# Quarterly Enterprise Software Market Review

4Q 2018

## SHEA & COMPANY

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# People ▪ Industry Expertise ▪ Process Excellence

| **1** | **2** | **24** | **15+** | **>70+** |
|---|---|---|---|---|
| Firm focused exclusively on enterprise software | Offices in Boston and San Francisco | Professionals focused on the software industry | Years of experience amongst our senior bankers | Transactions completed representing billions of dollars in value |

### Mergers & Acquisitions
- Sell-side and buy-side M&A advisory
- Divestitures
- Restructuring

### Private Placements & Capital Raising
- Late-stage venture, growth equity and buyouts
- Recapitalizations
- IPO advisory

### Corporate Strategy
- Corporate development advisory
- Balance sheet and capital structure review
- Fairness opinions

## Superior Outcomes

*Shea & Company has advised on important transactions representing billions of dollars in value across the strategic acquirer and financial investor landscape with Clients in the U.S. as well as Canada, Europe and Israel*

RogueWave SOFTWARE
has agreed to be acquired by
PERFORCE
Shea & Company served as the financial advisor to Rogue Wave

CENTRALSQUARE TECHNOLOGIES
has acquired
lucity
Shea & Company served as the exclusive financial advisor to CentralSquare

YourCause
has been acquired by
blackbaud
Shea & Company served as the exclusive financial advisor to YourCause

Parallels™
has been acquired by
COREL™
Shea & Company served as the exclusive financial advisor to Parallels

adestra
has been acquired by
upland
Shea & Company served as the exclusive financial advisor to Adestra

Perfecto
has been acquired by
PERFORCE
Shea & Company served as the exclusive financial advisor to Perfecto

aptean
Public Sector & Health Care
has merged with
TRITECH SOFTWARE SYSTEMS
Shea & Company served as the exclusive financial advisor to Aptean

TRITECH SOFTWARE SYSTEMS
has merged with
SUPERION
Shea & Company served as the exclusive financial advisor to Superion

BC PARTNERS
has acquired
NAVEX GLOBAL
Shea & Company served as the exclusive financial advisor to BC Partners

BriefCam
has been acquired by
Canon
Shea & Company served as the exclusive financial advisor to BriefCam

CLEARLAKE
has made an investment in
EAGLEVIEW
Shea & Company served as the financial advisor to Clearlake Capital

EQT
has acquired
Zemax
Shea & Company served as the exclusive financial advisor to EQT

mobilogy
has been acquired by
ESW CAPITAL
Shea & Company served as the exclusive financial advisor to Mobilogy

doxim
has been acquired by
GI PARTNERS
Shea & Company served as the exclusive financial advisor to Doxim

PERFORCE
has been acquired by
CLEARLAKE
Shea & Company served as the exclusive financial advisor to Perforce

GUROBI OPTIMIZATION
has received an investment from
THOMPSON STREET CAPITAL PARTNERS
Shea & Company served as the exclusive financial advisor to Gurobi

mri REAL ESTATE SOFTWARE
has received a strategic investment from
TA ASSOCIATES
Shea & Company served as the exclusive financial advisor to MRI Software

SOVOS Compliance
has been acquired by
HgCapital
Shea & Company served as the exclusive financial advisor to Sovos Compliance

# Contents

# M&A Activity
## Software M&A Summary: 2014 – 2018

Announced Deal Value ($billions) — NASDAQ

| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Value | $8.9 | $6.0 | $28.3 | $19.9 | $12.4 | $11.7 | $43.4 | $81.3 | $9.5 | $54.6 | $48.7 | $26.2 | $20.2 | $13.3 | $14.1 | $16.7 | $21.3 | $33.2 | $42.8 | $65.1 |
| | | 2014 | | | | 2015 | | | | 2016 | | | | 2017 | | | | 2018 | | |

**Transaction Count by Deal Size**

| | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 | Q1 | Q2 | Q3 | Q4 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| > $1bn | 2 | 0 | 6 | 4 | 3 | 4 | 5 | 5 | 2 | 9 | 13 | 5 | 7 | 2 | 3 | 5 | 6 | 10 | 11 | 11 |
| $500m - $1bn | 3 | 2 | 3 | 7 | 2 | 4 | 5 | 5 | 3 | 7 | 4 | 8 | 3 | 2 | 5 | 2 | 3 | 0 | 4 | 5 |
| $250m - $500m | 2 | 4 | 4 | 6 | 5 | 4 | 3 | 13 | 5 | 7 | 5 | 3 | 5 | 5 | 10 | 4 | 6 | 4 | 8 | 4 |
| < $250m | 43 | 66 | 46 | 58 | 38 | 46 | 37 | 50 | 39 | 47 | 33 | 26 | 33 | 42 | 29 | 25 | 38 | 31 | 42 | 39 |
| No Reported Value | 113 | 157 | 155 | 129 | 158 | 128 | 107 | 145 | 169 | 196 | 173 | 145 | 173 | 187 | 176 | 141 | 182 | 154 | 155 | 167 |
| **Total** | **163** | **229** | **214** | **204** | **206** | **186** | **157** | **218** | **218** | **266** | **228** | **187** | **221** | **238** | **223** | **177** | **235** | **199** | **220** | **226** |

### Notable Announced Transactions: 4Q 2018 ($ millions)

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Acquirer | cloudera | BainCapital | THOMA BRAVO | IBM | THOMA BRAVO | SAP | VISTA EQUITY PARTNERS | BlackBerry | AUTODESK | VISTA EQUITY PARTNERS |
| Target | HORTONWORKS | Rocket | IMPERVA | redhat | VERACODE | qualtrics | APPTIO | CYLANCE | PlanGrid | MINDBODY |
| Date | 10/03/18 | 10/08/18 | 10/10/18 | 10/28/18 | 11/05/18 | 11/11/18 | 11/11/18 | 11/16/18 | 11/20/18 | 12/24/18 |
| Enterprise Value | $2,032 | $2,000 | $1,891 | $34,026 | $950 | $8,000 | $1,851 | $1,400 | $875 | $1,849 |
| EV / LTM Rev | 6.6x | n/a | 5.5x | 10.8x | n/a | nm | 8.2x | 10.8x | n/a | 8.1x |
| EV / LTM EBITDA | nm | n/a | nm | nm | n/a | n/a | nm | nm | n/a | nm |

Sources: Company releases, Wall Street research
Note: EV / Revenue multiples greater than 20x and EV / EBITDA multiples greater than 50x are considered to be not meaningful

# Software Acquisitions:  3-Year Trend Analysis

## By Transaction Size (2016 – 2018)

### # of Deals



Legend: 2016, 2017, 2018

| Deal Value (Enterprise Value) | 2016 | 2017 | 2018 |
|---|---|---|---|
| < $250m | 145 | 129 | 150 |
| $250m - $500m | 20 | 24 | 22 |
| $500m - $1bn | 22 | 12 | 12 |
| > $1bn | 29 | 17 | 39 |

### Aggregate Deal Value ($ billions)

| Deal Value (Enterprise Value) | 2016 | 2017 | 2018 |
|---|---|---|---|
| < $250m | $8 | $7 | $9 |
| $250m - $500m | $6 | $8 | $7 |
| $500m - $1bn | $15 | $9 | $8 |
| > $1bn | $110 | $39 | $144 |

### Median EV / LTM Rev

| Deal Value (Enterprise Value) | 2016 | 2017 | 2018 |
|---|---|---|---|
| < $250m | 1.4x | 1.5x | 2.3x |
| $250m - $500m | 1.9x | 3.2x | 3.1x |
| $500m - $1bn | 4.0x | 4.3x | 3.9x |
| > $1bn | 3.7x | 3.7x | 8.2x |

## By Target Segment (2016 – 2018)

### # of Deals

Legend: 2016, 2017, 2018

| Segment | 2016 | 2017 | 2018 |
|---|---|---|---|
| Business Applications | 351 | 393 | 405 |
| IT Security | 100 | 101 | 102 |
| Information Management | 146 | 126 | 138 |
| Infrastructure | 141 | 126 | 107 |
| Financial Applications | 67 | 35 | 64 |

### Aggregate Deal Value ($ billions)

| Segment | 2016 | 2017 | 2018 |
|---|---|---|---|
| Business Applications | $85 | $16 | $56 |
| IT Security | $15 | $11 | $10 |
| Information Management | $15 | $2 | $14 |
| Infrastructure | $10 | $11 | $71 |
| Financial Applications | $2 | $4 | $6 |

### Median EV / LTM Rev

| Segment | 2016 | 2017 | 2018 |
|---|---|---|---|
| Business Applications | 2.8x | 2.3x | 2.5x |
| IT Security | 3.5x | 4.0x | 5.2x |
| Information Management | 3.9x | 1.1x | 2.8x |
| Infrastructure | 2.4x | 1.3x | 4.2x |
| Financial Applications | 2.2x | 4.5x | 3.9x |

Notes:
Business Applications includes:  Advertising Technology; Communications; ERP & Business Applications; Marketing Applications; Technical & Embedded Applications
Information Management includes:  Business Intelligence; Content Management
Infrastructure includes:  Application Delivery & Network Acceleration; IT Operations Management; IT Security; Platforms, Development Tools & Deployment; Storage Management
Sources:  Company releases, Wall Street research

# Publicly Available Software M&A Transaction Data: 4Q 2018

**($ millions)**

| Announced | Target | Acquirer(s) | Consideration | | Equity Value | Enterprise Value | EV / Revenue | | | EV / EBITDA | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | % Cash | % Stock | | | LTM | Current yr | Fwd yr | LTM | Current yr | Fwd yr |
| 12/24/18 | WISeKey | DigiCert | - | - | - | $45 | - | - | - | - | - | - |
| 12/24/18 | MINDBODY | Vista Equity Partners | 100% | - | $1,750 | $1,849 | 8.1x | 7.5x | 6.2x | nm | nm | nm |
| 12/20/18 | BuildingConnected | Autodesk | - | - | - | $275 | - | - | - | - | - | - |
| 12/20/18 | Viscount Systems | Identiv | 33% | 67% | - | $3 | - | - | 0.6x | - | - | - |
| 12/18/18 | Luxtera | Cisco Systems | - | - | - | $660 | - | - | - | - | - | - |
| 12/18/18 | eBrevia | Donnelley Financial Solutions | 100% | - | - | $20 | - | - | - | - | - | - |
| 12/17/18 | ForeSee Results | Verint Systems | 91% | 9% | - | $65 | - | - | - | - | - | - |
| 12/13/18 | Adestra | Upland Software | 100% | - | - | $60 | - | - | - | - | - | - |
| 12/12/18 | Avoka | Temenos | 100% | - | - | $245 | 6.4x | - | 4.9x | - | - | - |
| 12/11/18 | IQMS | Dassault Systemes | 100% | - | - | $425 | - | - | - | - | - | - |
| 12/10/18 | Hiperos | Coupa Software | 100% | - | - | $95 | - | - | - | - | - | - |
| 12/06/18 | Danal | Boku | 2% | 98% | $51 | $61 | - | - | - | nm | - | - |
| 12/06/18 | IBM (assets) | HCL | 100% | - | - | $1,775 | - | - | - | - | - | - |
| 11/27/18 | Spectro Scientific | AMETEK | - | - | - | $190 | - | - | - | - | - | - |
| 11/26/18 | SITA Laboratories | Marchex | 71% | 29% | - | $35 | - | - | - | - | - | - |
| 11/20/18 | PlanGrid | Autodesk | 100% | - | - | $875 | - | - | 8.8x | - | - | - |
| 11/16/18 | Cylance | BlackBerry | 100% | - | - | $1,400 | 10.8x | - | - | - | - | - |
| 11/15/18 | Instafile | Xero | - | - | - | $7 | - | - | - | - | - | - |
| 11/12/18 | Nuance Document Imaging | Kofax | 100% | - | - | $400 | 1.8x | - | - | - | - | - |
| 11/11/18 | Qualtrics | SAP | 100% | - | - | $8,000 | nm | nm | 20.0x | nm | nm | nm |
| 11/11/18 | Apptio | Vista Equity Partners | 100% | - | $1,940 | $1,851 | 8.2x | 7.9x | 6.8x | nm | nm | nm |
| 11/08/18 | Cozy | CoStar Group | 100% | - | - | $68 | - | - | - | - | - | - |
| 11/08/18 | SecurityMatters | ForeScout | 100% | - | - | $113 | - | - | - | - | - | - |
| 11/07/18 | Grovo Learning | Cornerstone OnDemand | 100% | - | - | $24 | 2.7x | - | - | - | - | - |
| 11/07/18 | Stitch | Talend | 100% | - | - | $60 | - | - | 10.0x | - | - | - |
| 11/06/18 | Heptio | VMware | 100% | - | - | $550 | - | - | - | - | - | - |
| 11/05/18 | Datawatch | Altair | 100% | - | $176 | $162 | 4.0x | 4.0x | - | nm | - | - |
| 11/05/18 | Inuvo | ConversionPoint Technologies | 20% | 80% | $76 | $74 | 0.9x | - | - | nm | - | - |
| 11/05/18 | Telmetrics | Marchex | 100% | - | - | $10 | - | - | 1.0x | - | - | - |
| 11/05/18 | Broadcom (CA Veracode assets) | Thoma Bravo | 100% | - | - | $950 | - | - | - | - | - | - |
| 11/01/18 | Telular | AMETEK | - | - | - | $525 | 3.2x | - | - | - | - | - |
| 10/31/18 | Liaison Technologies | OpenText | 100% | - | - | $310 | - | - | - | - | - | - |
| 10/31/18 | Intersections | WC SACD One Parent | - | - | $90 | $82 | 0.5x | - | - | 10.9x | - | - |
| 10/31/18 | CargoIT | WiseTech Global | - | - | - | $1 | 0.9x | - | - | 5.8x | - | - |

