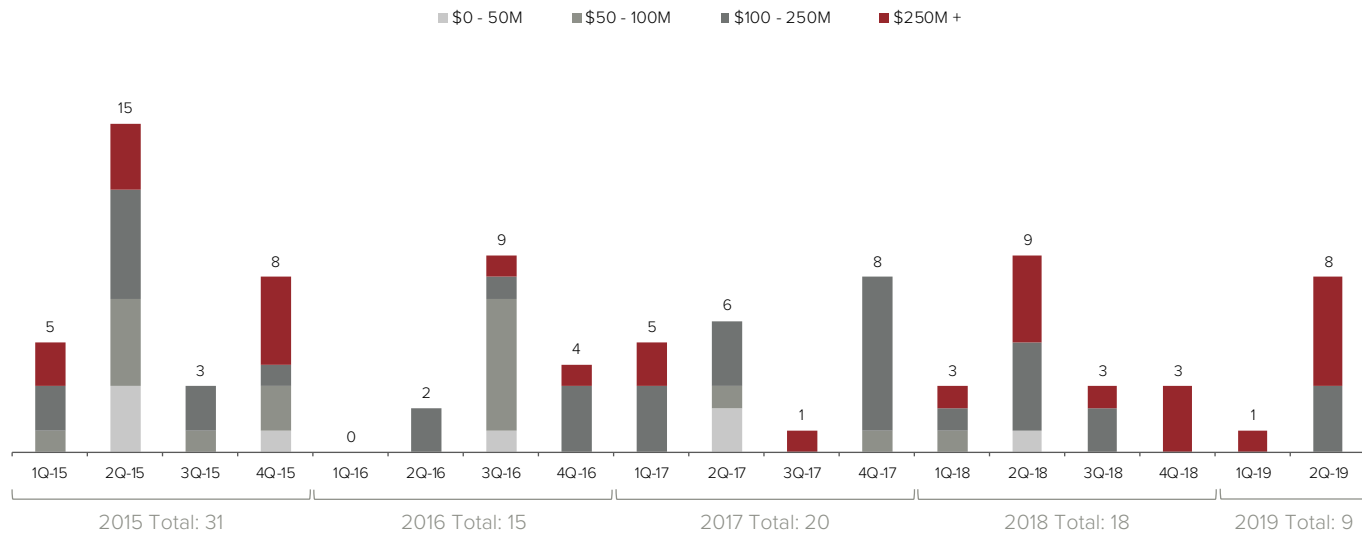


KEY METRICS BY SECTOR – COMPARABLE PUBLIC SOFTWARE COMPANIES¹

	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	 16.6x	32%	64%	17%	74%	-	-
HCM	 9.7x	21%	69%	21%	70%	-	37%
PLM & Engineering	 9.5x	13%	33%	23%	-	-	23%
Financial	 9.2x	14%	21%	37%	26%	-	39%
SCM & Logistics	 8.7x	17%	36%	23%	87%	23%	87%
Marketing	 8.6x	25%	64%	19%	81%	94%	97%
IT Security	 7.3x	16%	37%	26%	13%	-	59%
IT Operations Mgmt.	 6.9x	12%	37%	30%	85%	89%	-
Small-Cap SaaS	 6.0x	24%	126%	13%	57%	-	12%
Communication	 6.0x	12%	36%	21%	83%	-	-
Data & Analytics	 5.9x	13%	92%	13%	64%	-	68%
Enterprise	 5.8x	8%	14%	31%	75%	87%	21%
EdTech / Public Sector	 5.7x	19%	24%	22%	54%	88%	48%
Bellwethers	 5.6x	8%	19%	30%	72%	77%	38%
HCIT	 4.5x	11%	39%	25%	35%	33%	61%
Energy	 4.2x	7%	23%	19%	-	63%	99%
Data Storage	 4.1x	14%	126%	21%	15%	36%	-

SUMMARY OF TECHNOLOGY IPOs

RECENT U.S. TECHNOLOGY IPO ACTIVITY (BY OFFERING SIZE)¹

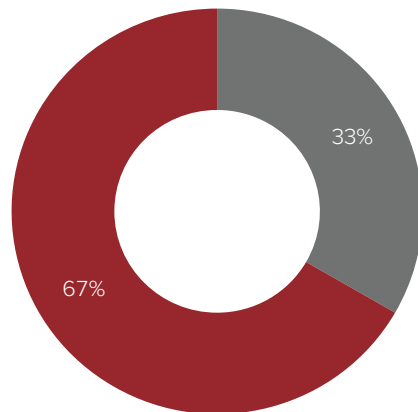


- After a quiet 1Q 2019, a result of the government shutdown, IPO activity picked up with eight technology IPOs in 2Q 2019 as many highly anticipated companies officially listed their shares.
- Notable 2Q 2019 IPOs include Uber, Pinterest, Zoom, CrowdStrike, and the direct listing of Slack.
- Despite lackluster performance by Uber and Lyft's IPOs, Slack's direct listing indicates strong demand still exists in the public markets for high quality technology companies.

OFFERING SIZE AT IPO (LTM)¹

(All tech IPOs over the last 12 months)

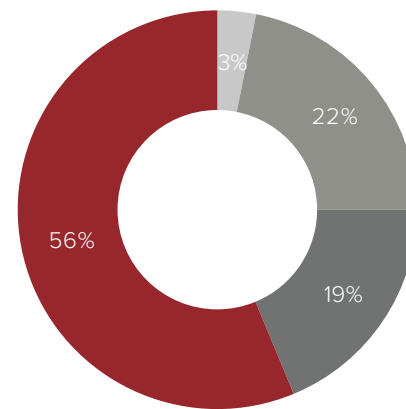
■ \$50 - 100M ■ \$100 - 250M ■ \$250M +



MARKET CAP AT IPO (LTM)¹

(All tech IPOs over the last 12 months)

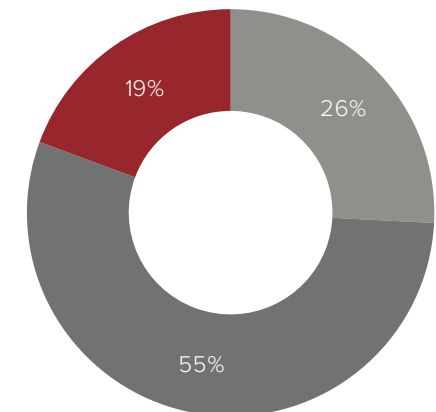
■ \$0-50M ■ \$50-500M ■ \$500M-\$1B ■ \$1B+