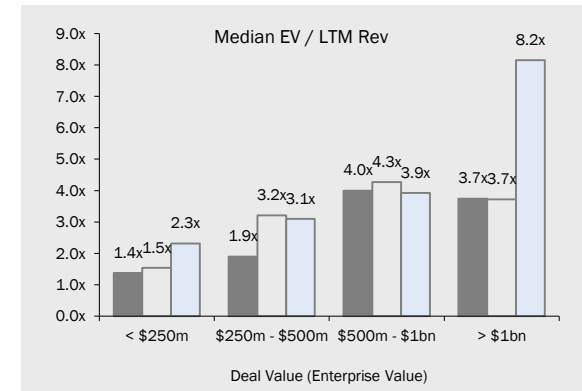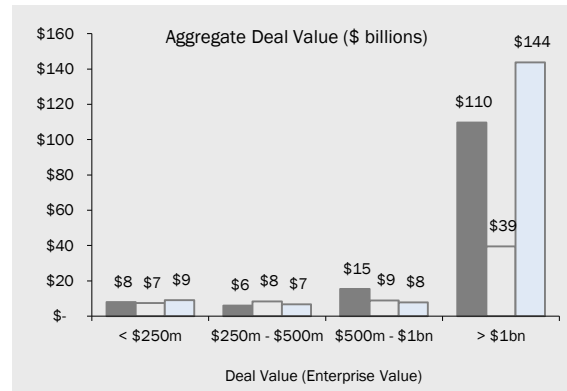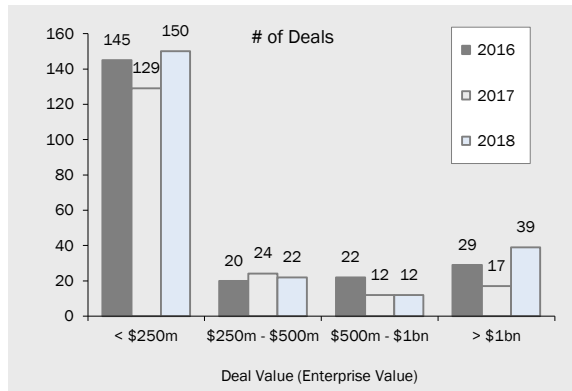Includes only transactions for which data was publicly available. Sources: Company releases, Wall Street research
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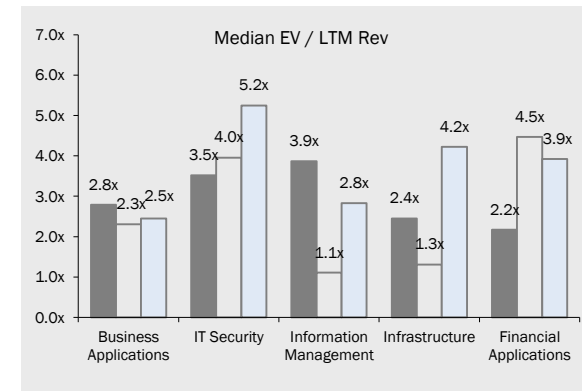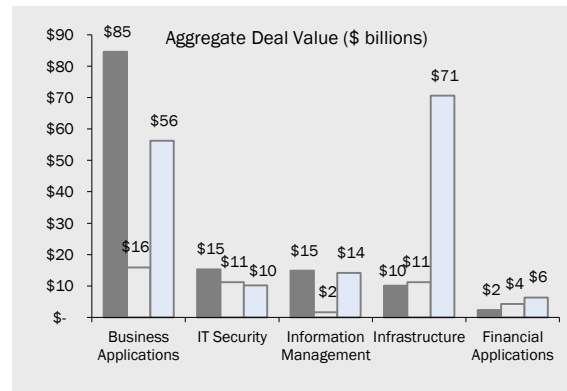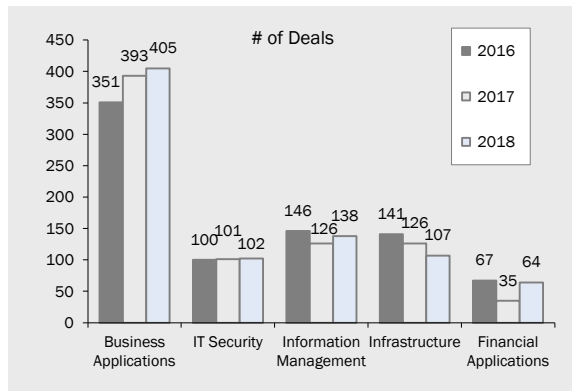
# Publicly Available Software M&A Transaction Data: 4Q 2018 continued

| ($ millions) | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|

| | | | Consideration | | Equity | Enterprise | EV / Revenue | | | EV / EBITDA | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Announced | Target | Acquirer(s) | % Cash | % Stock | Value | Value | LTM | Current yr | Fwd yr | LTM | Current yr | Fwd yr |
| 10/30/18 | Synthesio | Ipsos | 100% | - | - | $50 | - | - | - | - | - | - |
| 10/30/18 | Layered Insight | Qualys | - | - | - | $12 | - | - | - | - | - | - |
| 10/30/18 | eVision | Wolters Kluwer | - | - | - | $145 | - | - | - | - | - | - |
| 10/28/18 | Red Hat | IBM | 100% | - | $33,435 | $34,026 | 10.8x | 11.7x | 10.1x | nm | 42.8x | 37.9x |
| 10/25/18 | Thursby Software Systems | Identiv | 50% | 50% | - | $5 | - | - | - | - | - | - |
| 10/23/18 | ZoneFox | Fortinet | - | - | - | $18 | - | - | - | - | - | - |
| 10/22/18 | Symbility Solutions | CoreLogic | 100% | - | $122 | $100 | 3.5x | - | - | 40.2x | - | - |
| 10/22/18 | Vix Verify | GB Group | 100% | - | - | $27 | 1.7x | - | - | - | - | - |
| 10/17/18 | IFS | WiseTech | - | - | - | $14 | 2.5x | - | - | 19.6x | - | - |
| 10/16/18 | ZenGuard | Kape Technologies | 100% | - | - | $6 | - | - | - | - | - | - |
| 10/15/18 | Savision | Martello Technologies | 31% | 69% | - | $12 | 4.0x | - | - | - | - | - |
| 10/15/18 | SendGrid | Twilio | - | 100% | $1,739 | $1,577 | 12.3x | 10.9x | 8.8x | nm | nm | nm |
| 10/15/18 | Cambium Learning | Veritas Capital | 100% | - | $685 | $744 | 4.7x | - | - | 18.6x | - | - |
| 10/12/18 | Rentlytics | RealPage | 100% | - | - | $57 | - | - | 6.3x | - | - | - |
| 10/10/18 | Imperva | Thoma Bravo | 100% | - | $2,100 | $1,891 | 5.5x | 5.4x | 4.8x | nm | 42.4x | 40.5x |
| 10/09/18 | FNZ UK | CDPQ & Generation Investment Management | - | - | - | $1,450 | - | - | - | - | - | - |
| 10/09/18 | mLab | MongoDB | - | - | - | $68 | - | - | - | - | - | - |
| 10/09/18 | Valiance Partners | NNIT | 100% | - | - | $25 | - | - | 1.9x | - | - | - |
| 10/09/18 | ResponseSource | Vuelio | 91% | 9% | - | $7 | 1.6x | - | - | - | - | - |
| 10/08/18 | Rocket Software | Bain Capital | - | - | - | $2,000 | - | - | - | - | - | - |
| 10/08/18 | Vision Security Group | Mitie Group | 100% | - | - | $18 | - | - | - | - | - | - |
| 10/05/18 | HTS Imaging Processing | Quest Solution | 5% | 95% | - | $6 | - | - | 0.6x | - | - | - |
| 10/03/18 | Hortonworks | Cloudera | - | 100% | $2,080 | $2,032 | 6.6x | 5.9x | 4.8x | nm | - | - |
| 10/03/18 | RedLock | Palo Alto Networks | 100% | - | - | $173 | - | - | - | - | - | - |
| 10/03/18 | Rant & Rave | Upland Software | 100% | - | - | $65 | - | - | - | - | - | - |
| 10/02/18 | Starhome | Vista Equity Partners | - | - | - | $100 | - | - | - | - | - | - |
| 10/01/18 | TradeMaster | Tyler Technologies | 100% | - | - | $5 | - | - | - | - | - | - |

Includes only transactions for which data was publicly available. Sources: Company releases, Wall Street research
Note: EV / Revenue multiples greater than 20x and EV / EBITDA multiples greater than 50x are considered to be not meaningful

# Announced Software Acquisitions:  4Q 2018

| ($ millions) | | | | |
|---|---|---|---|---|
| **Announced** | **Target** | **Acquirer(s)** | **Target Segment & Description** | **Price** |
| 12/26/18 | AxisPoint Health | Carenet Healthcare | ERP & Business Applications - Healthcare analytics and customer engagement | n/a |
| 12/24/18 | WISeKey | DigiCert | IT Security - Managed PKI and certificate management | $45 |
| 12/24/18 | MINDBODY | Vista Equity Partners | ERP & Business Applications - ERP and CRM for health and fitness facilities | $1,849 |
| 12/20/18 | BuildingConnected | Autodesk | Financial Applications - Pre-construction bidding and analytics | $275 |
| 12/20/18 | Cortex Business Solutions | Drilling Info | ERP & Business Applications - Industrial invoice and document management | n/a |
| 12/20/18 | RegEd | Gryphon Investors | Financial Applications - Financial GRC optimization and online compliance training | n/a |
| 12/20/18 | Viscount Systems | Identiv | IT Security - Physical access control, intrusion detection and encrypted surveillance | $3 |
| 12/20/18 | Spigit | Planview | Content Management - Collaborative ideation and feedback collection platform | n/a |
| 12/20/18 | Initial State Technologies | Tektronix | Technical & Embedded Applications - Sensor data analytics and visualization | n/a |
| 12/20/18 | Parallels | Corel | IT Operations Management - Remote access and OS-virtualization | n/a |
| 12/19/18 | IT Glue | Kaseya | IT Security - IT documentation and team collaboration for MSPs | n/a |
| 12/19/18 | InterplX | Serko | Financial Applications - Expense management and card transaction processing | n/a |
| 12/18/18 | PokitDok | Change Healthcare | ERP & Business Applications - Healthcare transaction data and API management | n/a |
| 12/18/18 | Landmark Network | Class Valuation | Financial Applications - Real estate valuation and appraisal | n/a |
| 12/18/18 | eBrevia | Donnelley Financial Solutions | Content Management - Intelligent legal document and contract analytics | $20 |
| 12/18/18 | LANSA | IDERA | Platforms, Development Tools & Deployment - Low-code application development and data integration | n/a |
| 12/18/18 | Xplenty | Xenon Ventures | Platforms, Development Tools & Deployment - Big data processing, provisioning and lifecycle management | n/a |
| 12/17/18 | DocuLynx | DRS Imaging Services | Content Management - Document management, analytics, auditing and storage | n/a |
| 12/17/18 | Effisoft | Prima Solutions | Financial Applications - Risk management and reinsurance platform | n/a |
| 12/17/18 | ForeSee Results | Verint Systems | Business Intelligence - Customer experiences and behavior monitoring | $65 |
| 12/13/18 | ServiceMax | Silver Lake Partners | ERP & Business Applications - Mobile field service and contract management and reporting | n/a |
| 12/13/18 | Adestra | Upland Software | Marketing Applications - E-mail marketing automation | $60 |
| 12/13/18 | Host Analytics | Vector Capital | ERP & Business Applications - Enterprise performance modeling, close management and analytics | n/a |
| 12/12/18 | Zafin (assets) | Accenture | Financial Applications - Deposit and lending pricing, bundling and rate management | n/a |
| 12/12/18 | Siftery | G2 Crowd | Financial Applications - Software spend and usage tracking | n/a |
| 12/12/18 | Kuvana | Swiftpage | Marketing Applications - Email marketing and website visitor tracking | n/a |
| 12/12/18 | Avoka | Temenos | Financial Applications - Online banking customer onboarding | $245 |
| 12/11/18 | IQMS | Dassault Systemes | ERP & Business Applications - Manufacturing ERP, SCM and CRM | $425 |
| 12/11/18 | Lasso Data Systems | ECi Software | Marketing Applications - Real estate lead intelligence, email marketing and BI reporting | n/a |
| 12/11/18 | Vision Integrated Graphics | H.I.G. Capital | Marketing Applications - IP address targeting, marketing automation and engagement | n/a |
| 12/11/18 | InnoStreams | ShaShee Interactive Networks | ERP & Business Applications - Corporate project management and collaboration | n/a |
| 12/10/18 | Hiperos | Coupa Software | Business Intelligence - Third party vendor risk management and reporting | $95 |
| 12/10/18 | SceneDoc | Tyler Technologies | ERP & Business Applications - Public safety evidence data collection and workflow management | n/a |
| 12/06/18 | The Big Willow | Aberdeen | Marketing Applications - Sales performance monitoring and interest prediction | n/a |
| 12/06/18 | Danal | Boku | IT Security - Mobile identity and access management | $61 |
| 12/06/18 | IBM (assets) | HCL | Platforms, Development Tools & Deployment - Application development and omni-channel workstream collaboration | $1,775 |
| 12/06/18 | The Athene Group | Sagewind Capital | Business Intelligence - Wealth management data processing, analytics and compliance | n/a |
| 12/06/18 | School Loop | Think3 | Content Management - Educational web development, document management and collaboration | n/a |
| 12/05/18 | Serraview | ARCHIBUS | ERP & Business Applications - Workspace planning and workforce management | n/a |
| 12/05/18 | ProRata | Chargify | Financial Applications - Automated spreadsheeting and revenue reporting | n/a |
| 12/05/18 | Constant Health Solutions | Cogito | ERP & Business Applications - Call center employee engagement and retention | n/a |
| 12/05/18 | Thesaurus Technology | MRI Software | ERP & Business Applications - Residential property listing, sales tracking and invoicing | n/a |
| 12/05/18 | MOBI | Tangoe | IT Operations Management - EMM, MDM and systems integration | n/a |
| 12/05/18 | DAVID Corporation | Ventiv Technology | Financial Applications - Property and casualty insurance risk management | n/a |
| 12/05/18 | Esquify | Xcellence | Business Intelligence - AI-based corporate performance analytics and integration | n/a |
| 12/04/18 | Amaces | MJ Hudson | Financial Applications - Custodian, fund administration and FX benchmarking | n/a |
| 12/04/18 | Concept Searching | Netwrix | Content Management - Metadata classification and record-search classification | n/a |
| 12/04/18 | Orchestra Networks | TIBCO | Business Intelligence - MDM, data matching and data governance | n/a |
| 12/04/18 | Digital DataVoice | Waterfield Technologies | Communications - Email and SMS contact center messaging and response | n/a |
| 12/03/18 | G2 | Huntington Ingalls Industries | IT Security - Network security and integration | n/a |

Sources:  Company releases, Wall Street research

# Announced Software Acquisitions: 4Q 2018 continued

| ($ millions) | | | | |
|---|---|---|---|---|
| **Announced** | **Target** | **Acquirer(s)** | **Target Segment & Description** | **Price** |
| 12/03/18 | Echo Partners | Nxtsoft | Financial Applications - Bank profitability, risk and customer marketing optimization analytics | n/a |
| 12/03/18 | flexAnswer Solutions | Sabio | Communications - AI-driven conversational virtual assistant | n/a |
| 12/03/18 | CMS Hospitality | Valsoft | ERP & Business Applications - Hospitality property management | n/a |
| 11/30/18 | PEC Safety Operations | Thoma Bravo | ERP & Business Applications - Safety training and contractor management | n/a |
| 11/29/18 | HTBASE | Juniper Networks | Network Infrastructure - Multi-cloud control and data fabric | n/a |
| 11/29/18 | TRUSTID | Neustar | IT Security - Caller authentication and identity verification | n/a |
| 11/29/18 | a2z | Personify Corporation | ERP & Business Applications - Event and conference management | n/a |
| 11/29/18 | 2g Transit Solutions | Routematch Software | Business Intelligence - Transportation route statistics and scheduling | n/a |
| 11/29/18 | Wrike | Vista Equity Partners | Content Management - Project and document management and collaboration | n/a |
| 11/28/18 | SHIFT | Marlin Equity Partners | Marketing Applications - Marketing collaboration, video processing and watermarking | n/a |
| 11/28/18 | KGS Software | Maxburg Capital Partners | Content Management - SAP archiving and document management | n/a |
| 11/27/18 | Spectro Scientific | AMETEK | Technical & Embedded Applications - Machine condition monitoring and predictive maintenance | $190 |
| 11/27/18 | bd4travel | dnata | Marketing Applications - AI-based customer engagement and personalization | n/a |
| 11/27/18 | cwist | Google | Content Management - Lesson management, assignment and customization | n/a |
| 11/27/18 | BlueData | HPE | App. Delivery & Network Acceleration - Virtualization and deployment management for big data | n/a |
| 11/27/18 | NooBaa | Red Hat | Storage Management - Multi, private and hybrid cloud storage | n/a |
| 11/27/18 | EView Technology | Syncsort | Network Infrastructure - IBM mainframe integration | n/a |
| 11/26/18 | SITA Laboratories | Marchex | Marketing Applications - Call tracking and monitoring for marketing | $35 |
| 11/21/18 | Ensoft | Cisco Systems | Network Infrastructure - Network routing, switching and subscriber management | n/a |
| 11/21/18 | Thermeon Worldwide | Valsoft | ERP & Business Applications - Transportation accounting, reporting and logistics management | n/a |
| 11/20/18 | e-Courier | Alpine Investors | ERP & Business Applications - Workforce management and asset tracking | n/a |
| 11/20/18 | PlanGrid | Autodesk | ERP & Business Applications - Construction project management and collaboration | $875 |
| 11/19/18 | Raptor Technologies | JMI | IT Security - Education identity and access management | n/a |
| 11/19/18 | FSLogix | Microsoft | Network Infrastructure - Enterprise desktop virtualization and version control | n/a |
| 11/19/18 | Contextor | SAP | Business Intelligence - Robotic process automation and performance acceleration | n/a |
| 11/16/18 | Cylance | BlackBerry | IT Security - Intelligent threat identification and endpoint protection | $1,400 |
| 11/16/18 | Logic9s | Goldman Sachs | Financial Applications - Web-based financial modeling and spreadsheet analysis | n/a |
| 11/16/18 | Vidder (SDP assets) | Verizon | IT Security - Black cloud network security and connectivity prevention | n/a |
| 11/15/18 | Sapho | Citrix Systems | App. Delivery & Network Acceleration - Middleware application and mobile integration | n/a |
| 11/15/18 | Talari Networks | Oracle | App. Delivery & Network Acceleration - WAN traffic optimization, monitoring and virtualization | n/a |
| 11/15/18 | Protected Networks | SolarWinds | IT Security - Security monitoring, permission analysis and insider threat protection | n/a |
| 11/15/18 | Instafile | Xero | Financial Applications - Company accounts and tax filing | $7 |
| 11/14/18 | Yellow Brand | Corsearch | Content Management - Online illegal content monitoring and risk analysis | n/a |
| 11/13/18 | SouthTech Systems | Granicus | Content Management - Government records and conflict of interest management | n/a |
| 11/13/18 | MVP Systems Software | HelpSystems | ERP & Business Applications - Job scheduling and workload automation | n/a |
| 11/13/18 | Nidasu | Infomedia | Business Intelligence - Automotive distributor market intelligence and analytics | n/a |
| 11/12/18 | Nuance Document Imaging | Kofax | Content Management - Integrated document processing and workflow management | $400 |
| 11/11/18 | Qualtrics | SAP | Business Intelligence - Employee feedback and customer experience | $8,000 |
| 11/11/18 | Apptio | Vista Equity Partners | Business Intelligence - IT spend management and analytics | $1,851 |
| 11/09/18 | Capana Sweden | Enghouse Systems | Financial Applications - Data aggregation, billing and revenue management | n/a |
| 11/08/18 | Growlabs | AdRoll | Marketing Applications - Lead generation, email marketing and customer analytics | n/a |
| 11/08/18 | Cozy | CoStar Group | ERP & Business Applications - Renter screening and payment management | $68 |
| 11/08/18 | Safelayer | Entrust Datacard | IT Security - Data encryption and multi-factor authentication | n/a |
| 11/08/18 | SecurityMatters | ForeScout | Network Infrastructure - Industrial network infrastructure monitoring | $113 |
| 11/08/18 | CXO Software | insightsoftware | Financial Applications - Financial reporting and performance management | n/a |
| 11/08/18 | Bluefyre | Threat Stack | IT Security - Web application threat prevention | n/a |
| 11/08/18 | QM Scientific | Ulta Beauty | Business Intelligence - Customer shopping behavior intelligence | n/a |
| 11/07/18 | Grovo Learning | Cornerstone OnDemand | ERP & Business Applications - Employee learning and development management | $24 |
| 11/07/18 | Chapman and Cutler (Closing Room) | NetVoyage | ERP & Business Applications - Legal transaction management | n/a |
| 11/07/18 | Stitch | Talend | Storage Management - Data warehousing and integration | $60 |

Sources: Company releases, Wall Street research

# Announced Software Acquisitions: 4Q 2018 continued

| ($ millions) | | | | |
|---|---|---|---|---|
| **Announced** | **Target** | **Acquirer(s)** | **Target Segment & Description** | **Price** |
| 11/06/18 | SS8 Networks | HighBar Partners | Communications - Communications analysis and threat detection | n/a |
| 11/06/18 | WillowTree | Insignia Capital Group | Marketing Applications - Enterprise application development | n/a |
| 11/06/18 | Heptio | VMware | Platforms, Development Tools & Deployment - Container performance testing and analysis | $550 |
| 11/05/18 | Datawatch | Altair | Business Intelligence - Data analytics and reporting | $162 |
| 11/05/18 | Inuvo | ConversionPoint Technologies | Marketing Applications - Intelligent advertising and campaign management | $74 |
| 11/05/18 | Telmetrics | Marchex | Business Intelligence - Telemarketing call & text response analytics | $10 |
| 11/05/18 | Appthority | Symantec | IT Security - Mobile application security and threat detection | n/a |
| 11/05/18 | Javelin Networks | Symantec | IT Security - Active Directory endpoint security and authentication | n/a |
| 11/05/18 | Broadcom (CA Veracode assets) | Thoma Bravo | IT Security - Application security code analysis and penetration testing | $950 |
| 11/02/18 | Napatech (network traffic assets) | CounterFlow AI | Network Infrastructure - Network traffic data storage and retrieval | n/a |
| 11/02/18 | SCHEMA | IK Investment Partners | Content Management - Technical component CMS and document management | n/a |
| 11/02/18 | UpAbility | MemberClicks | ERP & Business Applications - Corporate-focused LMS | n/a |
| 11/01/18 | Telular | AMETEK | IT Operations Management - Mobile asset management and tracking system | $525 |
| 11/01/18 | Assembla | IDERA | Platforms, Development Tools & Deployment - Secure source code management for Git, Perforce and Subversion | n/a |
| 11/01/18 | Ditto Labs (IP assets) | Slyce | Marketing Applications - Product usage and brand recognition analysis | n/a |
| 10/31/18 | Liaison Technologies | OpenText | Platforms, Development Tools & Deployment - Application integration and data management | $310 |
| 10/31/18 | Intersections | WC SACD One Parent | IT Security - Credit information theft protection and breach remediation | $82 |
| 10/31/18 | CargoIT | WiseTech Global | Business Intelligence - Logistics solutions and customs management | $1 |
| 10/30/18 | See-Out | Clarivate Analytics | Content Management - ML-based image recognition and IP theft discovery | n/a |
| 10/30/18 | Omada | CVC & GRO Capital | IT Security - Enterprise identity and access management | n/a |
| 10/30/18 | Aptean (vertical business assets) | ESW Capital | ERP & Business Applications - Financial performance and IT service management | n/a |
| 10/30/18 | Synthesio | Ipsos | Marketing Applications - Social media monitoring | $50 |
| 10/30/18 | Layered Insight | Qualys | IT Security - Container based application protection | $12 |
| 10/30/18 | eVision | Wolters Kluwer | ERP & Business Applications - Oil and gas operational risk control | $145 |
| 10/28/18 | Red Hat | IBM | Platforms, Development Tools & Deployment - Open-source Linux OS and cloud infrastructure | $34,026 |
| 10/25/18 | Mindflash Technologies | Applied Training Systems | ERP & Business Applications - Multi-media based employee training | n/a |
| 10/25/18 | Remira | Elvaston Capital Management | ERP & Business Applications - Inventory optimization and sales forecasting | n/a |
| 10/25/18 | Apartment Jet | Expedia | ERP & Business Applications - Multifamily real estate short-term rental management | n/a |
| 10/25/18 | Pillow Homes | Expedia | ERP & Business Applications - Multifamily real estate short-term rental management | n/a |
| 10/25/18 | Thursby Software Systems | Identiv | IT Security - Mobile device security | $5 |
| 10/25/18 | Alinean | MediaFly | Marketing Applications - B2B marketing automation and collaboration | n/a |
| 10/24/18 | Omnify | Arena Solutions | Technical & Embedded Applications - Web-based product lifecycle management | n/a |
| 10/24/18 | Betaout | Bluecore | Marketing Applications - E-commerce marketing and workflow automation | n/a |
| 10/24/18 | Dome9 Security | Check Point | IT Security - Security threat management and network data visualization | n/a |
| 10/24/18 | Everbooked | Evolve Vacation Rental Network | Financial Applications - Short-term rental pricing optimization | n/a |
| 10/24/18 | DATUM | Infogix | Storage Management - Enterprise data governance and GDPR management | n/a |
| 10/24/18 | DoubleNet Pay | Purchasing Power | Financial Applications - Automated savings and bill payment | n/a |
| 10/23/18 | RedSocks Security | Bitdefender | Network Infrastructure - Suspicious network behavior detection | n/a |
| 10/23/18 | symplr | Clearlake Capital | ERP & Business Applications - Healthcare vendor credentialing and compliance | n/a |
| 10/23/18 | ZoneFox | Fortinet | IT Security - User and entity behavior analytics | $18 |
| 10/23/18 | Meetingbird | FrontApp | Communications - Web-based calendar scheduling | n/a |
| 10/23/18 | TrackMaven | Skyword | Business Intelligence - Customer analytics and marketing automation | n/a |
| 10/23/18 | Simppler | Teamable | ERP & Business Applications - Employee referral hiring program monitoring | n/a |
| 10/23/18 | Integration Point | Thomson Reuters | ERP & Business Applications - Global trade management and product classification | n/a |
| 10/23/18 | Akamai (identity services assets) | Verimatrix | IT Security - Content streaming identity authentication | n/a |
| 10/22/18 | Symbility Solutions | CoreLogic | Financial Applications - Property and health insurance claims analytics | $100 |
| 10/22/18 | INTTRA | E2open | ERP & Business Applications - Freight and shipment tracking | n/a |
| 10/22/18 | Aptrinsic | Gainsight | Marketing Applications - Real-time product usage trend analysis | n/a |
| 10/22/18 | Vix Verify | GB Group | IT Security - Biometric identity verification and fraud detection | $27 |
| 10/22/18 | Pivotus | Kony | Financial Applications - Banking customer messaging system | n/a |

Sources: Company releases, Wall Street research

# Announced Software Acquisitions:  4Q 2018  continued

| ($ millions) | | | | |
|---|---|---|---|---|
| Announced | Target | Acquirer(s) | Target Segment & Description | Price |
| 10/22/18 | DataFox | Oracle | Marketing Applications - Deal sourcing data base | n/a |
| 10/17/18 | Dynamis | Applied Systems | ERP & Business Applications - Insurance brokers plan design optimization | n/a |
| 10/17/18 | goBalto | Oracle | ERP & Business Applications - Clinicial trial acceleration and automation | n/a |
| 10/17/18 | Zhilabs | Samsung Electronics | Network Infrastructure - Telecom network data and traffic analytics | n/a |
| 10/17/18 | AFS Technologies | STG Partners | ERP & Business Applications - ERP, SCM and EDI for consumer packaged goods | n/a |
| 10/17/18 | IFS | WiseTech | Financial Applications - Carrier and parcel shipment processing | $14 |
| 10/16/18 | Dunbar Security Solutions | ControlScan | IT Security - Cybersecurity incident alert and response | n/a |
| 10/16/18 | NovoEd | Devonshire Investors | Content Management - Collaborative mobile learning, feedback and mentorship | n/a |
| 10/16/18 | ZenGuard | Kape Technologies | Network Infrastructure - Internet data encryption and website privacy | $6 |
| 10/16/18 | AdvantageTec | LivePerson | Communications - Automotive dealership customer service and communication | n/a |
| 10/16/18 | Adhesion | Vestmark | Financial Applications - Investment operations management and reporting | n/a |
| 10/15/18 | Vinimaya | Coupa Software | ERP & Business Applications - Supplier catalog search and automated price comparison | n/a |
| 10/15/18 | Savision | Martello Technologies | IT Operations Management - IT operations data visualization | $12 |
| 10/15/18 | tCell | Rapid7 | Network Infrastructure - Web application firewall and vulnerability analysis | n/a |
| 10/15/18 | Altius VA | Supplier Assessment Services | ERP & Business Applications - Supply chain compliance outsourcing | n/a |
| 10/15/18 | SendGrid | Twilio | Marketing Applications - Transactional and marketing e-mail automation | $1,577 |
| 10/15/18 | Cambium Learning | Veritas Capital | Content Management - Instructional educational LMS | $744 |
| 10/15/18 | Code SixFour | Zywave | Financial Applications - Insurance, payroll and benefit analytics and reporting | n/a |
| 10/12/18 | ProfitKeeper | PrimePay | Financial Applications - Financial data consolidation & analysis | n/a |
| 10/12/18 | Rentlytics | RealPage | ERP & Business Applications - Multifamily real estate data analytics | $57 |
| 10/11/18 | Tour De Force | Eden Capital Management | Marketing Applications - CRM, sales force automation and business intelligence | n/a |
| 10/11/18 | Total Defense | Marlin Equity Partners | IT Security - Intrusion prevention and endpoint security | n/a |
| 10/11/18 | CoScale | New Relic | App. Delivery & Network Acceleration - Docker-based container infrastructure monitoring | n/a |
| 10/11/18 | Dimelo | RingCentral | Communications - Digital customer engagement | n/a |
| 10/11/18 | Microdec | The Access Group | ERP & Business Applications - Recruitment ERP and CRM | n/a |
| 10/10/18 | CorreLog | BMC Software | IT Security - Cross platform IT security log management and compliance | n/a |
| 10/10/18 | Strategic Web Solutions | Grace Hill | ERP & Business Applications - Employee training, quizzing and compliance | n/a |
| 10/10/18 | Rubicon International | ManageBac | Content Management - Education curriculum development | n/a |
| 10/10/18 | IPM Software | MRI Software | Financial Applications - Multifamily tenant payment and rent management | n/a |
| 10/10/18 | FriendlyData | ServiceNow | Content Management - Natural language search interface | n/a |
| 10/10/18 | Imperva | Thoma Bravo | IT Security - Database, file and Web application security | $1,891 |
| 10/09/18 | FIMAC Solutions | BancAdvice | Financial Applications - Financial risk management and profitability simulation analytics | n/a |
| 10/09/18 | FNZ UK | CDPQ & Generation Investment Management | Financial Applications - Multi-channel wealth management | $1,450 |
| 10/09/18 | PriceSpider | Frontier Capital | ERP & Business Applications - Customer purchasing behavior analytics | n/a |
| 10/09/18 | mLab | MongoDB | Storage Management - Cloud database provisioning | $68 |
| 10/09/18 | Valiance Partners | NNIT | Storage Management - Legacy system content and data migration | $25 |
| 10/09/18 | NuPark | Passport | ERP & Business Applications - AI-based license plate recognition and parking management | n/a |
| 10/09/18 | Stylelabs | Sitecore | Marketing Applications - Web content management and marketing automation | n/a |
| 10/09/18 | ResponseSource | Vuelio | Marketing Applications - Media and public relations management | $7 |
| 10/08/18 | Rocket Software | Bain Capital | Platforms, Development Tools & Deployment - ALM, BPM and systems management for IBM mainframe | $2,000 |
| 10/08/18 | GRM Document Management (Chinese assets) | Iron Mountain | Content Management - Digital documents and records storage | n/a |
| 10/08/18 | BOLTS Technologies | Jack Henry & Associates | Financial Applications - Mobile bank account opening and identity verification | n/a |
| 10/08/18 | Glint | LinkedIn | ERP & Business Applications - Employee engagement and lifecycle visibility | n/a |
| 10/08/18 | Mettl | Mercer | ERP & Business Applications - Talent assessment and screening | n/a |
| 10/08/18 | Vision Security Group | Mitie Group | IT Security - Remote monitoring and integrated security system | $18 |
| 10/08/18 | Perfecto | Perforce | Platforms, Development Tools & Deployment - Multi-environment mobile, web IoT test automation | n/a |
| 10/05/18 | Kiuwan | IDERA | IT Security - Open-source risk and code-quality assessment | n/a |
| 10/05/18 | Computes | Magic Leap | Network Infrastructure - Mesh network distributed computing | n/a |
| 10/05/18 | HTS Imaging Processing | Quest Solution | Content Management - Automatic number plate and vehicle recognition | $6 |
| 10/05/18 | Rebel | Salesforce.com | Marketing Applications - Interactive email personalization | n/a |