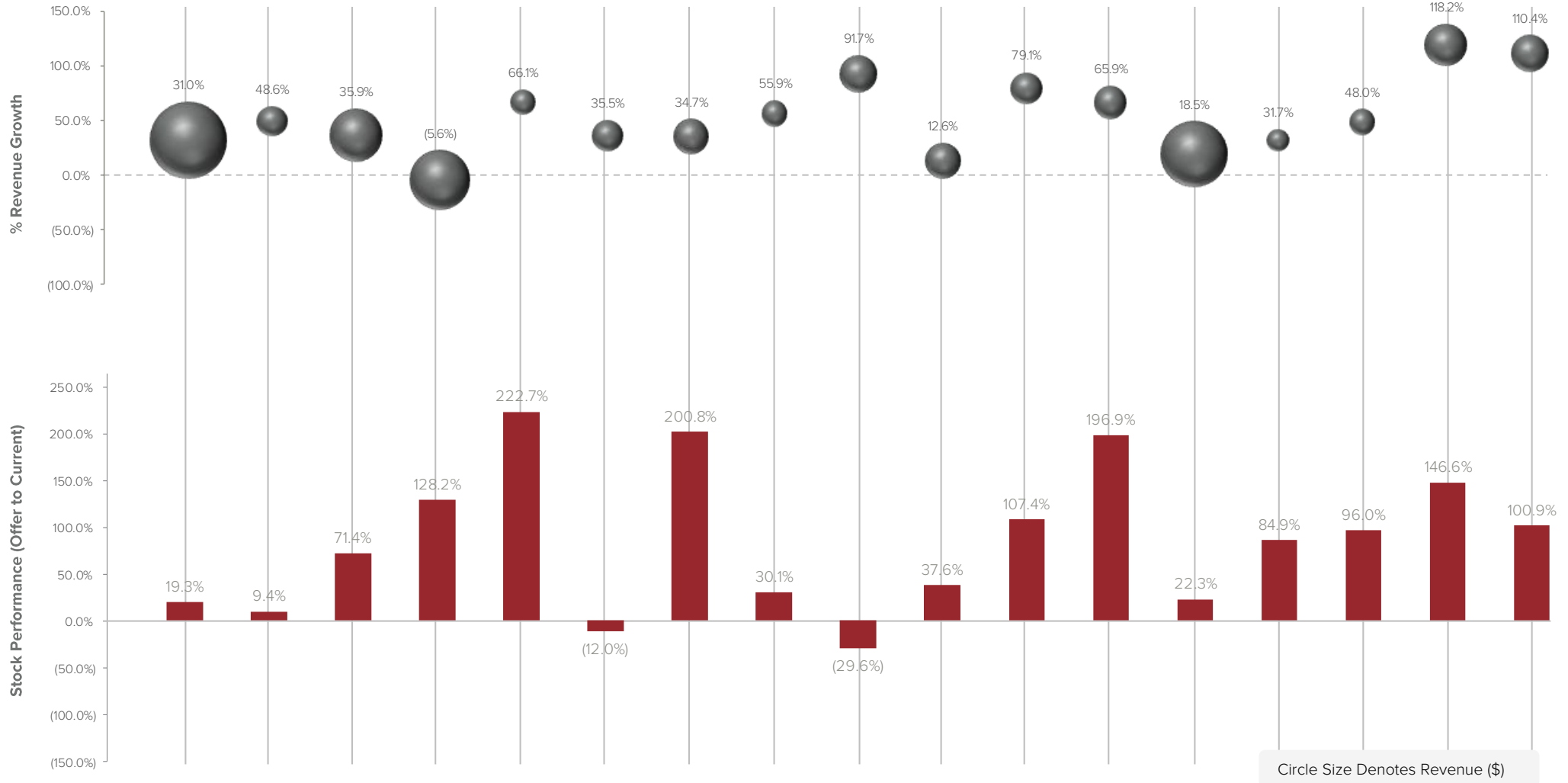
REVENUE GROWTH (1YR PRIOR TO IPO)¹

(All tech IPOs over the last 12 months)

■ < 25% ■ 25 - 75% ■ > 75%



KEY PERFORMANCE METRICS FOR RECENT SOFTWARE IPOs¹



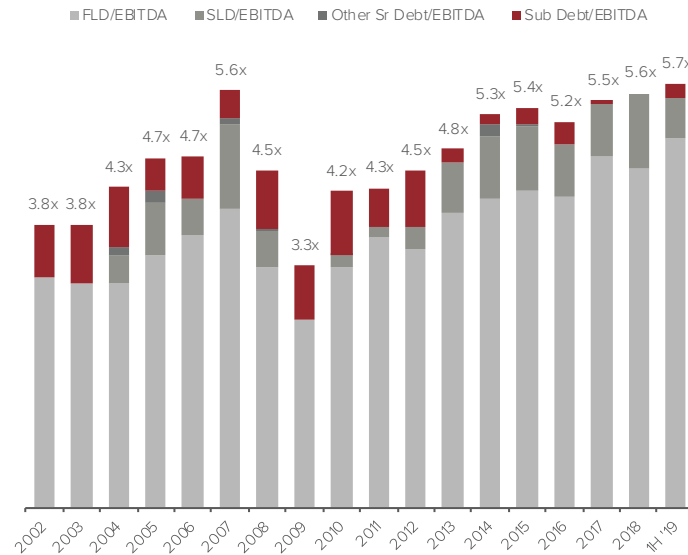
IPO DATE	3/22/18	4/12/18	4/26/18	4/26/18	4/27/18	5/4/18	6/15/18	6/28/18	9/19/18	9/25/18	10/4/18	10/11/18	10/18/18	4/10/19	4/10/19	4/17/19	6/12/19
OFFER PRICE PER SHARE	\$21.00	\$14.00	\$29.00	\$22.00	\$15.00	\$19.00	\$24.00	\$21.00	\$23.00	\$12.00	\$36.00	\$17.00	\$15.00	\$14.00	\$24.00	\$36.00	\$34.00
MARKET CAP AT OFFER (\$M)	\$911.4	\$1,127.6	\$4,411.2	\$2,999.0	\$174.5	\$1,250.7	\$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
OFFERING SIZE (\$M)	\$756.0	\$154.0	\$629.3	\$462.0	\$174.5	\$152.0	\$180.0	\$193.2	\$230.0	\$180.0	\$252.0	\$263.5	\$375.0	\$107.8	\$217.7	\$751.3	\$612.0
OFFER TO CURRENT	19.3%	9.4%	71.4%	128.2%	222.7%	(12.0%)	200.8%	30.1%	(29.6%)	37.6%	107.4%	196.9%	22.3%	84.9%	96.0%	146.6%	100.9%

DEBT MARKET OVERVIEW

MIDDLE MARKET LBO LOAN MULTIPLES^{2,3}

Defined as Issuers with EBITDA of \$50 Million or Less

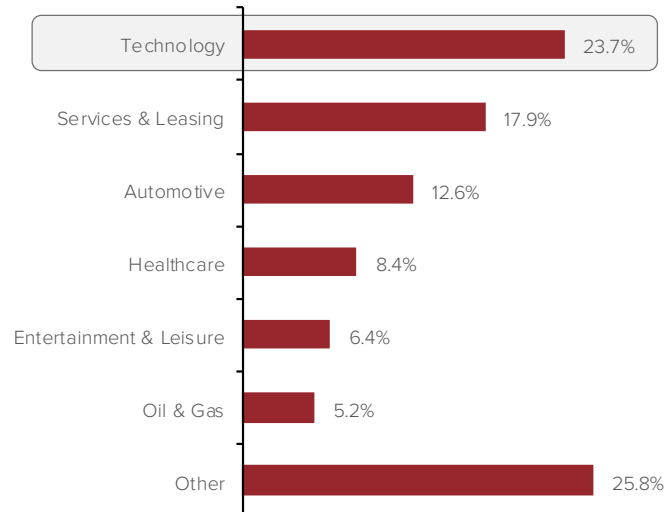
- Median middle market LBO loan multiples in 1H 2019 increased slightly to 5.7x leverage.
- Middle market LBO loan volume increased to \$1.4 billion in 2Q 2019, rebounding after a downward trend the past three quarters.