Sources:  Company releases, Wall Street research

# Announced Software Acquisitions: 4Q 2018 continued

| ($ millions) | | | | |
| --- | --- | --- | --- | --- |
| Announced | Target | Acquirer(s) | Target Segment & Description | Price |
| 10/04/18 | COMPAS Technology | Avionte | ERP & Business Applications - Recruitment, timekeeping and vendor management | n/a |
| 10/04/18 | Crimson Hexagon | Brandwatch | Marketing Applications - Consumer reaction aggregation and behavior analytics | n/a |
| 10/04/18 | Excel4apps | insightsoftware | Business Intelligence - Excel-based reporting for Oracle and SAP | n/a |
| 10/04/18 | GFM Solutions | OANDA | Financial Applications - Financial reporting and risk management | n/a |
| 10/04/18 | LawKick | Themis | Marketing Applications - Legal CRM and client intake | n/a |
| 10/04/18 | Everyone Counts | Votem | Content Management - Election management, voter registration and authentication | n/a |
| 10/03/18 | AuthMe ID (Assets) | Airtel | IT Security - Speech recognition and customer service automation | n/a |
| 10/03/18 | FittedCloud | Apptio | Platforms, Development Tools & Deployment - Cloud cost optimization and user behavior anomaly detection | n/a |
| 10/03/18 | Hortonworks | Cloudera | Platforms, Development Tools & Deployment - Hadoop data processing and management | $2,032 |
| 10/03/18 | Office Document Consulting | ECi Software | Marketing Applications - Sales automation and performance monitoring | n/a |
| 10/03/18 | Gradescope | iParadigms | Content Management - Assignment management and grade automation | n/a |
| 10/03/18 | RedLock | Palo Alto Networks | IT Security - DevSecOps risk assessment and network traffic monitoring | $173 |
| 10/03/18 | Azavea | ShotSpotter | Business Intelligence - Location-based crime incident forecasting | n/a |
| 10/03/18 | Teleena | Tata Communications | Network Infrastructure - IoT connectivity and mobile virtual networking | n/a |
| 10/03/18 | Rant & Rave | Upland Software | Marketing Applications - Customer analytics and engagement | $65 |
| 10/02/18 | RosterApps | ARCOS | ERP & Business Applications - Automated workforce scheduling | n/a |
| 10/02/18 | RedQuarry | eVestment Alliance | Financial Applications - Investment research document management and collaboration | n/a |
| 10/02/18 | Terraform Labs | Google | Marketing Applications - Speech recognition and customer service automation | n/a |
| 10/02/18 | Basis | InEight | ERP & Business Applications - Capital projects planning, validation and scheduling | n/a |
| 10/02/18 | Scoop.it | Linkfluence | Content Management - Web content curation | n/a |
| 10/02/18 | DataSplice | Prometheus Group | IT Operations Management - Enterprise asset management data integration | n/a |
| 10/02/18 | Solufy | Prometheus Group | Technical & Embedded Applications - IBM Maximo maintenance planning and scheduling | n/a |
| 10/02/18 | Starhome | Vista Equity Partners | Communications - Roaming management software for telecom providers | $100 |
| 10/01/18 | InfinityHR | Arcoro | ERP & Business Applications - Human resources payroll and enrollment management | n/a |
| 10/01/18 | Cloud Logistics | E2open | ERP & Business Applications - Automatic load consolidation and carrier selection | n/a |
| 10/01/18 | Agiletics | Jack Henry & Associates | Financial Applications - Escrow account funding and investment management | n/a |
| 10/01/18 | Triblio | Liferay | Marketing Applications - Account-based advertising and web personalization | n/a |
| 10/01/18 | Conversable | LivePerson | Marketing Applications - Automatic consumer inquiries messaging system | n/a |
| 10/01/18 | LoanLogics | Optimal Blue | Financial Applications - Mortgage loan pricing and risk analysis | n/a |
| 10/01/18 | Lumesse | Saba Software | ERP & Business Applications - Employee recruitment, compensation and skills management | n/a |
| 10/01/18 | Optimatics | Suez | Technical & Embedded Applications - Water distribution infrastructure planning and optimization | n/a |
| 10/01/18 | TradeMaster | Tyler Technologies | Technical & Embedded Applications - Safety inspection scheduling and reporting | $5 |
| 10/01/18 | Coreworx | Vela Software International | Content Management - Capital projects document management and collaboration | n/a |

Sources: Company releases, Wall Street research

# Most Active Strategic Acquirers:  2014 – 4Q 2018
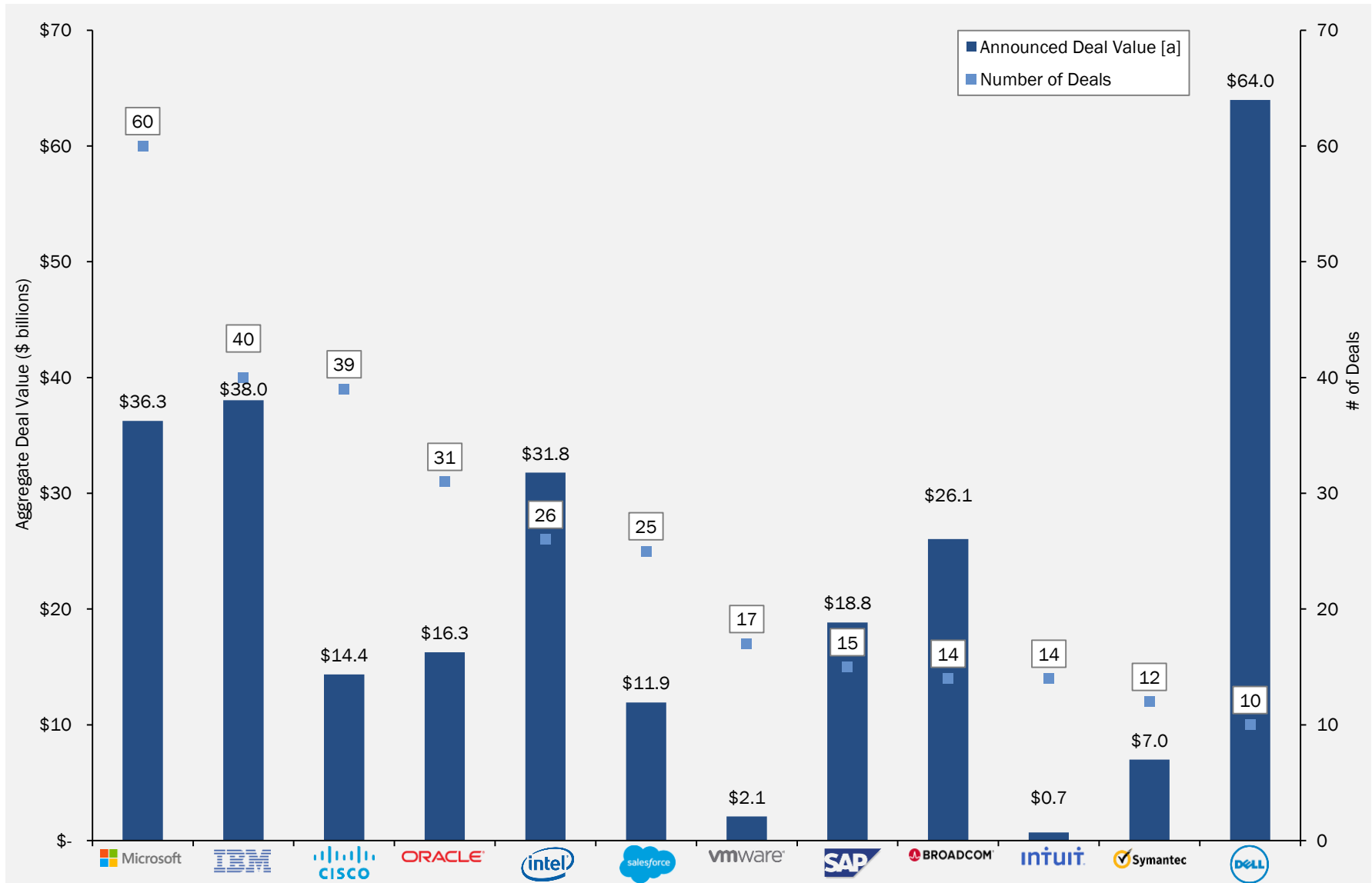


[a] Includes only transactions for which data was publicly available

M&A Activity
# Most Active Strategic Software Acquirers

## 2014 – 4Q 2018 ($ millions)

| Announced | Target | Consideration % Cash | % Stock | Equity Value | Enterprise Value |
|---|---|---|---|---|---|
| **Broadcom Corporation** | | Known acquired value (since 2014): | | | $26,051 |
| 07/11/18 | CA Technologies | 100% | - | $18,900 | $18,400 |
| 04/09/18 | SourceClear | [a] - | - | - | - |
| 09/28/17 | Runscope | [a] - | - | - | - |
| 06/15/17 | zIT Consulting | [a] - | - | - | - |
| 03/07/17 | Veracode | [a] 100% | - | - | $614 |
| 12/28/16 | Mobile System 7 | [a] - | - | - | - |
| 12/01/16 | Automic Software | [a] - | - | - | $636 |
| 11/02/16 | Brocade Communications Systems | 100% | - | $5,500 | $5,900 |
| 09/20/16 | BlazeMeter | [a] 100% | - | - | - |
| 08/04/15 | Xceedium | [a] - | - | - | - |
| 06/08/15 | IdMlogic | [a] - | - | - | - |
| 06/04/15 | Grid Tools | [a] - | - | - | $21 |
| 05/27/15 | Rally Software | [a] 100% | - | - | $480 |
| 10/28/14 | Identropy (SCUID assets) | [a] - | - | - | - |
| **Cisco Systems** | | Known acquired value (since 2014): | | | $14,351 |
| 12/18/18 | Luxtera | - | - | - | $660 |
| 11/21/18 | Ensoft | - | - | - | - |
| 08/02/18 | Duo Security | 100% | - | - | $2,350 |
| 06/19/18 | July Systems | - | - | - | - |
| 05/01/18 | Accompany | 100% | - | - | $270 |
| 01/24/18 | Skyport Systems | - | - | - | - |
| 12/07/17 | 47Line Technologies | - | - | - | - |
| 10/23/17 | BroadSoft | - | - | $1,737 | $1,900 |
| 10/19/17 | Perspica | - | - | - | - |
| 08/21/17 | Springpath | 100% | - | - | $320 |
| 07/13/17 | Observable Networks | - | - | - | - |
| 05/11/17 | MindMeld | - | - | - | $125 |
| 05/04/17 | Saggezza (assets) | - | - | - | - |
| 05/01/17 | Viptela | 100% | - | - | $610 |
| 01/24/17 | AppDynamics | - | - | $3,700 | $3,593 |
| 10/17/16 | Heroik Labs | - | - | - | - |
| 08/30/16 | ContainerX | - | - | - | - |
| 06/28/16 | CloudLock | - | - | - | $293 |
| 03/08/16 | Synata | - | - | - | - |
| 03/02/16 | Leaba Semiconductor | 100% | - | - | $320 |
| 03/01/16 | CliQr Technologies | 100% | - | - | $260 |
| 02/03/16 | Jasper Technologies | - | - | - | $1,400 |
| 11/20/15 | Acano | 100% | - | - | $700 |
| 10/28/15 | 1 Mainstream | - | - | - | - |
| 10/27/15 | Lancope | 100% | - | - | $453 |
| 10/26/15 | ParStream | - | - | - | - |
| 10/13/15 | Pawaa Software | - | - | - | - |