LBO LOAN VOLUME BY INDUSTRY^{2,3}

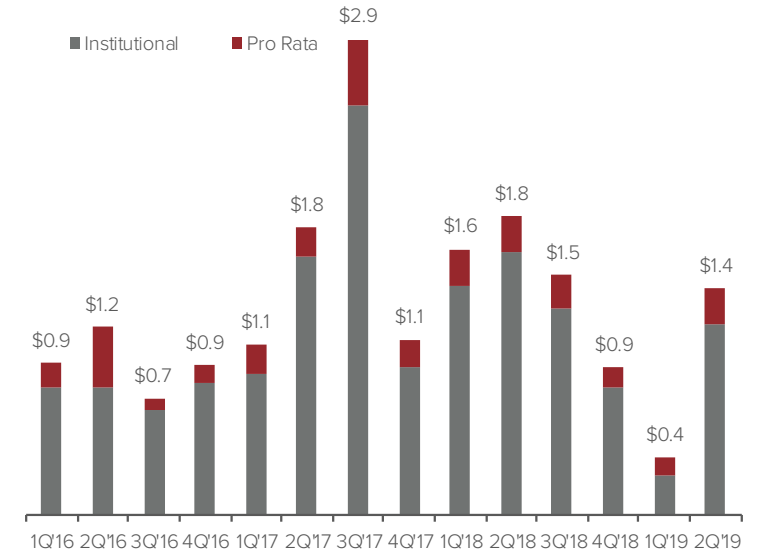
YTD New Issue LBO Loans

- Technology companies were the largest recipients of middle market LBO loans in 1H 2019, representing 23.7% of new issuance.
- Median LBO debt percentages decreased slightly to 49% of total purchase price in 1H 2019.



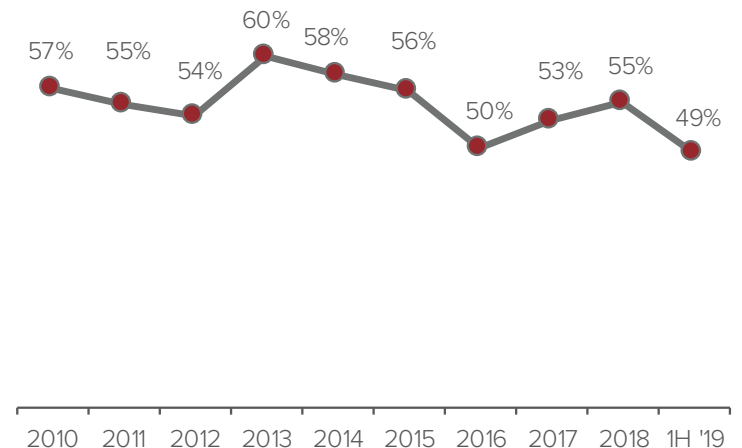
MIDDLE MARKET LBO VOLUME BY QUARTER^{2,3}

Defined as Issuers with EBITDA of \$50 Million or Less
(\$ in billions)



MEDIAN LBO DEBT PERCENTAGES^{3,4}

Percentage of Total Purchase Price



SELECT HW TMT TRANSACTIONS

 significant growth investment from 	 acquired by 	 acquired by 	 strategic investment in 	 acquired by 	 acquired 	 strategic investment from 	 acquired by 	 acquired 	 acquired by 	 acquired 	 acquired by 	 acquired by 	 acquired 	 acquired by
 acquired by 	 acquired 	 acquired by 	 better. faster. decisions. 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 	 acquired by
 acquired by 	 majority recapitalization by 	 recapitalized by 	 acquired by 	 majority recapitalization by 	 acquired 	 acquired by 	 acquired by 	 acquired by 	 acquired by 	 acquired by 	 significant equity investment from 	 acquired by 	 acquired by 	 minority investment from

APPENDIX: SOFTWARE SECTOR PUBLIC COMPANY UNIVERSE¹

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

APPENDIX: SOFTWARE SECTOR PUBLIC COMPANY METRICS¹

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
SOFTWARE BELLWETHERS														
Microsoft Corporation	MSFT	\$990,302	\$1,026,511	96.8%	35.8%	171.0%	18.0%	13.8%	42.3%	8.1x	7.1x	19.2x	16.4x	29.4x
Alphabet Inc.	GOOGL	670,491	751,070	83.5%	(3.9%)	56.6%	20.3%	22.5%	29.7%	4.7x	3.9x	15.9x	10.7x	26.8x
Cisco Systems, Inc.	CSCO	228,130	234,285	94.1%	27.5%	96.9%	5.5%	4.5%	31.4%	4.4x	4.3x	14.2x	11.9x	17.7x
Oracle Corporation	ORCL	222,763	190,042	99.1%	29.9%	45.6%	(0.8%)	2.5%	43.0%	5.6x	5.5x	13.1x	11.5x	17.1x
IBM Corporation	IBM	182,725	122,268	89.3%	(1.5%)	(5.4%)	(1.7%)	(1.8%)	22.2%	2.3x	2.4x	10.5x	9.8x	14.1x
SAP SE	SAP	173,642	168,946	99.5%	20.8%	85.2%	7.5%	8.0%	27.1%	5.9x	5.4x	21.6x	16.8x	44.3x
Adobe Inc.	ADBE	146,579	143,035	96.9%	22.9%	218.7%	23.6%	23.0%	32.9%	14.6x	11.9x	44.4x	26.4x	53.9x
salesforce.com, inc.	CRM	120,153	117,825	90.6%	12.3%	95.7%	26.3%	27.0%	18.7%	8.6x	6.8x	45.9x	28.1x	101.7x
Hewlett Packard Enterprise Co.	HPE	27,409	20,020	85.0%	1.6%	47.9%	3.3%	(0.0%)	16.3%	0.9x	0.9x	5.6x	5.3x	72.5x
Median		\$182,725	\$168,946	94.1%	20.8%	85.2%	7.5%	8.0%	29.7%	5.6x	5.4x	15.9x	11.9x	29.4x
COMMUNICATION SOFTWARE														
Zoom Video Communications, Inc.	ZM	\$26,320	\$24,181	82.7%	NA	NA	112.4%	60.7%	8.7%	67.1x	41.7x	NM	NM	NM
Slack Technologies, Inc.	WORK	23,002	7,278	89.3%	NA	NA	75.6%	51.6%	NM	50.6x	33.4x	NM	NM	NM
Twilio, Inc.	TWLO	20,509	18,177	90.3%	NM	NM	71.1%	70.8%	NM	27.2x	15.9x	NM	NM	NM
NICE Systems Ltd.	NICE-IL	8,945	8,469	94.2%	31.7%	126.4%	9.1%	10.4%	25.3%	6.0x	5.5x	23.8x	17.4x	49.0x
Nuance Communications, Inc.	NUAN	6,089	4,634	87.9%	15.6%	5.8%	(1.5%)	(1.2%)	21.3%	3.1x	3.2x	14.8x	10.0x	NM
MobileIron, Inc.	MOBL	652	674	94.2%	NM	NM	11.1%	12.2%	NM	3.3x	2.9x	NM	92.4x	NM
Synchronoss Technologies, Inc.	SNCR	518	338	93.2%	NM	NM	(17.4%)	7.4%	NM	1.6x	1.5x	NM	13.9x	NM
Median		\$8,945	\$7,278	90.3%	23.7%	66.1%	11.1%	12.2%	21.3%	6.0x	5.5x	19.3x	15.6x	49.0x
ENTERPRISE SOFTWARE														
Oracle Corporation	ORCL	\$222,763	\$190,042	99.1%	29.9%	45.6%	(0.8%)	2.5%	43.0%	5.6x	5.5x	13.1x	11.5x	17.1x
IBM Corporation	IBM	182,725	122,268	89.3%	(1.5%)	(5.4%)	(1.7%)	(1.8%)	22.2%	2.3x	2.4x	10.5x	9.8x	14.1x
SAP SE	SAP	173,642	168,946	99.5%	20.8%	85.2%	7.5%	8.0%	27.1%	5.9x	5.4x	21.6x	16.8x	44.3x
Adobe Inc.	ADBE	146,579	143,035	96.9%	22.9%	218.7%	23.6%	23.0%	32.9%	14.6x	11.9x	44.4x	26.4x	53.9x
Automatic Data Processing, Inc.	ADP	72,841	71,956	97.0%	23.2%	88.0%	7.1%	8.1%	23.8%	5.2x	4.8x	21.9x	19.1x	37.4x
Intuit Inc.	INTU	66,717	67,748	96.0%	28.1%	146.6%	16.5%	8.6%	31.8%	9.8x	9.1x	31.0x	24.1x	41.1x
Amadeus IT Group	AMS-ES	37,468	34,811	82.6%	2.3%	86.9%	4.6%	9.3%	40.8%	6.3x	5.8x	15.5x	14.2x	29.4x
Constellation Software Inc.	CSU-CA	19,621	20,016	99.8%	23.5%	148.0%	19.6%	20.4%	25.7%	6.2x	5.2x	24.1x	19.4x	52.2x
Open Text Corporation	OTEX	13,121	11,144	97.3%	17.8%	42.2%	4.0%	6.6%	37.3%	4.6x	4.3x	12.3x	11.1x	40.9x
Sage Group plc	SGE-GB	11,442	11,097	99.2%	25.7%	25.4%	6.3%	4.0%	30.8%	4.6x	4.4x	14.9x	16.9x	26.9x
Median		\$69,779	\$69,852	97.2%	23.0%	86.1%	6.7%	8.0%	31.3%	5.8x	5.3x	18.6x	16.8x	39.1x