| Announced | Target | Consideration % Cash | % Stock | Equity Value | Enterprise Value |
|---|---|---|---|---|---|
| **Cisco Systems (continued)** | | | | | |
| 09/30/15 | Portcullis Computer Security | - | - | - | - |
| 07/07/15 | MaintenanceNet | - | - | - | $139 |
| 06/30/15 | OpenDNS | 100% | - | - | $635 |
| 06/03/15 | Piston Cloud Computing | - | - | - | - |
| 05/07/15 | Tropo | - | - | - | - |
| 04/01/15 | Embrane | - | - | - | - |
| 12/10/14 | Neohapsis | - | - | - | - |
| 09/18/14 | Memoir Systems | - | - | - | - |
| 09/17/14 | Metacloud | - | - | - | $149 |
| 06/27/14 | Assemblage | - | - | - | - |
| 06/17/14 | Tail-f Systems | - | - | - | $175 |
| 05/21/14 | ThreatGRID | - | - | - | - |
| **Dell** | | Known acquired value (since 2014): | | | $63,978 |
| 10/12/15 | EMC | 73% | 27.0% | $63,100 | $62,778 |
| 05/26/15 | Virtustream | [a] 100% | - | - | $1,200 |
| 04/16/15 | Cloudlink Technologies | [a] - | - | - | - |
| 10/28/14 | Maginatics | [a] - | - | - | - |
| 10/28/14 | Spanning Cloud Apps | [a] - | - | - | - |
| 10/13/14 | Cloudscaling | [a] - | - | - | - |
| 07/08/14 | Symplified (IP assets) | [a] - | - | - | - |
| 07/08/14 | TwinStrata | [a] - | - | - | - |
| 05/05/14 | DSSD | [a] - | - | - | - |
| 03/24/14 | StatSoft | - | - | - | - |
| **IBM** | | Known acquired value (since 2014): | | | $38,033 |
| 10/28/18 | Red Hat | 100% | - | $33,435 | $34,026 |
| 06/15/18 | Oniqua | - | - | - | - |
| 05/03/18 | Armanta | - | - | - | - |
| 10/04/17 | Vivant Digital | - | - | - | - |
| 09/14/17 | Cloudigo | - | - | - | - |
| 05/31/17 | TIMETOACT GROUP | - | - | - | - |
| 05/02/17 | Verizon (assets) | - | - | - | - |
| 01/23/17 | Agile 3 Solutions | - | - | - | - |
| 11/01/16 | Fluid (assets) | - | - | - | - |
| 10/27/16 | Sanovi Technologies | - | - | - | - |
| 06/01/16 | EZ Legacy | - | - | - | - |
| 03/31/16 | Bluewolf | - | - | - | $240 |
| 03/18/16 | Optevia | - | - | - | - |
| 02/29/16 | Resilient Systems | - | - | - | - |
| 02/18/16 | Truven Health Analytics | 100% | - | - | $2,600 |
| 02/03/16 | Ecx International | - | - | - | - |
| 02/02/16 | Aperto | - | - | - | - |

Sidebar: Broadcom · Cisco · Dell · IBM · Intel · Intuit · Microsoft · Oracle · Salesforce · SAP · Symantec · VMware

[a] Acquired by CA Technologies prior to its acquisition by Broadcom; acquired by EMC prior to its acquisition by Dell
Note: "Known acquired value" includes only transactions for which data was publicly available

# Most Active Strategic Software Acquirers continued

## 2014 – 4Q 2018 ($ millions)

| Announced | Target | Consideration % Cash | % Stock | Equity Value | Enterprise Value |
|---|---|---|---|---|---|
| **IBM (continued)** | | | | | |
| 01/28/16 | Resource/Ammirati | - | - | - | - |
| 01/21/16 | Ustream | 100% | - | - | $130 |
| 01/15/16 | IRIS Analytics | - | - | - | - |
| 12/08/15 | Clearleap | - | - | - | - |
| 11/03/15 | Gravitant | 100% | - | - | - |
| 10/28/15 | The Weather Company (assets) | - | - | - | - |
| 10/05/15 | Cleversafe | - | - | - | - |
| 09/28/15 | Meteorix | 100% | - | - | $120 |
| 09/24/15 | Advanced Application | 100% | - | - | $13 |
| 09/10/15 | StrongLoop | - | - | - | - |
| 08/17/15 | Appcore (cloud automation assets) | - | - | - | - |
| 08/06/15 | Merge Healthcare | 100% | - | - | $904 |
| 07/23/15 | Compose | - | - | - | - |
| 06/03/15 | Blue Box Group | - | - | - | - |
| 04/13/15 | Phytel | - | - | - | - |
| 04/13/15 | Explorys | - | - | - | - |
| 03/27/15 | Blekko (assets) | - | - | - | - |
| 03/04/15 | AlchemyAPI | - | - | - | - |
| 08/11/14 | Lighthouse Security Group (assets) | - | - | - | - |
| 07/31/14 | CrossIdeas | - | - | - | - |
| 05/20/14 | Cognea | - | - | - | - |
| 04/10/14 | Silverpop Systems | - | - | - | - |
| 02/24/14 | Cloudant | - | - | - | - |
| **Intel** | | Known acquired value (since 2014): | | | $31,786 |
| 09/10/18 | NetSpeed Systems | - | - | - | - |
| 08/16/18 | Vertex.AI | - | - | - | - |
| 07/12/18 | eASIC | - | - | - | - |
| 03/08/18 | TunnelBear | [a] - | - | - | - |
| 03/13/17 | Mobileye | 100% | - | $14,700 | $15,300 |
| 11/03/16 | Voke | - | - | - | - |
| 09/05/16 | Movidius | - | - | - | - |
| 08/10/16 | Nervana Systems | - | - | - | - |
| 05/26/16 | Itseez | - | - | - | - |
| 04/05/16 | Yogitech | - | - | - | - |
| 03/09/16 | Replay Technologies | - | - | - | - |
| 01/04/16 | Ascending Technologies | - | - | - | - |
| 10/26/15 | Saffron Technology | - | - | - | - |
| 10/01/15 | VIA Telecom (assets) | - | - | - | - |
| 08/24/15 | Docea Power | - | - | - | - |
| 06/16/15 | Recon Instruments | - | - | - | - |
| 06/01/15 | Altera | 100% | - | $16,700 | $15,817 |
| 03/25/15 | Lemoptix | - | - | - | - |

| Announced | Target | Consideration % Cash | % Stock | Equity Value | Enterprise Value |
|---|---|---|---|---|---|
| **Intel (continued)** | | | | | |
| 02/02/15 | Lantiq | - | - | - | - |
| 01/20/15 | Composyt Light Labs | - | - | - | - |
| 12/01/14 | PasswordBox | - | - | - | - |
| 09/10/14 | Powerwave | - | - | - | - |
| 08/13/14 | LSI | 100% | - | - | $650 |
| 05/09/14 | Ginger Software (assets) | - | - | - | - |
| 04/01/14 | INSIDE Secure (assets) | 100% | - | - | $19 |
| 03/04/14 | BASIS Science | - | - | - | - |
| **Intuit** | | Known acquired value (since 2014): | | | $700 |
| 01/29/18 | Applatix | - | - | - | - |
| 12/05/17 | TSheets | 100% | - | - | $340 |
| 10/26/17 | Exactor | - | - | - | - |
| 10/10/16 | MTS Global | - | - | - | - |
| 03/24/15 | Playbook HR | - | - | - | - |
| 02/05/15 | Porticor | - | - | - | - |
| 01/21/15 | ZeroPaper | - | - | - | - |
| 12/10/14 | Acrede | - | - | - | - |
| 08/13/14 | Itrios | - | - | - | - |
| 08/07/14 | PaySuite | - | - | - | - |
| 07/30/14 | KDK Softwaress | - | - | - | - |
| 05/27/14 | Check | - | - | - | $360 |
| 05/14/14 | Invitco | - | - | - | - |
| 05/08/14 | Lettuce | - | - | - | - |
| **Microsoft** | | Known acquired value (since 2014): | | | $36,255 |
| 11/19/18 | FSLogix | - | - | - | - |
| 11/14/18 | XOXCO | - | - | - | - |
| 11/12/18 | InXile Entertainment | - | - | - | - |
| 09/13/18 | Lobe Artificial Intelligence | - | - | - | - |
| 06/20/18 | Bonsai AI | - | - | - | - |
| 06/04/18 | GitHub | - | 100% | - | $7,500 |
| 04/02/18 | Forerunner Software (BI assets) | - | - | - | - |
| 02/13/18 | Chalkup | - | - | - | - |
| 01/29/18 | PlayFab | 100% | - | - | - |
| 01/03/18 | Avere Systems | - | - | - | - |
| 11/06/17 | Swing Technologies (assets) | - | - | - | - |
| 10/03/17 | AltspaceVR | - | - | - | - |
| 08/15/17 | Cycle Computing | - | - | - | - |
| 06/29/17 | Cloudyn | 100% | - | - | $55 |
| 05/24/17 | Hexadite | - | - | - | - |
| 04/18/17 | Intentional Software | - | - | - | - |
| 04/10/17 | Deis | - | - | - | - |

Sidebar acquirer list: Broadcom · Cisco · Dell · **IBM** · **Intel** · **Intuit** · **Microsoft** · Oracle · Salesforce · SAP · Symantec · VMware

continued

[a] Acquired by McAfee following its acquisition by Intel
Note: "Known acquired value" includes only transactions for which data was publicly available

# Most Active Strategic Software Acquirers continued

## 2014 – 4Q 2018 ($ millions)

| Announced | Target | Consideration % Cash | % Stock | Equity Value | Enterprise Value |
|---|---|---|---|---|---|
| **Microsoft (continued)** | | | | | |
| 04/10/17 | Deis | - | - | - | - |
| 01/17/17 | Donya Labs | - | - | - | - |
| 01/13/17 | Maluuba | - | - | - | - |
| 11/08/16 | Beam Interactive | - | - | - | - |
| 08/22/16 | Genee | - | - | - | - |
| 06/16/16 | Wand Labs | - | - | - | - |
| 06/13/16 | LinkedIn | 100% | - | - | $26,200 |
| 05/03/16 | Solair | - | - | - | - |
| 02/24/16 | Xamarin | - | - | - | - |
| 02/09/16 | Zikera (Groove assets) | - | - | - | - |
| 02/03/16 | TouchType | - | - | - | - |
| 01/19/16 | Teacher Gaming (assets) | - | - | - | - |
| 01/13/16 | Event Zero (UC Commander assets) | - | - | - | - |
| 12/21/15 | Talko (assets) | - | - | - | - |
| 12/18/15 | Metanautix | - | - | - | - |
| 11/09/15 | Secure Islands Technologies | - | - | - | - |
| 11/05/15 | Mobile Data Labs | - | - | - | - |
| 10/02/15 | Havok (assets) | - | - | - | - |
| 09/29/15 | Sensei Project Solutions (assets) | - | - | - | - |
| 09/28/15 | Adxstudio (assets) | - | - | - | - |
| 09/12/15 | Double Labs | - | - | - | - |
| 09/08/15 | Adallom | - | - | - | - |
| 09/03/15 | VoloMetrix | - | - | - | - |
| 08/03/15 | Incent Games | - | - | - | - |
| 07/16/15 | FieldOne | - | - | - | - |
| 06/10/15 | BlueStripe Software | - | - | - | - |
| 06/02/15 | 6Wunderkinder GmbH | - | - | - | - |
| 04/14/15 | Datazen Software | - | - | - | - |
| 03/26/15 | LiveLoop | - | - | - | - |
| 02/12/15 | N-trig | - | - | - | - |
| 02/04/15 | Sunrise Atelier | - | - | - | - |
| 01/23/15 | Revolution Analytics | 100% | - | - | - |
| 01/20/15 | Equivio | - | - | - | - |
| 12/11/14 | Bit Stadium | - | - | - | - |
| 12/01/14 | Acompli | - | - | - | - |
| 11/13/14 | Aorato | - | - | - | - |
| 09/15/14 | Mojang AB | - | - | - | $2,500 |
| 07/11/14 | InMage Systems | - | - | - | - |
| 05/28/14 | Capptain | - | - | - | - |
| 05/01/14 | GreenButton Limited | - | - | - | - |
| 03/04/14 | Junction Solutions (JunctionMCR) | - | - | - | - |
| 01/27/14 | Epic Games (assets) | - | - | - | - |
| 01/07/14 | Parature | - | - | - | - |

| Announced | Target | Consideration % Cash | % Stock | Equity Value | Enterprise Value |
|---|---|---|---|---|---|
| **Oracle** | Known acquired value (since 2014): | | | | $16,260 |
| 11/15/18 | Talari Networks | - | - | - | - |
| 10/22/18 | DataFox | - | - | - | - |
| 10/17/18 | goBalto | - | - | - | - |
| 09/25/18 | Iridize | - | - | - | - |
| 05/16/18 | Datascience | - | - | - | - |
| 04/30/18 | Vocado | - | - | - | - |
| 02/15/18 | Zenedge | - | - | - | - |
| 12/17/17 | Aconex | 100% | - | - | $1,200 |
| 04/18/17 | Moat | - | - | - | - |
| 04/17/17 | Wercker US | - | - | - | - |
| 03/13/17 | Webtrends (marketing analytics assets) | - | - | - | - |
| 01/19/17 | Apiary | - | - | - | - |
| 11/21/16 | Dyn | - | - | - | - |
| 09/18/16 | Palerra | - | - | - | - |
| 09/07/16 | LogFire | - | - | - | - |
| 07/28/16 | NetSuite | 100% | - | $9,300 | $9,174 |
| 05/02/16 | Opower | 100% | - | - | $532 |
| 04/28/16 | Textura | 100% | - | - | $663 |
| 04/14/16 | Crosswise | 100% | - | - | $50 |
| 02/22/16 | Ravello Systems | - | - | - | - |
| 01/05/16 | AddThis | 100% | - | - | - |
| 12/18/15 | StackEngine | - | - | - | - |
| 08/20/15 | Maxymiser | - | - | - | - |
| 12/22/14 | Datalogix | - | - | - | - |
| 09/14/14 | Front Porch Digital | - | - | - | - |
| 07/31/14 | TOA Technologies | - | - | - | - |
| 06/23/14 | MICROS Systems | 100% | - | $5,300 | $4,642 |
| 06/20/14 | LiveLOOK | - | - | - | - |
| 05/15/14 | GreenBytes | - | - | - | - |
| 02/24/14 | BlueKai | - | - | - | - |
| 01/07/14 | Corente | - | - | - | - |
| **Salesforce.com** | Known acquired value (since 2014): | | | | $11,928 |
| 10/05/18 | Rebel | - | - | - | - |
| 07/16/18 | Datorama | 16% | 83.7% | $744 | $726 |
| 03/20/18 | MuleSoft | 80% | 20.0% | $6,580 | $6,500 |
| 03/12/18 | CloudCraze | - | - | - | - |
| 01/08/18 | Attic Labs | - | - | - | - |
| 01/24/17 | Sequence | - | - | - | $26 |
| 01/13/17 | Unity&Variety | - | - | - | - |
| 12/13/16 | Twin Prime | - | - | - | - |
| 10/04/16 | Krux | 50% | 50.0% | - | $680 |
| 09/15/16 | Gravity Tank | - | - | - | - |

Broadcom

Cisco

Dell

IBM

Intel

Intuit

Microsoft

Oracle

Salesforce

SAP

Symantec

VMware

Note: "Known acquired value" includes only transactions for which data was publicly available