Software Bellwethers

Communication

Enterprise

HCM

Marketing

PLM & Engineering

SCM & Logistics

Energy

Financial

HCIT

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) ¹

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	
HUMAN CAPITAL MANAGEMENT SOFTWARE															Software Bellwethers
Automatic Data Processing, Inc.	ADP	\$72,841	\$71,956	97.0%	23.2%	88.0%	7.1%	8.1%	23.8%	5.2x	4.8x	21.9x	19.1x	37.4x	
Workday, Inc.	WDAY	50,776	46,461	93.0%	71.4%	190.7%	33.0%	28.6%	NM	16.7x	13.0x	NM	64.9x	NM	Communication
Paychex, Inc.	PAYX	31,630	29,567	93.1%	21%	48.2%	11.6%	10.7%	41.2%	8.4x	7.6x	20.4x	18.4x	28.6x	
Paycom Software, Inc.	PAYC	13,440	13,265	97.1%	126.7%	461.3%	31.0%	30.8%	35.6%	21.9x	16.8x	61.6x	40.2x	92.7x	Enterprise
Ceridian HCM Holding, Inc.	CDAY	8,110	7,070	93.2%	47.5%	NA	(4.1%)	16.5%	14.8%	10.9x	9.4x	73.9x	39.8x	NM	
Paylocity Holding Corp.	PCTY	5,133	4,970	90.4%	58.6%	134.1%	24.3%	26.6%	17.8%	11.6x	9.1x	65.0x	31.3x	118.3x	
Cornerstone OnDemand, Inc.	CSOD	3,930	3,456	96.2%	21.6%	58.8%	8.2%	11.4%	7.9%	7.2x	6.5x	91.6x	27.3x	NM	HCM
Benefitfocus, Inc.	BNFT	1,073	883	44.8%	(20.0%)	(23.5%)	3.8%	24.6%	NM	4.1x	3.3x	NM	43.0x	NM	
Median		\$10,775	\$10,167	93.1%	35.3%	88.0%	9.9%	20.5%	20.8%	9.7x	8.4x	63.3x	35.6x	65.0x	Marketing
MARKETING SOFTWARE															PLM & Engineering
Adobe Inc.	ADBE	\$146,579	\$143,035	96.9%	22.9%	218.7%	23.6%	23.0%	32.9%	14.6x	11.9x	44.4x	26.4x	53.9x	
salesforce.com, inc.	CRM	120,153	117,825	90.6%	12.3%	95.7%	26.3%	27.0%	18.7%	8.6x	6.8x	45.9x	28.1x	101.7x	
HubSpot, Inc.	HUBS	7,688	7,179	88.6%	34.9%	302.2%	34.9%	33.5%	NM	14.0x	10.5x	NM	78.7x	NM	SCM & Logistics
Acxiom Holdings, Inc.	ACXM	3,561	3,344	76.7%	61.6%	134.2%	(68.9%)	38.1%	NM	12.5x	9.0x	NM	NM	NM	
Criteo SA	CRTO	867	1,110	46.9%	(47.0%)	(59.1%)	(3.6%)	(56.8%)	10.4%	0.4x	0.9x	3.6x	2.9x	12.6x	Energy
ChannelAdvisor Corporation	ECOM	215	244	56.5%	(39.2%)	(35.9%)	4.5%	3.9%	NM	1.6x	1.6x	NM	12.4x	NM	
Median		\$5,624	\$5,262	82.6%	17.6%	114.9%	14.1%	25.0%	18.7%	10.5x	7.9x	44.4x	26.4x	53.9x	Financial
PLM & ENGINEERING SOFTWARE															HCIT
Hexagon AB	HEXAB-SE	\$189,853	\$20,168	89.9%	(2.3%)	59.0%	8.3%	7.9%	27.7%	42.6x	39.5x	153.8x	116.7x	23.5x	
Dassault Systemes SA	DSY-FR	40,105	42,009	97.3%	14.6%	119.1%	9.1%	11.2%	30.5%	9.6x	8.6x	31.4x	24.6x	61.2x	
Autodesk, Inc.	ADSK	37,654	35,776	91.0%	25.1%	216.4%	29.2%	30.4%	6.9%	13.7x	10.5x	197.5x	33.5x	NM	EdTech / Public Sector
Cadence Design Systems, Inc.	CDNS	20,569	19,900	96.9%	64.3%	200.0%	10.8%	9.1%	26.9%	9.4x	8.6x	34.8x	26.0x	50.6x	
Synopsys, Inc.	SNPS	19,904	19,291	98.5%	51.4%	147.0%	10.0%	8.1%	20.5%	6.2x	5.7x	30.1x	20.5x	31.9x	Large-Cap SaaS
ANSYS, Inc.	ANSS	17,132	17,190	98.2%	18.4%	136.6%	18.1%	14.9%	40.5%	12.9x	11.2x	31.9x	28.7x	40.8x	
Trimble Inc.	TRMB	13,291	11,351	99.7%	37.8%	88.8%	13.8%	9.7%	19.5%	4.2x	3.8x	21.5x	16.7x	39.6x	Small-Cap SaaS
PTC Inc.	PTC	11,023	10,326	83.5%	(4.0%)	155.1%	2.8%	15.6%	13.8%	8.8x	7.6x	63.8x	24.6x	NM	
Nemetschek SE	NEM-DE	7,025	6,965	94.7%	56.1%	241.2%	20.7%	20.0%	26.2%	12.4x	10.3x	47.4x	36.0x	75.4x	Data & Analytics
Altair Engineering Inc.	ALTR	3,345	2,879	91.8%	19.9%	NA	24.2%	18.3%	11.8%	7.7x	6.5x	65.6x	47.9x	126.2x	
Median		\$18,518	\$18,240	95.8%	22.5%	147.0%	12.3%	13.1%	23.3%	9.5x	8.6x	41.1x	27.4x	45.7x	IT Operations
															Data Storage
															IT Security