# Most Active Strategic Software Acquirers continued

## 2014 – 4Q 2018 ($ millions)

| Announced | Target | Consideration | | Equity Value | Enterprise Value |
|---|---|---|---|---|---|
| | | % Cash | % Stock | | |
| **Salesforce.com (continued)** | | | | | |
| 09/07/16 | Heywire | - | - | - | - |
| 08/15/16 | BeyondCore | - | - | - | $110 |
| 08/01/16 | Quip | - | 100% | - | $410 |
| 07/21/16 | Coolan | - | - | - | - |
| 06/01/16 | Demandware | 100% | - | - | $2,800 |
| 05/09/16 | Implisit | - | - | - | - |
| 04/04/16 | MetaMind | - | - | - | - |
| 02/19/16 | TappingStone | - | - | - | - |
| 12/23/15 | SteelBrick | - | 100% | $360 | $300 |
| 12/14/15 | MinHash | - | - | - | - |
| 09/02/15 | AKTA | - | - | - | - |
| 06/25/15 | Kerensen Consulting SAS | 100% | - | - | $24 |
| 05/29/15 | Tempo.ai | - | - | - | - |
| 04/01/15 | Toopher | - | - | - | - |
| 07/10/14 | RelateIQ | - | 100% | $392 | $352 |
| | | | | | |
| **SAP** | | Known acquired value (since 2014): | | | $18,838 |
| 11/19/18 | Contextor | - | - | - | - |
| 11/11/18 | Qualtrics | 100% | - | - | $8,000 |
| 06/05/18 | Coresystems | - | - | - | - |
| 01/30/18 | CallidusCloud | 100% | - | - | $2,400 |
| 01/22/18 | Recast.AI SAS | - | - | - | - |
| 09/24/17 | Gigya | - | - | - | $325 |
| 12/14/16 | Abakus | - | - | - | - |
| 09/28/16 | PLAT.ONE | - | - | - | - |
| 09/27/16 | Altiscale | - | - | - | - |
| 06/21/16 | Fedem Technology | - | - | - | - |
| 02/16/16 | MeLLmo | - | - | - | - |
| 10/13/15 | Multiposting | - | - | - | - |
| 09/18/14 | Concur Technologies | - | - | $8,300 | $8,113 |
| 05/20/14 | SeeWhy | - | - | - | - |
| 03/26/14 | Fieldglass | - | - | - | - |
| | | | | | |
| **Symantec** | | Known acquired value (since 2014): | | | $6,989 |
| 11/05/18 | Appthority | - | - | - | - |
| 11/05/18 | Javelin Networks | - | - | - | - |
| 11/06/17 | SurfEasy | 100% | - | - | $39 |
| 10/25/17 | Outlier Security | - | - | - | - |
| 07/11/17 | Skycure | - | - | - | - |
| 07/06/17 | Fireglass | - | - | - | - |
| 06/03/17 | Watchful Software | - | - | - | - |
| 11/20/16 | LifeLock | 100% | - | $2,335 | $2,300 |

| Announced | Target | Consideration | | Equity Value | Enterprise Value |
|---|---|---|---|---|---|
| | | % Cash | % Stock | | |
| **Symantec (continued)** | | | | | |
| 06/12/16 | Blue Coat Systems | 100% | - | - | $4,650 |
| 08/20/15 | Blackfin Security Group | - | - | - | - |
| 01/12/15 | Narus | - | - | - | - |
| 05/28/14 | Nitrodesk | - | - | - | - |
| | | | | | |
| **VMware** | | Known acquired value (since 2014): | | | $2,090 |
| 11/06/18 | Heptio | 100% | - | - | $550 |
| 08/27/18 | CloudHealth Technologies | - | - | - | - |
| 03/28/18 | E8 Security | - | - | - | - |
| 02/22/18 | CloudVelox (Talent and technology assets) | - | - | - | - |
| 02/14/18 | CloudCoreo | - | - | - | - |
| 11/02/17 | VeloCloud Networks | 100% | - | - | - |
| 05/15/17 | Apteligent | 100% | - | - | - |
| 04/12/17 | Wavefront | - | - | - | - |
| 12/19/16 | PLUMgrid | - | - | - | - |
| 06/13/16 | Arkin Net | - | - | - | - |
| 10/14/15 | Boxer | - | - | - | - |
| 02/03/15 | Immidio | - | - | - | - |
| 10/29/14 | Continuent (assets) | - | - | - | - |
| 08/20/14 | CloudVolumes | - | - | - | - |
| 08/04/14 | Virtual System (cloud migration assets) | - | - | - | - |
| 03/06/14 | Third Sky | - | - | - | - |
| 01/22/14 | AirWatch | 76% | 24% | - | $1,540 |

Broadcom

Cisco

Dell

IBM

Intel
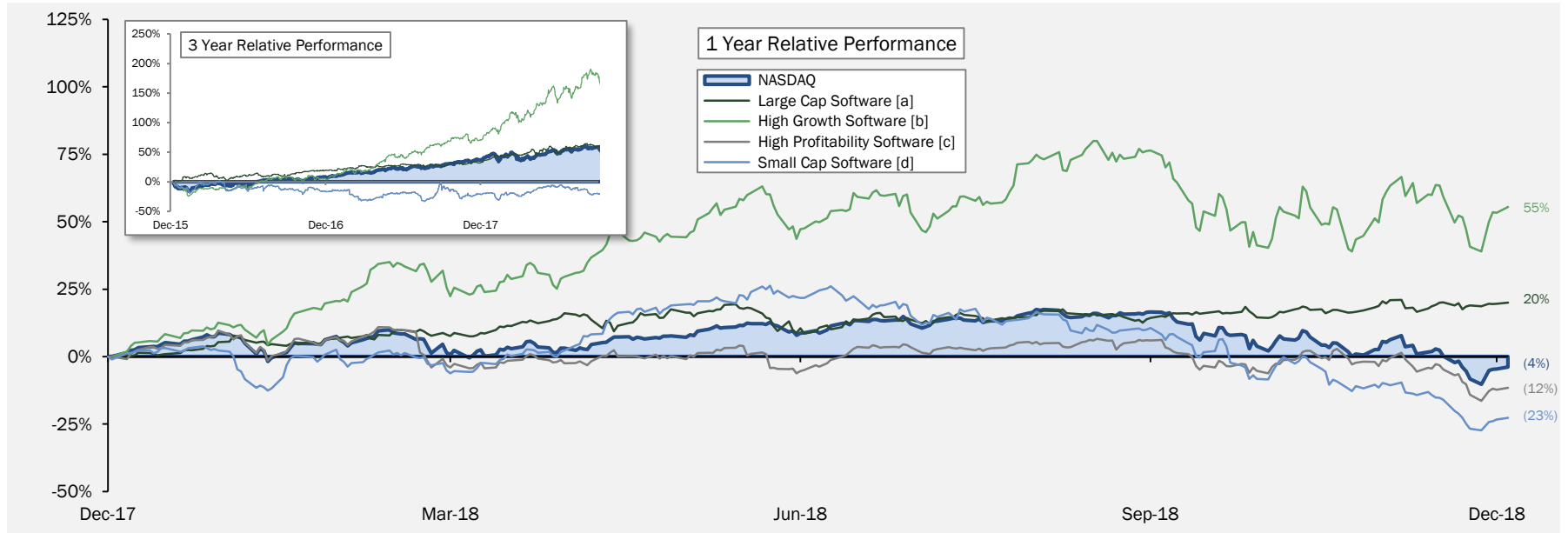
Intuit

Microsoft

Oracle

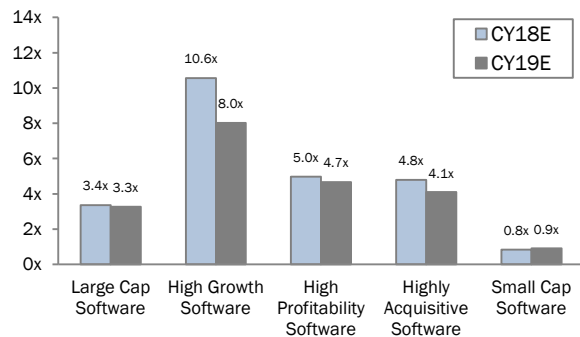Salesforce

SAP

Symantec

VMware

Note: "Known acquired value" includes only transactions for which data was publicly available
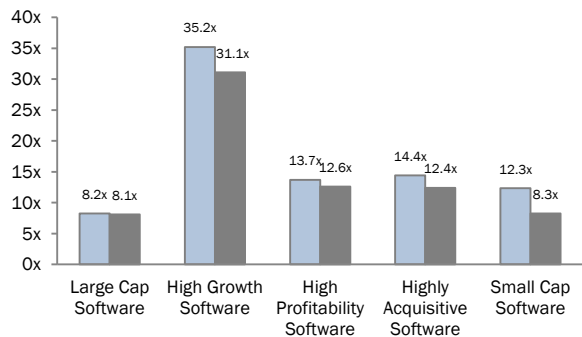
# Public Equity Market Valuations

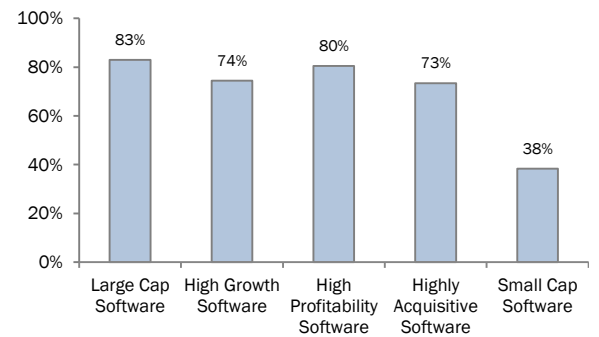## LTM Relative Performance of Shea & Company Software Indices



**1 Year Relative Performance**

- NASDAQ
- Large Cap Software [a]
- High Growth Software [b]
- High Profitability Software [c]
- Small Cap Software [d]

**3 Year Relative Performance**

End-of-period values: 55%, 20%, (4%), (12%), (23%)

### Median EV / Revenue

| | Large Cap Software | High Growth Software | High Profitability Software | Highly Acquisitive Software | Small Cap Software |
|---|---|---|---|---|---|
| CY18E | 3.4x | 10.6x | 5.0x | 4.8x | 0.8x |
| CY19E | 3.3x | 8.0x | 4.7x | 4.1x | 0.9x |

### Median EV / EBITDA

| | Large Cap Software | High Growth Software | High Profitability Software | Highly Acquisitive Software | Small Cap Software |
|---|---|---|---|---|---|
| CY18E | 8.2x | 35.2x | 13.7x | 14.4x | 12.3x |
| CY19E | 8.1x | 31.1x | 12.6x | 12.4x | 8.3x |

### Median % of 52 Week High

| Large Cap Software | High Growth Software | High Profitability Software | Highly Acquisitive Software | Small Cap Software |
|---|---|---|---|---|
| 83% | 74% | 80% | 73% | 38% |

Note: EV / EBITDA multiples in excess of 50x or less than 0x are considered to be not meaningful
Sources: Company releases, Wall Street research
[a] Large Cap Software includes: MSFT, ORCL, INTC, CSCO, IBM, SAP, HPE, DELL
[b] High Growth Software includes: ADSK, APPF, AYX, CDLX, DATA, EVBG, HUBS, MDB, NEWR, NOW, NTNX, OKTA, PS, PSTG, QTWO, SHOP, SMAR, SSNC, TEAM, TENB, TWLO, TWOU, UPLD, VERI, WDAY, WIX, XRO, YEXT, ZEN, ZS, ZUO
[c] High Profitability Software includes: AKAM, ANSS, AZPN, CHKP, CSCO, CTXS, FFIV, FIS, FISV, INTC, INTU, JCOM, LOGM, MCRO, MSCI, MSFT, ORCL, OTEX, PAYC, PRGS, QLYS, SSNC, SWX:TEMN, SYMC, UPLD, VEEV, VMW, VRSN
[d] Small Cap Software includes: AMBR, ASUR, AVID, BOXL, CDLX, CYRN, DTRM, EGAN, FALC, MRIN, NTWK, RUBI, SREV, TISA, TSX:ABT, TSX:NXJ, VERI
Highly Acquisitive Software includes: DHR, ROP, TSX:CSU, SSNC, OTEX, MCRO, JCOM, EPAY, TSX:DSG, TSX:ENGH, UPLD, ASUR

# Price Performance and Valuation Metrics by Segment

**Median EV / Revenue**

Legend: CY18E | CY19E | Median CY18E | Median CY19E

| Segment | CY18E | CY19E |
|---|---|---|
| Content Mgmt | 8.6x | 7.0x |
| Tech. & Embedded Apps | 8.0x | 7.4x |
| Comm. | 9.6x | 7.8x |
| HCM | 7.3x | 6.3x |
| Vertical Apps | 6.8x | 6.3x |
| Financial Apps | 6.0x | 5.5x |
| IT Security | 5.7x | 4.9x |
| eCommerce & Supply Chain Mgmt | 5.1x | 4.7x |
| Sales & Marketing Apps | 6.1x | 4.7x |
| IT Ops. Mgmt | 4.4x | 4.0x |
| ERP & General Business Apps | 5.7x | 4.9x |
| Platforms, Dev Tools & Deployment | 4.0x | 3.9x |
| BI | 5.0x | 4.1x |
| Storage Mgmt | 3.2x | 3.0x |
| App Delivery & Network Acceleration | 3.3x | 3.1x |
| Global Diversified | 3.4x | 3.3x |
| Network Infra. | 0.7x | 0.7x |
| High Growth | 10.6x | 8.0x |
| SaaS | 7.6x | 6.2x |
| High Profitability | 5.0x | 4.7x |
| Highly Acquisitive | 4.8x | 4.1x |
| Small Cap | 0.8x | 0.9x |

**Median EV / EBITDA**

| Segment | CY18E | CY19E |
|---|---|---|
| Content Mgmt | nm | 16.1x |
| Tech. & Embedded Apps | 20.0x | 18.7x |
| Comm. | 10.4x | 9.7x |
| HCM | 31.3x | 23.2x |
| Vertical Apps | 22.4x | 20.1x |
| Financial Apps | 17.1x | 16.6x |
| IT Security | 23.8x | 19.7x |
| eCommerce & Supply Chain Mgmt | 19.6x | 19.7x |
| Sales & Marketing Apps | 29.0x | 27.9x |
| IT Ops. Mgmt | 13.6x | 13.9x |
| ERP & General Business Apps | 25.3x | 14.5x |
| Platforms, Dev Tools & Deployment | 8.0x | 8.2x |
| BI | 20.8x | 24.2x |
| Storage Mgmt | 20.5x | 15.5x |
| App Delivery & Network Acceleration | 10.3x | 11.3x |
| Global Diversified | 8.2x | 8.1x |
| Network Infra. | 7.6x | 7.3x |
| High Growth | 35.2x | 31.1x |
| SaaS | 25.7x | 22.1x |
| High Profitability | 13.7x | 12.6x |
| Highly Acquisitive | 14.4x | 12.4x |
| Small Cap | 12.3x | 8.3x |