APPENDIX: SOFTWARE SECTOR PUBLIC COMPANY METRICS (CONT'D) ¹

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
SUPPLY CHAIN AND LOGISTICS SOFTWARE														
Trimble Inc.	TRMB	\$13,291	\$11,351	99.7%	37.8%	88.8%	13.8%	9.7%	19.5%	4.2x	3.8x	21.5x	16.7x	39.6x
Coupa Software, Inc.	COUP	10,038	7,821	97.8%	105.6%	NA	41.3%	34.0%	NM	35.2x	26.2x	NM	NM	NM
Wisetech Global Ltd.	WTC-AU	6,140	6,187	95.0%	68.6%	511.7%	57.3%	47.7%	35.4%	28.9x	19.6x	81.5x	60.1x	171.0x
Manhattan Associates, Inc.	MANH	4,586	4,478	97.9%	48.5%	13.2%	(0.8%)	4.3%	24.7%	7.9x	7.6x	32.1x	33.7x	43.5x
Descartes Systems Group Inc.	DSG-CA	4,146	3,119	89.2%	15.8%	98.9%	14.5%	21.9%	32.5%	14.5x	11.9x	44.5x	32.1x	98.7x
SPS Commerce, Inc.	SPSC	1,725	1,831	88.9%	37.4%	78.1%	12.5%	12.6%	17.3%	6.7x	6.0x	38.9x	24.3x	66.7x
Kinaxis, Inc.	KXS-CA	1,495	1,633	81.1%	(5.7%)	59.8%	16.0%	24.4%	23.4%	9.4x	7.5x	40.0x	28.5x	97.1x
American Software, Inc.	AMSWA	422	409	69.4%	(11.3%)	30.5%	(3.5%)	3.8%	12.9%	3.9x	3.7x	30.2x	28.1x	60.2x
Median		\$4,366	\$3,799	92.1%	37.6%	78.1%	14.2%	17.2%	23.4%	8.7x	7.6x	38.9x	28.5x	66.7x
ENERGY SOFTWARE														
Trimble Inc.	TRMB	\$13,291	\$11,351	99.7%	37.8%	88.8%	13.8%	9.7%	19.5%	4.2x	3.8x	21.5x	16.7x	39.6x
Aspen Technology, Inc.	AZPN	8,925	8,571	97.9%	31.8%	224.2%	6.3%	7.3%	43.5%	16.9x	15.7x	38.8x	31.5x	43.5x
AVEVA Group plc	AVV-GB	8,202	8,297	98.5%	49.4%	261.0%	52.1%	4.6%	23.2%	8.2x	7.8x	35.2x	28.4x	187.1x
Itron, Inc.	ITRI	3,521	2,462	93.5%	4.8%	51.9%	11.0%	3.7%	13.9%	1.5x	1.4x	10.7x	12.2x	55.3x
PSI Aktiengesellschaft	PSAN-DE	377	319	96.2%	11.1%	42.6%	8.3%	8.4%	13.4%	1.6x	1.5x	11.9x	13.4x	25.7x
Median		\$8,202	\$8,297	97.9%	31.8%	88.8%	11.0%	7.3%	19.5%	4.2x	3.8x	21.5x	16.7x	43.5x
FINANCIAL SOFTWARE														
Fiserv, Inc.	FISV	\$54,167	\$35,775	98.8%	23.3%	74.0%	2.5%	14.3%	35.4%	9.2x	8.1x	26.0x	22.3x	36.2x
Square, Inc.	SQ	34,697	30,698	71.7%	17.8%	714.9%	48.2%	(25.7%)	3.8%	9.7x	13.0x	NM	65.3x	NM
SS&C Technologies Holdings, Inc.	SSNC	23,165	14,575	85.1%	11.1%	111.3%	144.8%	16.3%	33.0%	5.6x	4.8x	17.0x	11.8x	109.8x
MSCI Inc.	MSCI	22,485	20,220	97.0%	45.1%	223.5%	9.8%	11.4%	53.2%	15.5x	13.9x	29.1x	25.1x	35.4x
Black Knight Financial Services, Inc.	BKFS	10,425	9,016	96.7%	13.3%	68.2%	5.9%	9.8%	43.6%	9.3x	8.4x	21.2x	16.8x	54.6x
Jack Henry & Associates, Inc.	JKHY	10,347	10,339	81.8%	3.5%	58.5%	4.9%	5.1%	39.0%	6.6x	6.2x	16.8x	19.4x	34.9x
Q2 Holdings, Inc.	QTWO	4,287	3,600	96.0%	33.0%	187.5%	26.1%	33.9%	NM	16.6x	12.4x	NM	139.5x	NM
Oracle Financial Services Software Ltd.	532466-IN	4,238	3,939	71.4%	(24.2%)	(8.5%)	1.0%	13.3%	43.2%	6.0x	5.3x	13.8x	12.3x	19.9x
Envestnet, Inc.	ENV	4,006	3,551	94.1%	21.7%	112.1%	12.4%	20.6%	10.7%	4.9x	4.1x	46.0x	18.3x	NM
BlackLine, Inc.	BL	3,025	2,946	92.1%	21.8%	NA	26.9%	28.6%	NM	12.6x	9.8x	NM	108.2x	NM
Median		\$10,386	\$9,677	93.1%	19.7%	111.3%	11.1%	13.8%	37.2%	9.2x	8.2x	21.2x	20.9x	35.8x

Software Bellwethers

Communication

Enterprise

HCM

Marketing

PLM & Engineering

SCM & Logistics

Energy

Financial

HCIT

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) ¹

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
HEALTHCARE IT														
Veeva Systems Inc	VEEV	\$26,022	\$23,873	93.4%	112.7%	391.1%	26.0%	23.9%	28.9%	28.6x	23.0x	98.7x	60.4x	92.2x
Cerner Corporation	CERN	23,867	23,853	99.9%	22.7%	33.1%	5.6%	8.3%	26.3%	4.4x	4.0x	16.6x	13.4x	37.5x
Inovalon Holdings, Inc.	INOV	3,075	2,224	93.2%	45.8%	(13.3%)	33.8%	15.2%	26.4%	5.3x	4.6x	20.1x	14.3x	NM
HMS Holdings Corp.	HMSY	2,925	2,821	84.9%	49.0%	89.7%	10.2%	11.4%	25.1%	4.8x	4.3x	19.2x	15.7x	41.3x
Allscripts Healthcare Solutions, Inc.	MDRX	2,636	1,936	77.7%	(3.5%)	(3.1%)	(12.5%)	9.9%	10.1%	1.6x	1.4x	15.7x	8.2x	NM
NextGen Healthcare, Inc.	QSII	1,300	1,287	83.9%	0.1%	74.4%	(0.3%)	5.6%	13.4%	2.5x	2.3x	18.4x	13.2x	52.5x
Change Healthcare, Inc.	CHNG	724	1,728	95.4%	NA	NA	NM	NA	NA	NM	NA	NM	NA	NM
Evolent Health Inc.	EVH	722	652	27.4%	(63.7%)	(56.3%)	46.3%	31.8%	10.3%	1.1x	0.8x	10.2x	23.8x	NM
Model N, Inc.	MODN	681	633	95.9%	6.8%	51.3%	(1.3%)	3.4%	NM	4.7x	4.5x	NM	51.2x	NM
Median		\$2,636	\$1,936	93.2%	14.8%	42.2%	7.9%	10.6%	25.1%	4.5x	4.2x	18.4x	15.0x	46.9x
EDTECH / PUBLIC SECTOR SOFTWARE														
Constellation Software Inc.	CSU-CA	\$19,621	\$20,016	99.8%	23.5%	148.0%	19.6%	20.4%	25.7%	6.2x	5.2x	24.1x	19.4x	52.2x
Tyler Technologies, Inc.	TYL	8,727	8,283	85.6%	(2.1%)	35.0%	11.5%	18.8%	22.1%	9.1x	7.6x	41.1x	26.3x	60.5x
Blackbaud, Inc.	BLKB	4,865	4,107	69.4%	(17.7%)	30.9%	6.4%	6.2%	15.3%	5.7x	5.3x	37.1x	25.2x	158.2x
2U, Inc.	TWOU	2,292	2,374	39.9%	(55.4%)	31.9%	40.6%	36.6%	NM	5.2x	3.8x	NM	128.8x	NM
Instructure, Inc.	INST	1,630	1,555	84.7%	(0.8%)	138.9%	27.1%	30.0%	NM	7.4x	5.7x	NM	NM	NM
K12 Inc.	LRN	1,149	1,223	81.2%	84.0%	161.9%	11.6%	6.3%	12.6%	1.2x	1.1x	9.2x	8.3x	28.3x
NIC Inc.	EGOV	915	1,073	88.9%	2.2%	(22.2%)	1.0%	3.0%	23.3%	2.7x	2.6x	11.5x	11.0x	20.0x
Median		\$2,292	\$2,374	84.7%	(0.8%)	35.0%	11.6%	18.8%	22.1%	5.7x	5.2x	24.1x	22.3x	52.2x