**Median % of 52 Week High**

| Segment | % |
|---|---|
| Content Mgmt | 81% |
| Tech. & Embedded Apps | 77% |
| Comm. | 84% |
| HCM | 76% |
| Vertical Apps | 74% |
| Financial Apps | 74% |
| IT Security | 75% |
| eCommerce & Supply Chain Mgmt | 77% |
| Sales & Marketing Apps | 73% |
| IT Ops. Mgmt | 79% |
| ERP & General Business Apps | 76% |
| Platforms, Dev Tools & Deployment | 70% |
| BI | 84% |
| Storage Mgmt | 58% |
| App Delivery & Network Acceleration | 80% |
| Global Diversified | 83% |
| Network Infra. | 66% |
| High Growth | 74% |
| SaaS | 76% |
| High Profitability | 80% |
| Highly Acquisitive | 73% |
| Small Cap | 38% |

Note: EV / EBITDA multiples in excess of 50x or less than 0x are considered to be not meaningful
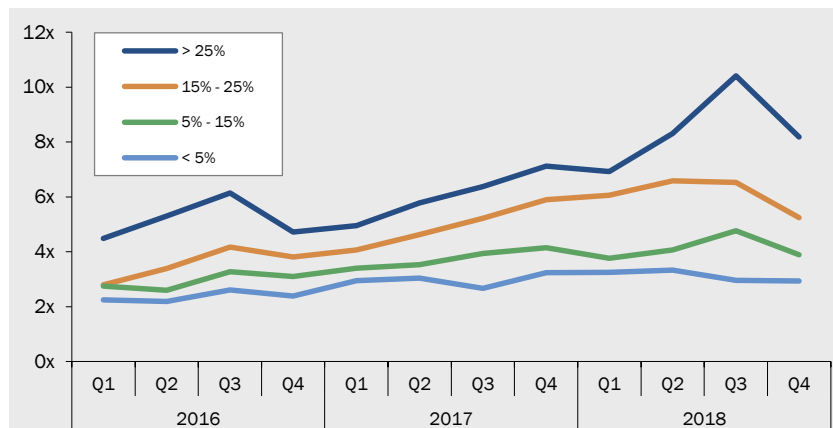Sources: Company releases, Wall Street research

# Equity Trading Multiples by Growth Tranche

## Market Valuations of Publicly Traded Software Companies by Growth Tranche

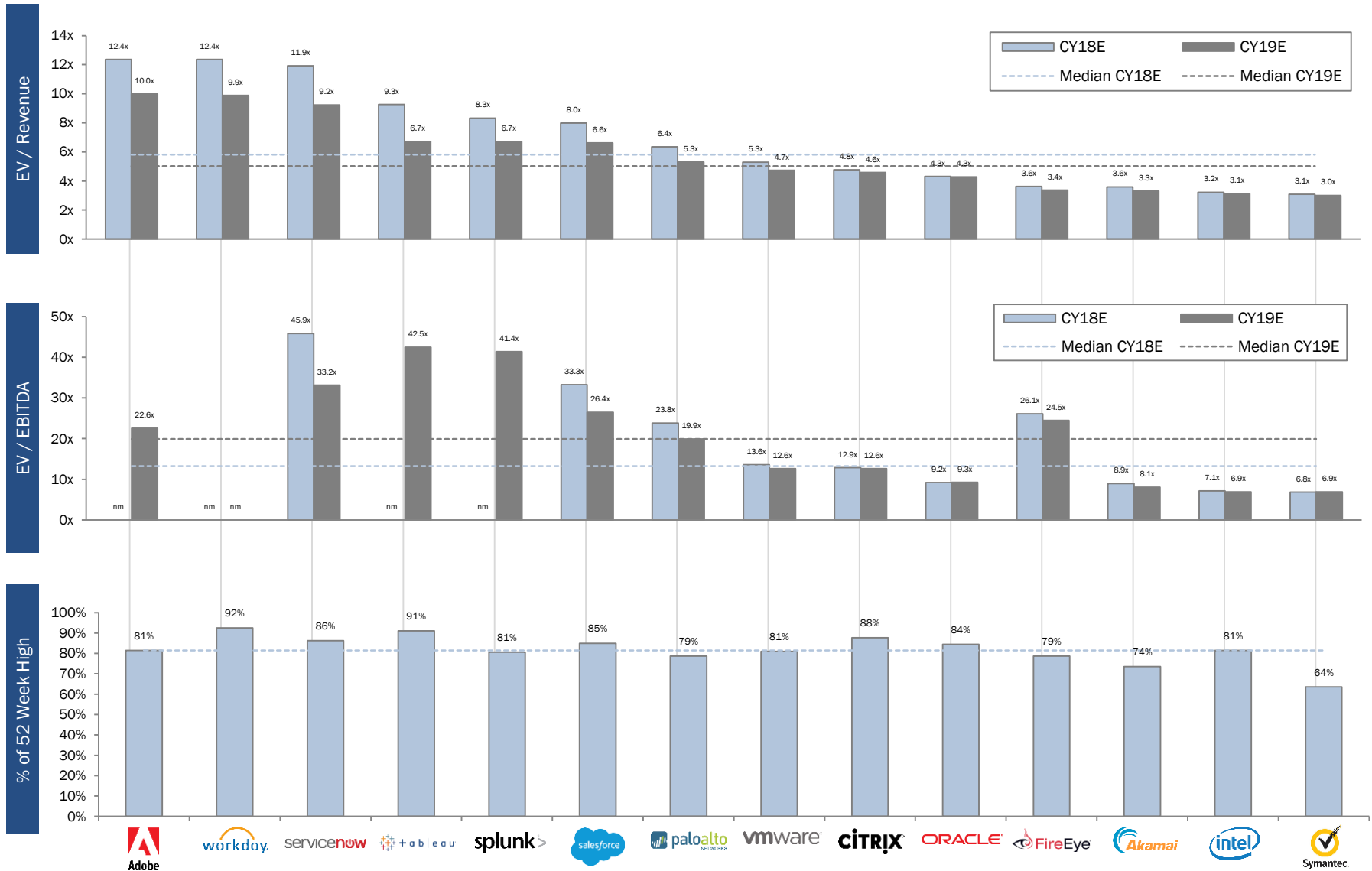| Revenue Growth | Date | EV / Revenue | | | | EV / EBITDA | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Current Year | | Forward Year | | Current Year | | Forward Year | |
| | | Mean | Median | Mean | Median | Mean | Median | Mean | Median |
| < 5% | Q4 2018 | 3.3 x | 2.9 x | 3.2 x | 2.9 x | 13.3 x | 9.6 x | 12.8 x | 9.4 x |
| | Q3 2018 | 3.6 | 3.1 | 3.5 | 3.0 | 13.1 | 11.0 | 12.1 | 10.5 |
| | Q2 2018 | 3.5 | 3.4 | 3.4 | 3.3 | 11.7 | 11.3 | 12.2 | 10.5 |
| | Q1 2018 | 3.3 | 3.3 | 3.2 | 3.2 | 11.6 | 11.0 | 12.2 | 10.5 |
| | Q4 2017 | 3.8 | 3.3 | 3.6 | 3.2 | 14.0 | 11.2 | 12.9 | 11.4 |
| | Q3 2017 | 3.4 | 2.7 | 3.2 | 2.7 | 11.6 | 10.7 | 11.0 | 10.2 |
| | Q2 2017 | 3.2 | 3.1 | 3.1 | 3.0 | 11.6 | 11.0 | 12.3 | 10.5 |
| | Q1 2017 | 2.9 | 3.0 | 2.9 | 2.9 | 10.6 | 10.5 | 9.9 | 9.5 |
| | Q4 2016 | 2.8 | 2.4 | 2.7 | 2.4 | 12.4 | 10.1 | 12.0 | 10.6 |
| | Q3 2016 | 3.0 | 2.7 | 2.9 | 2.6 | 11.4 | 9.8 | 11.4 | 9.8 |
| | Q2 2016 | 2.6 | 2.2 | 2.5 | 2.2 | 10.5 | 8.4 | 9.3 | 8.6 |
| | Q1 2016 | 2.5 | 2.3 | 2.5 | 2.2 | 10.2 | 9.5 | 8.9 | 8.9 |
| 5% - 15% | Q4 2018 | 4.6 x | 4.2 x | 4.2 x | 3.9 x | 21.7 x | 20.8 x | 19.3 x | 18.3 x |
| | Q3 2018 | 5.5 | 5.2 | 5.0 | 4.8 | 24.4 | 24.1 | 21.6 | 20.6 |
| | Q2 2018 | 5.0 | 4.4 | 4.5 | 4.1 | 22.7 | 20.7 | 19.6 | 18.0 |
| | Q1 2018 | 4.2 | 4.1 | 3.9 | 3.8 | 18.1 | 17.5 | 16.9 | 15.4 |
| | Q4 2017 | 4.5 | 4.5 | 4.2 | 4.1 | 21.2 | 19.4 | 17.7 | 16.8 |
| | Q3 2017 | 4.3 | 4.2 | 4.0 | 3.9 | 19.6 | 18.0 | 17.9 | 16.2 |
| | Q2 2017 | 4.1 | 3.8 | 3.7 | 3.5 | 17.8 | 16.3 | 16.6 | 14.5 |
| | Q1 2017 | 3.8 | 3.8 | 3.5 | 3.4 | 17.3 | 15.7 | 15.2 | 14.1 |
| | Q4 2016 | 3.9 | 3.4 | 3.5 | 3.1 | 17.3 | 16.7 | 15.5 | 14.9 |
| | Q3 2016 | 3.8 | 3.5 | 3.5 | 3.3 | 17.0 | 14.9 | 14.6 | 13.2 |
| | Q2 2016 | 3.5 | 2.8 | 3.2 | 2.6 | 15.2 | 14.2 | 13.9 | 12.3 |
| | Q1 2016 | 3.4 | 3.0 | 3.2 | 2.8 | 14.8 | 14.1 | 13.6 | 12.6 |
| 15% - 25% | Q4 2018 | 6.7 x | 6.2 x | 5.5 x | 5.2 x | 27.1 x | 26.6 x | 24.3 x | 22.6 x |
| | Q3 2018 | 8.5 | 7.8 | 7.0 | 6.5 | 32.0 | 33.0 | 28.6 | 28.5 |
| | Q2 2018 | 8.1 | 7.9 | 6.7 | 6.6 | 29.2 | 28.8 | 27.6 | 24.5 |
| | Q1 2018 | 7.3 | 7.1 | 6.0 | 6.1 | 29.4 | 27.0 | 26.9 | 24.0 |
| | Q4 2017 | 6.9 | 6.9 | 5.8 | 5.9 | 28.2 | 27.4 | 24.6 | 22.4 |
| | Q3 2017 | 6.3 | 6.3 | 5.2 | 5.2 | 27.5 | 26.2 | 23.7 | 21.3 |
| | Q2 2017 | 5.4 | 5.6 | 4.5 | 4.6 | 28.6 | 25.9 | 22.9 | 22.1 |
| | Q1 2017 | 4.7 | 4.8 | 3.9 | 4.1 | 24.8 | 23.7 | 20.6 | 20.1 |
| | Q4 2016 | 4.5 | 4.5 | 3.8 | 3.8 | 23.5 | 21.6 | 19.4 | 17.5 |
| | Q3 2016 | 4.7 | 5.2 | 3.9 | 4.2 | 24.7 | 23.6 | 19.2 | 19.3 |
| | Q2 2016 | 4.3 | 4.0 | 3.6 | 3.4 | 21.2 | 17.4 | 18.2 | 15.6 |
| | Q1 2016 | 3.7 | 3.3 | 3.1 | 2.8 | 21.7 | 18.1 | 18.2 | 16.3 |
| > 25% | Q4 2018 | 10.6 x | 10.6 x | 8.1 x | 8.2 x | 29.4 x | 29.0 x | 27.1 x | 30.7 x |
| | Q3 2018 | 12.9 | 13.3 | 9.8 | 10.4 | 42.2 | 42.2 | 35.1 | 36.2 |
| | Q2 2018 | 10.6 | 11.3 | 8.0 | 8.3 | 37.5 | 37.5 | 35.4 | 33.7 |
| | Q1 2018 | 8.3 | 8.8 | 6.3 | 6.9 | 42.4 | 42.5 | 33.7 | 32.0 |
| | Q4 2017 | 9.1 | 9.3 | 6.7 | 7.1 | 27.0 | 17.7 | 29.0 | 35.6 |
| | Q3 2017 | 9.2 | 8.3 | 6.6 | 6.4 | 29.6 | 28.1 | 31.7 | 34.8 |
| | Q2 2017 | 7.1 | 7.3 | 5.5 | 5.8 | 28.0 | 27.8 | 33.3 | 34.5 |
| | Q1 2017 | 6.4 | 6.5 | 5.0 | 4.9 | 39.2 | 39.2 | 33.3 | 34.9 |
| | Q4 2016 | 6.3 | 6.1 | 4.9 | 4.7 | 25.2 | 24.2 | 21.4 | 20.9 |
| | Q3 2016 | 8.3 | 8.6 | 6.4 | 6.1 | 28.7 | 34.9 | 29.0 | 27.6 |
| | Q2 2016 | 6.7 | 6.9 | 5.0 | 5.3 | 35.7 | 34.0 | 25.1 | 26.0 |
| | Q1 2016 | 5.6 | 5.8 | 4.3 | 4.5 | 33.6 | 38.7 | 28.4 | 27.1 |

## Forward Year Median EV / Revenue by Growth Tranche



## Forward Year Median EV / EBITDA by Growth Tranche



Note: EV / EBITDA multiples in excess of 50x or less than 0x are considered to be not meaningful
Sources: Company releases, Wall Street research
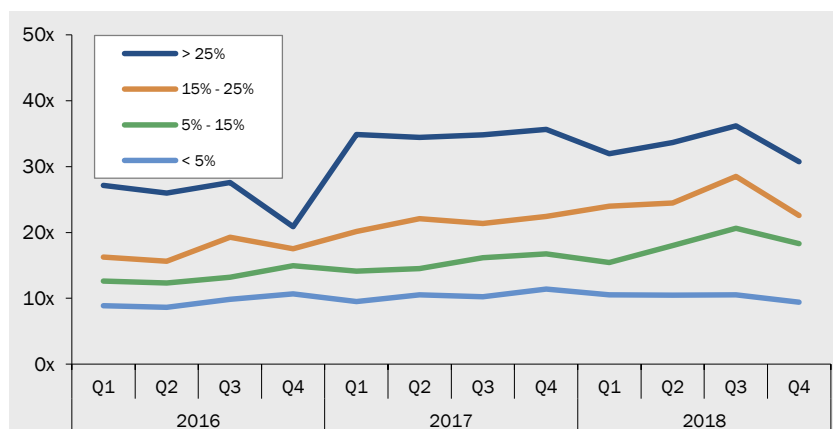
# Price Performance and Valuation Metrics of Selected Software Vendors