Software
Bellwethers

Communication

Enterprise

HCM

Marketing

PLM &
Engineering

SCM & Logistics

Energy

Financial

HCIT

EdTech /
Public SectorLarge-Cap
SaaSSmall-Cap
SaaSData &
Analytics

IT Operations

Data Storage

IT Security

APPENDIX: SOFTWARE SECTOR PUBLIC COMPANY METRICS

(CONT'D) ¹

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	
LARGE-CAP SAAS (Market Cap > \$3Bn)															Software Bellwethers
salesforce.com, inc.	CRM	\$120,153	\$117,825	90.6%	12.3%	95.7%	26.3%	27.0%	18.7%	8.6x	6.8x	45.9x	28.1x	101.7x	Software Bellwethers
ServiceNow, Inc.	NOW	55,098	50,713	93.7%	59.3%	321.6%	33.4%	39.9%	4.3%	19.6x	14.0x	NM	50.1x	NM	Communication
Workday, Inc.	WDAY	50,776	46,461	93.0%	71.4%	190.7%	33.0%	28.6%	NM	16.7x	13.0x	NM	64.9x	NM	Enterprise
Atlassian Corp. Plc	TEAM	32,310	31,701	95.0%	110.6%	415.5%	31.5%	41.4%	3.7%	29.5x	20.9x	NM	93.2x	NM	Enterprise
Zoom Video Communications, Inc.	ZM	26,320	24,181	82.7%	NA	NA	112.4%	60.7%	8.7%	67.1x	41.7x	NM	NM	NM	Enterprise
Veeva Systems Inc	VEEV	26,022	23,873	93.4%	112.7%	391.1%	26.0%	23.9%	28.9%	28.6x	23.0x	98.7x	60.4x	92.2x	HCM
Check Point Software Technologies Ltd.	CHKP	17,934	17,600	87.1%	17.2%	49.4%	3.4%	4.6%	47.9%	9.3x	8.9x	19.3x	17.1x	21.6x	HCM
CrowdStrike Holdings, Inc.	CRWD	15,625	13,616	85.6%	NA	NA	110.4%	NA	NM	62.5x	NA	NM	NA	NM	Security
Paycom Software, Inc.	PAYC	13,440	13,265	97.1%	126.7%	461.3%	31.0%	30.8%	35.6%	21.9x	16.8x	61.6x	40.2x	92.7x	Marketing
Zendesk, Inc.	ZEN	11,036	9,755	95.0%	62.5%	257.4%	39.1%	43.0%	NM	17.0x	11.9x	NM	142.5x	NM	Customer Support
Coupa Software, Inc.	COUP	10,038	7,821	97.8%	105.6%	NA	41.3%	34.0%	NM	35.2x	26.2x	NM	NM	NM	PLM & Engineering
RingCentral, Inc.	RNG	9,993	9,416	90.5%	62.2%	492.4%	34.2%	32.7%	0.4%	13.8x	10.4x	NM	80.2x	NM	Cloud Communications
DocuSign, Inc.	DOCU	9,487	8,640	72.7%	(6.3%)	NA	35.4%	32.9%	NM	12.5x	9.4x	NM	102.2x	NM	SCM & Logistics
Guidewire Software, Inc.	GWRE	7,883	8,294	93.0%	14.9%	73.0%	26.7%	5.1%	8.6%	10.5x	10.0x	121.2x	60.8x	112.0x	Insurance
HubSpot, Inc.	HUBS	7,688	7,179	88.6%	34.9%	302.2%	34.9%	33.5%	NM	14.0x	10.5x	NM	78.7x	NM	Marketing
Anaplan, Inc.	PLAN	7,320	6,519	95.2%	NA	NA	44.6%	39.2%	NM	27.6x	19.8x	NM	NM	NM	Financial
Proofpoint, Inc.	PFPT	7,095	6,695	91.5%	3.8%	105.1%	34.2%	27.7%	NM	9.4x	7.3x	NM	44.9x	NM	Security
Smartsheet, Inc.	SMAR	6,374	5,790	95.6%	98.3%	NA	57.7%	53.4%	NM	32.3x	21.0x	NM	NM	NM	Financial
RealPage, Inc.	RP	6,044	5,567	88.8%	7.1%	170.7%	25.5%	15.9%	20.4%	6.7x	5.8x	32.8x	19.9x	158.6x	Real Estate
Xero Limited	XRO-AU	5,920	5,937	96.3%	26.4%	249.4%	29.5%	38.2%	16.9%	15.7x	11.4x	93.3x	55.3x	NM	HCIT
Avalara Inc	AVLR	5,775	5,345	95.8%	62.0%	NA	31.1%	31.6%	NM	19.5x	14.8x	NM	NM	NM	Financial
CyberArk Software Ltd.	CYBR	5,164	4,825	92.1%	103.5%	180.9%	33.9%	24.6%	26.0%	14.1x	11.3x	54.0x	42.1x	88.8x	EdTech / Public Sector
Q2 Holdings, Inc.	QTWO	4,287	3,600	96.0%	33.0%	187.5%	26.1%	33.9%	NM	16.6x	12.4x	NM	NM	NM	Financial
Cornerstone OnDemand, Inc.	CSOD	3,930	3,456	96.2%	21.6%	58.8%	8.2%	11.4%	7.9%	7.2x	6.5x	91.6x	27.3x	NM	Large-Cap SaaS
PagerDuty, Inc.	PD	3,916	3,580	78.7%	NA	NA	48.6%	39.4%	NM	30.1x	21.6x	NM	NM	NM	IT Operations
LogMeIn, Inc.	LOGM	3,826	3,671	65.5%	(28.2%)	20.5%	14.0%	4.6%	30.1%	3.1x	3.0x	10.3x	9.5x	103.1x	Small-Cap SaaS
AppFolio Inc	APPF	3,694	3,479	93.1%	67.5%	648.1%	33.0%	39.7%	16.2%	18.0x	12.9x	111.2x	74.4x	179.6x	Real Estate
Qualys, Inc.	QLYS	3,693	3,410	88.6%	2.4%	202.2%	19.3%	20.3%	29.7%	12.8x	10.6x	43.0x	27.2x	55.5x	Data & Analytics
Five9, Inc.	FIWN	3,292	3,061	88.6%	49.6%	345.6%	28.8%	21.4%	6.6%	12.0x	9.9x	183.1x	56.9x	NM	Customer Support
Median		\$7,688	\$7,179	93.0%	49.6%	202.2%	33.0%	32.2%	16.9%	16.6x	11.6x	61.6x	55.3x	97.2x	IT Operations
															Data Storage
															IT Security

APPENDIX: SOFTWARE SECTOR PUBLIC COMPANY METRICS (CONT'D) ¹

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	
SMALL-CAP SAAS (Market Cap < \$3Bn)															Software Bellwethers
Rapid7 Inc.	RPD	\$3,186	\$2,788	98.5%	102.2%	373.7%	25.0%	33.7%	NM	12.1x	9.1x	NM	170.1x	NM	Software Bellwethers
Mimecast Limited	MIME	2,959	2,865	85.6%	13.7%	364.8%	30.0%	29.8%	9.3%	8.7x	6.7x	93.5x	37.8x	NM	Communication
Workiva, Inc.	WK	2,924	2,623	99.0%	134.2%	368.5%	17.8%	21.1%	NM	11.5x	9.5x	NM	NM	NM	Enterprise
Box, Inc.	BOX	2,859	2,580	63.9%	(29.3%)	73.2%	19.2%	15.2%	NM	4.5x	3.9x	NM	44.9x	NM	Enterprise
Alarm.com Holdings, Inc.	ALRM	2,660	2,586	74.8%	34.8%	118.2%	23.1%	7.4%	7.9%	6.0x	5.6x	77.0x	24.1x	129.2x	Enterprise
Yext, Inc.	YEXT	2,301	2,232	73.9%	5.6%	NA	33.5%	36.8%	NM	9.4x	6.8x	NM	NM	NM	HCM
Ebix, Inc.	EBIX	2,218	1,533	56.4%	(34.0%)	8.6%	35.5%	24.2%	33.3%	4.2x	3.4x	12.5x	9.8x	16.5x	HCM
LivePerson, Inc.	LPSN	1,980	1,818	90.7%	33.8%	362.7%	14.1%	22.4%	NM	7.7x	6.3x	NM	108.9x	NM	Marketing
SPS Commerce, Inc.	SPSC	1,725	1,831	88.9%	37.4%	78.1%	12.5%	12.6%	17.3%	6.7x	6.0x	38.9x	24.3x	66.7x	Marketing
Instructure, Inc.	INST	1,630	1,555	84.7%	(0.8%)	138.9%	27.1%	30.0%	NM	7.4x	5.7x	NM	NM	NM	PLM & Engineering
Upland Software, Inc.	UPLD	1,490	1,151	83.0%	32.4%	492.8%	53.3%	31.5%	23.9%	8.9x	6.8x	37.4x	18.2x	NM	PLM & Engineering
Talend SA	TLND	1,267	1,172	52.5%	(34.6%)	NA	30.6%	27.7%	NM	5.9x	4.6x	NM	NM	NM	SCM & Logistics
Benefitfocus, Inc.	BNFT	1,073	883	44.8%	(20.0%)	(23.5%)	3.8%	24.6%	NM	4.1x	3.3x	NM	NM	NM	SCM & Logistics
Eventbrite, Inc.	EB	974	1,307	40.2%	NA	NA	31.7%	10.6%	1.4%	3.1x	2.8x	NM	53.0x	NM	Energy
Model N, Inc.	MODN	681	633	95.9%	6.8%	51.3%	(1.3%)	3.4%	NM	4.7x	4.5x	NM	51.2x	NM	Energy
Castlight Health, Inc.	CSLT	435	468	54.3%	(24.0%)	(18.2%)	10.9%	6.2%	NM	2.8x	2.6x	NM	56.3x	NM	Energy
Domo, Inc.	DOMO	409	748	58.0%	NA	NA	30.2%	25.2%	NM	2.7x	2.2x	NM	NM	NM	Financial
Median		\$2,301	\$2,232	84.7%	32.4%	250.8%	25.0%	24.2%	17.3%	7.7x	6.3x	38.9x	31.0x	66.7x	Financial
															HCIT
															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) ¹

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	
DATA & ANALYTICS															Software Bellwethers
Verisk Analytics Inc	VRSK	\$26,937	\$23,971	99.0%	37.6%	89.1%	9.7%	8.8%	47.0%	11.0x	10.2x	23.5x	21.1x	39.9x	
Splunk Inc.	SPLK	19,480	18,884	87.5%	28.1%	135.8%	43.0%	28.5%	NM	10.2x	7.9x	NM	45.4x	NM	Communication
Pegasystems Inc.	PEGA	6,189	5,619	93.1%	29.9%	173.6%	1.9%	12.5%	0.5%	7.1x	6.3x	NM	157.3x	NM	Enterprise
Teradata Corporation	TDC	4,152	4,198	72.5%	(10.0%)	44.1%	(2.1%)	(5.1%)	9.1%	2.0x	2.1x	21.4x	9.8x	155.5x	
Verint Systems Inc.	VRNT	4,044	3,537	84.1%	22.4%	67.6%	7.9%	13.4%	17.4%	3.2x	2.8x	18.5x	11.2x	50.7x	
Inovalon Holdings, Inc.	INOV	3,075	2,224	93.2%	45.8%	(13.3%)	33.8%	15.2%	26.4%	5.3x	4.6x	20.1x	14.3x	NM	HCM
PROS Holdings, Inc.	PRO	2,825	2,396	95.4%	73.7%	301.1%	16.2%	28.3%	NM	13.8x	10.7x	NM	NM	NM	
MicroStrategy Incorporated	MSTR	1,487	1,467	94.1%	12.6%	(14.8%)	(3.3%)	5.6%	1.3%	3.0x	2.9x	NM	34.8x	113.6x	Marketing
Talend SA	TLND	1,267	1,172	52.5%	(34.6%)	NA	30.6%	27.7%	NM	5.9x	4.6x	NM	NM	NM	
Median		\$4,044	\$3,537	93.1%	28.1%	78.3%	9.7%	13.4%	13.2%	5.9x	4.6x	20.7x	21.1x	82.1x	PLM & Engineering
IT OPERATIONS MANAGEMENT															SCM & Logistics
VMware, Inc.	VMW	\$72,244	\$68,424	80.9%	14.4%	197.0%	12.7%	13.0%	29.7%	7.8x	6.9x	26.4x	18.0x	34.5x	
ServiceNow, Inc.	NOW	55,098	50,713	93.7%	59.3%	321.6%	33.4%	39.9%	4.3%	19.6x	14.0x	NM	50.1x	NM	
Arista Networks, Inc.	ANET	19,263	19,893	78.4%	0.5%	318.7%	27.5%	22.8%	33.6%	8.5x	6.9x	25.2x	18.4x	51.8x	Energy
Micro Focus International plc	MCRO-GB	13,598	9,018	79.5%	58.3%	30.2%	64.2%	7.5%	44.5%	4.3x	4.0x	9.6x	9.1x	19.1x	
Citrix Systems, Inc.	CTXS	12,369	12,920	84.0%	(5.8%)	55.5%	4.8%	5.5%	27.1%	4.1x	3.9x	15.2x	10.9x	23.8x	Financial
F5 Networks, Inc.	FFIV	8,902	8,693	72.9%	(15.8%)	32.0%	3.8%	4.4%	31.0%	4.1x	3.9x	13.1x	10.6x	17.3x	
SolarWinds Corp.	SWI	7,316	5,686	86.4%	NA	NA	12.1%	17.2%	44.9%	8.6x	7.3x	19.1x	15.2x	NM	HCIT
New Relic, Inc.	NEWR	5,042	5,028	75.4%	(14.1%)	203.7%	35.0%	34.2%	NM	10.5x	7.8x	NM	NM	NM	
PagerDuty, Inc.	PD	3,916	3,580	78.7%	NA	NA	48.6%	39.4%	NM	30.1x	21.6x	NM	NM	NM	
Software AG	SOW-DE	2,386	2,545	66.4%	(23.0%)	7.4%	1.9%	1.6%	29.3%	2.3x	2.3x	8.0x	7.8x	13.3x	EdTech / Public Sector
Progress Software Corporation	PRGS	2,344	1,941	91.6%	6.6%	76.2%	(1.7%)	8.8%	33.0%	5.9x	5.4x	17.9x	13.7x	36.8x	
NetScout Systems, Inc.	NTCT	2,172	1,967	79.9%	(15.2%)	19.3%	(7.8%)	0.1%	14.1%	2.4x	2.4x	17.0x	10.5x	NM	Large-Cap SaaS
Fastly, Inc.	FSLY	2,093	1,873	79.0%	NA	NA	50.3%	40.2%	NM	13.3x	9.5x	NM	NM	NM	
Radware Ltd.	RDWR	1,228	1,161	86.8%	(2.0%)	126.3%	11.2%	10.3%	9.8%	5.1x	4.6x	52.2x	30.0x	67.9x	Small-Cap SaaS
Median		\$6,179	\$5,357	79.7%	(2.0%)	76.2%	12.4%	11.6%	29.7%	6.9x	6.2x	17.5x	13.7x	29.2x	Data & Analytics
															IT Operations
															Data Storage
															IT Security

APPENDIX: SOFTWARE SECTOR PUBLIC COMPANY METRICS (CONT'D)¹

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
DATA STORAGE														
Iron Mountain, Inc.	IRM	\$17,425	\$8,979	83.9%	(9.7%)	(18.8%)	7.3%	3.2%	33.4%	4.1x	4.0x	12.3x	11.7x	29.5x
NetApp, Inc.	NTAP	13,191	14,809	70.0%	(20.2%)	166.2%	4.0%	3.1%	22.5%	2.1x	2.1x	9.6x	8.0x	12.7x
Dropbox	DBX	11,427	10,382	71.7%	(25.0%)	NA	32.0%	20.5%	8.8%	7.8x	6.5x	89.1x	26.6x	NM
Nutanix, Inc.	NTNX	5,126	4,928	40.9%	(50.0%)	NA	15.0%	11.9%	NM	4.1x	3.7x	NM	NM	NM
Pure Storage, Inc.	PSTG	3,354	3,865	52.4%	(35.5%)	50.4%	30.5%	32.2%	NM	2.3x	1.8x	NM	19.3x	NM
Box, Inc.	BOX	2,859	2,580	63.9%	(29.3%)	73.2%	19.2%	15.2%	NM	4.5x	3.9x	NM	NM	NM
CommVault Systems, Inc.	CVLT	1,899	2,267	70.2%	(25.6%)	16.5%	1.7%	3.3%	4.6%	2.7x	2.6x	58.0x	15.5x	NM
Carbonite, Inc.	CARB	1,352	897	59.7%	(24.6%)	187.1%	27.3%	72.6%	20.8%	4.3x	2.5x	20.7x	9.2x	NM
Median		\$4,240	\$4,396	67.0%	(25.3%)	61.8%	17.1%	13.5%	20.8%	4.1x	3.1x	20.7x	13.6x	21.1x
IT SECURITY														
Cisco Systems, Inc.	CSCO	\$228,130	\$234,285	94.1%	27.5%	96.9%	5.5%	4.5%	31.4%	4.4x	4.3x	14.2x	11.9x	17.7x
VeriSign, Inc.	VRSN	25,717	24,928	97.6%	52.0%	152.3%	3.9%	3.3%	67.9%	21.0x	20.4x	31.0x	27.9x	40.8x
Palo Alto Networks, Inc.	PANW	20,116	19,556	78.2%	(0.6%)	72.1%	29.6%	23.7%	7.7%	7.3x	5.9x	95.1x	21.9x	NM
Check Point Software Ltd.	CHKP	17,934	17,600	87.1%	17.2%	49.4%	3.4%	4.6%	47.9%	9.3x	8.9x	19.3x	17.1x	21.6x
Symantec Corporation	SYMC	16,750	13,452	87.8%	7.2%	8.1%	(2.1%)	2.2%	26.2%	3.5x	3.5x	13.5x	8.6x	NM
CrowdStrike Holdings, Inc.	CRWD	15,625	13,616	85.6%	NA	NA	110.4%	NA	NM	62.5x	NA	NM	NA	NM
Fortinet, Inc.	FTNT	13,828	13,120	79.2%	23.0%	155.0%	20.7%	18.6%	21.5%	7.4x	6.2x	34.3x	23.1x	37.5x
Proofpoint, Inc.	PFPT	7,095	6,695	91.5%	3.8%	105.1%	34.2%	27.7%	NM	9.4x	7.3x	NM	44.9x	NM
Trend Micro Incorporated	4704-JP	6,243	6,265	67.1%	(21.1%)	30.4%	6.8%	10.5%	31.8%	4.3x	3.9x	13.4x	12.3x	24.3x
CyberArk Software Ltd.	CYBR	5,164	4,825	92.1%	103.5%	180.9%	33.9%	24.6%	26.0%	14.1x	11.3x	54.0x	42.1x	88.8x
Qualys, Inc.	QLYS	3,693	3,410	88.6%	2.4%	202.2%	19.3%	20.3%	29.7%	12.8x	10.6x	43.0x	27.2x	55.5x
FireEye, Inc.	FEYE	3,392	3,161	71.9%	(4.5%)	(2.2%)	8.5%	10.8%	NM	4.0x	3.6x	NM	27.7x	NM
Rapid7 Inc.	RPD	3,186	2,788	98.5%	102.2%	373.7%	25.0%	33.7%	NM	12.1x	9.1x	NM	170.1x	NM
Mimecast Limited	MIME	2,959	2,865	85.6%	13.7%	364.8%	30.0%	29.8%	9.3%	8.7x	6.7x	93.5x	37.8x	NM
Varonis Systems, Inc.	VRNS	1,912	1,874	75.5%	(18.3%)	173.0%	18.5%	4.9%	NM	7.0x	6.7x	NM	NM	NM
SailPoint Technologies	SAIL	1,759	1,777	57.9%	(19.4%)	NA	29.7%	15.9%	7.7%	6.8x	5.8x	88.2x	NM	NM
ForeScout Technologies, Inc.	FSCT	1,692	1,531	72.9%	1.7%	NA	32.7%	30.5%	NM	5.4x	4.1x	NM	NM	NM
SecureWorks Corp.	SCWX	1,034	1,083	53.4%	9.6%	2.9%	9.3%	5.6%	NM	2.0x	1.9x	NM	180.7x	NM
Tufin Software Technologies Ltd	TUFN	813	840	92.7%	NA	NA	31.7%	41.1%	NM	9.6x	6.8x	NM	NM	NM
Cheetah Mobile, Inc.	CMCM	86	485	31.3%	(64.1%)	(60.9%)	(1.3%)	(4.9%)	7.3%	0.1x	0.1x	1.6x	5.4x	3.0x
Median		\$4,429	\$4,117	85.6%	5.5%	101.0%	20.0%	15.9%	26.1%	7.3x	6.2x	32.7x	27.2x	30.9x

Software
Bellwethers

Communication

Enterprise

HCM

Marketing

PLM &
Engineering

SCM & Logistics

Energy

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SOURCES

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

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