Note: EV / EBITDA multiples in excess of 50x or less than 0x are considered to be not meaningful
Sources: Company releases, Wall Street research

# Equity Trading Multiples by Segment

| ($ millions) | | |
|---|---|---|

| Company | Share Price (12/31/18) | Market Value | Enterprise Value | Revenue [a] CY18E | CY19E | y/y | EV / Revenue CY18E | CY19E | EBITDA [a] CY18E | mgn | CY19E | mgn | EV / EBITDA [b] CY18E | CY19E | P / E Multiple [b] CY18E | CY19E |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Global Diversified** | | | | | | | | | | | | | | | | |
| Microsoft | $ 101.57 | $ 779,805 | $ 731,962 | $ 118,467 | $ 130,439 | 10% | 6.2x | 5.6x | $ 49,866 | 42% | $ 55,567 | 43% | 14.7x | 13.2x | 23.6x | 21.9x |
| Intel | 46.93 | 214,189 | 228,877 | 71,220 | 73,348 | 3% | 3.2x | 3.1x | 32,075 | 45% | 32,997 | 45% | 7.1x | 6.9x | 10.3x | 10.3x |
| Cisco Systems | 43.33 | 194,810 | 177,862 | 50,804 | 52,312 | 3% | 3.5x | 3.4x | 17,966 | 35% | 18,506 | 35% | 9.9x | 9.6x | 15.3x | 13.7x |
| Oracle | 45.15 | 162,040 | 171,425 | 39,758 | 40,025 | 1% | 4.3x | 4.3x | 18,615 | 47% | 18,524 | 46% | 9.2x | 9.3x | 13.6x | 12.7x |
| SAP | 99.83 | 119,155 | 122,564 | 28,120 | 30,498 | 8% | 4.4x | 4.0x | 9,201 | 33% | 10,168 | 33% | 13.3x | 12.1x | 20.0x | 18.1x |
| IBM | 113.67 | 103,303 | 136,019 | 79,755 | 79,246 | -1% | 1.7x | 1.7x | 18,731 | 23% | 19,720 | 25% | 7.3x | 6.9x | 8.2x | 8.2x |
| Dell | 48.87 | 35,110 | 73,126 | 90,871 | 94,591 | 4% | 0.8x | 0.8x | 10,113 | 11% | 11,141 | 12% | 7.2x | 6.6x | 7.3x | 6.9x |
| HP Enterprise | 13.21 | 18,477 | 25,773 | 30,836 | 31,054 | 1% | 0.8x | 0.8x | 5,397 | 18% | 5,317 | 17% | 4.8x | 4.8x | 8.3x | 8.2x |
| Mean | | $203,361 | $208,451 | $63,729 | $66,439 | 4% | 3.1x | 3.0x | $20,246 | 32% | $21,492 | 32% | 9.2x | 8.7x | 13.3x | 12.5x |
| Median | | 140,597 | 153,722 | 61,012 | 62,830 | 3% | 3.4x | 3.3x | 18,290 | 34% | 18,515 | 34% | 8.2x | 8.1x | 12.0x | 11.5x |
| **Application Delivery & Network Acceleration** | | | | | | | | | | | | | | | | |
| Citrix Systems | $ 102.46 | $ 13,808 | $ 14,131 | $ 2,963 | $ 3,085 | 4% | 4.8x | 4.6x | $ 1,099 | 37% | $ 1,118 | 36% | 12.9x | 12.6x | 18.4x | 16.9x |
| Akamai Technologies | 61.08 | 9,948 | 9,691 | 2,704 | 2,920 | 8% | 3.6x | 3.3x | 1,084 | 40% | 1,200 | 41% | 8.9x | 8.1x | 17.2x | 15.1x |
| F5 Networks | 162.03 | 9,823 | 8,784 | 2,186 | 2,259 | 3% | 4.0x | 3.9x | 851 | 39% | 884 | 39% | 10.3x | 9.9x | 15.9x | 14.9x |
| Radware | 22.71 | 1,029 | 729 | 234 | 256 | 10% | 3.1x | 2.8x | 30 | 13% | 38 | 15% | 24.3x | 19.4x | 47.3x | 36.4x |
| A10 Networks | 6.24 | 461 | 337 | 231 | 241 | 4% | 1.5x | 1.4x | 6 | 3% | 11 | 4% | nm | 31.8x | nm | nm |
| Limelight Networks | 2.34 | 265 | 212 | 196 | 217 | 11% | 1.1x | 1.0x | 31 | 16% | 36 | 16% | 6.8x | 5.9x | 21.9x | 16.3x |
| Mean | | $5,889 | $5,647 | $1,419 | $1,496 | 7% | 3.0x | 2.8x | $517 | 25% | $548 | 25% | 12.6x | 14.6x | 24.1x | 19.9x |
| Median | | 5,426 | 4,756 | 1,210 | 1,257 | 6% | 3.3x | 3.1x | 441 | 27% | 461 | 26% | 10.3x | 11.3x | 18.4x | 16.3x |
| **Business Intelligence** | | | | | | | | | | | | | | | | |
| Tableau Software | $ 120.00 | $ 10,028 | $ 9,071 | $ 986 | $ 1,350 | 37% | 9.2x | 6.7x | $ (15) | nm | $ 213 | 16% | nm | 42.5x | nm | 73.6x |
| Elastic | 71.48 | 5,073 | 4,752 | 233 | 324 | 39% | 20.4x | 14.6x | n/a | n/a | (71) | nm | n/a | nm | nm | nm |
| Alteryx | 59.47 | 3,650 | 3,493 | 201 | 272 | 35% | 17.4x | 12.8x | 1 | 1% | 4 | 1% | nm | nm | nm | nm |
| Inovalon | 14.18 | 2,161 | 3,015 | 536 | 632 | 18% | 5.6x | 4.8x | 160 | 30% | 202 | 32% | 18.9x | 14.9x | 47.0x | 34.0x |
| Cloudera | 11.06 | 1,698 | 1,308 | 453 | 538 | 19% | 2.9x | 2.4x | (46) | nm | (37) | nm | nm | nm | nm | nm |
| MicroStrategy | 127.75 | 1,465 | 766 | 501 | 512 | 2% | 1.5x | 1.5x | 37 | 7% | 31 | 6% | 20.8x | 24.5x | 39.3x | 37.0x |
| Talend | 37.08 | 1,115 | 1,026 | 205 | 250 | 22% | 5.0x | 4.1x | (14) | nm | (8) | nm | nm | nm | nm | nm |
| Attunity | 19.68 | 421 | 383 | 84 | 102 | 21% | 4.5x | 3.8x | 12 | 15% | 16 | 16% | 30.8x | 24.0x | 42.8x | 33.9x |
| Mean | | $3,201 | $2,977 | $400 | $498 | 24% | 8.3x | 6.3x | $19 | 13% | $44 | 14% | 23.5x | 26.5x | 43.0x | 44.6x |
| Median | | 1,930 | 2,162 | 343 | 418 | 21% | 5.3x | 4.4x | 1 | 11% | 10 | 16% | 20.8x | 24.2x | 42.8x | 35.5x |

Notes:
[a] Wall Street consensus estimates
[b] EV / EBITDA multiples in excess of 50x or less than 0x and P / E multiples in excess of 100x or less than 0x are considered to be not meaningful
Sources:  Company releases, Wall Street research

Global Diversified

Application Delivery & Network Acceleration

Business Intelligence

Communications

Content Management

eCommerce & Supply Chain Management

ERP & General Business Applications

Financial Applications

Human Capital Management

IT Operations Management

IT Security

Network Infrastructure

Platforms, Dev Tools & Deployment

Sales & Marketing Applications

Storage Management

Technical & Embedded Apps

Vertical Applications

Software-as-a-Service

Small Cap

Highly Acquisitive

High Growth

High Profitability

# Equity Trading Multiples by Segment  continued

**($ millions)**

| Company | Share Price (12/31/18) | Market Value | Enterprise Value | Revenue [a] CY18E | Revenue [a] CY19E | y/y | EV / Revenue CY18E | EV / Revenue CY19E | EBITDA [a] CY18E | mgn | EBITDA [a] CY19E | mgn | EV / EBITDA [b] CY18E | EV / EBITDA [b] CY19E | P / E Multiple [b] CY18E | P / E Multiple [b] CY19E |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Communications** | | | | | | | | | | | | | | | | |
| Amdocs | $ 58.58 | $ 8,176 | $ 7,700 | $ 4,006 | $ 4,125 | 3% | 1.9x | 1.9x | $ 799 | 20% | $ 862 | 21% | 9.6x | 8.9x | 14.8x | 13.5x |
| RingCentral | 82.44 | 6,623 | 6,411 | 666 | 823 | 24% | 9.6x | 7.8x | 79 | 12% | 102 | 12% | nm | nm | nm | nm |
| Verint Systems | 42.31 | 2,762 | 3,150 | 1,242 | 1,328 | 7% | 2.5x | 2.4x | 284 | 23% | 326 | 25% | 11.1x | 9.7x | 13.3x | 12.0x |
| Five9 | 43.72 | 2,570 | 2,497 | 252 | 295 | 17% | 9.9x | 8.5x | 41 | 16% | 50 | 17% | nm | 49.5x | 86.5x | 75.4x |
| Everbridge | 56.76 | 1,683 | 1,673 | 146 | 185 | 27% | 11.5x | 9.0x | (3) | nm | 3 | 2% | nm | nm | nm | nm |
| Mean | | $4,363 | $4,286 | $1,262 | $1,351 | 15% | 7.1x | 5.9x | $240 | 18% | $269 | 15% | 10.4x | 22.7x | 38.2x | 33.7x |
| Median | | 2,762 | 3,150 | 666 | 823 | 17% | 9.6x | 7.8x | 79 | 18% | 102 | 17% | 10.4x | 9.7x | 14.8x | 13.5x |
| **Content Management** | | | | | | | | | | | | | | | | |
| Adobe | $ 226.24 | $ 110,435 | $ 111,331 | $ 9,001 | $ 11,154 | 24% | 12.4x | 10.0x | n/a | n/a | $ 4,934 | 44% | n/a | 22.6x | 33.4x | 29.1x |
| OpenText | 32.60 | 8,721 | 10,554 | 2,837 | 2,873 | 1% | 3.7x | 3.7x | 1,038 | 37% | 1,096 | 38% | 10.2x | 9.6x | 12.6x | 11.8x |
| DocuSign | 40.08 | 6,623 | 5,962 | 694 | 856 | 23% | 8.6x | 7.0x | 40 | 6% | 84 | 10% | nm | nm | nm | nm |
| Mean | | $41,927 | $42,615 | $4,178 | $4,961 | 16% | 8.2x | 6.9x | $539 | 21% | $2,038 | 31% | 10.2x | 16.1x | 23.0x | 20.4x |
| Median | | 8,721 | 10,554 | 2,837 | 2,873 | 23% | 8.6x | 7.0x | 539 | 21% | 1,096 | 38% | nm | 16.1x | 23.0x | 20.4x |
| **eCommerce & Supply Chain Management** | | | | | | | | | | | | | | | | |
| Shopify | $ 138.45 | $ 15,276 | $ 13,697 | $ 1,057 | $ 1,473 | 39% | 13.0x | 9.3x | $ 40 | 4% | $ 94 | 6% | nm | nm | nm | nm |
| Manhattan Associates | 42.37 | 2,770 | 2,676 | 554 | 564 | 2% | 4.8x | 4.7x | 155 | 28% | 128 | 23% | 17.3x | 20.9x | 24.9x | 30.4x |
| Descartes Systems | 26.40 | 2,030 | 2,047 | 276 | 305 | 11% | 7.4x | 6.7x | 94 | 34% | 107 | 35% | 21.8x | 19.1x | 23.2x | 20.5x |
| SPS Commerce | 82.38 | 1,455 | 1,266 | 247 | 274 | 11% | 5.1x | 4.6x | 51 | 21% | 62 | 23% | 24.7x | 20.3x | 44.3x | 40.3x |
| American Software | 10.45 | 323 | 243 | 114 | 121 | 7% | 2.1x | 2.0x | 15 | 14% | 18 | 15% | 15.8x | 13.2x | 38.7x | 32.7x |
| Mean | | $4,371 | $3,986 | $449 | $547 | 14% | 6.5x | 5.5x | $71 | 20% | $82 | 20% | 19.9x | 18.4x | 32.8x | 31.0x |
| Median | | 2,030 | 2,047 | 276 | 305 | 11% | 5.1x | 4.7x | 51 | 21% | 94 | 23% | 19.6x | 19.7x | 31.8x | 31.5x |

Segment list (sidebar):
- Global Diversified
- Application Delivery & Network Acceleration
- Business Intelligence
- Communications
- Content Management
- eCommerce & Supply Chain Management
- ERP & General Business Applications
- Financial Applications
- Human Capital Management
- IT Operations Management
- IT Security
- Network Infrastructure
- Platforms, Dev Tools & Deployment
- Sales & Marketing Applications
- Storage Management
- Technical & Embedded Apps
- Vertical Applications
- Software-as-a-Service
- Small Cap
- Highly Acquisitive
- High Growth
- High Profitability

Notes:
[a] Wall Street consensus estimates
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Sources: Company releases, Wall Street research

# Equity Trading Multiples by Segment  continued

**($ millions)**

| Company | Share Price (12/31/18) | Market Value | Enterprise Value | Revenue [a] CY18E | Revenue [a] CY19E | y/y | EV / Revenue CY18E | EV / Revenue CY19E | EBITDA [a] CY18E | mgn | EBITDA [a] CY19E | mgn | EV / EBITDA [b] CY18E | EV / EBITDA [b] CY19E | P / E Multiple [b] CY18E | P / E Multiple [b] CY19E |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ERP & General Business Applications** | | | | | | | | | | | | | | | | |
| Salesforce.com | $ 136.97 | $ 104,782 | $ 105,723 | $ 13,243 | $ 15,984 | 21% | 8.0x | 6.6x | $ 3,177 | 24% | $ 3,956 | 25% | 33.3x | 26.7x | 52.5x | 49.7x |
| Constellation Software | 640.41 | 13,571 | 13,517 | 3,030 | 3,469 | 15% | 4.5x | 3.9x | 763 | 25% | 914 | 26% | 17.7x | 14.8x | 23.8x | 19.8x |
| Sage Group | 7.66 | 8,321 | 9,148 | 2,350 | 2,486 | 6% | 3.9x | 3.7x | 672 | 29% | 645 | 26% | 13.6x | 14.2x | 18.5x | 20.0x |
| Zendesk | 58.37 | 6,248 | 6,249 | 592 | 779 | 32% | 10.6x | 8.0x | 35 | 6% | 65 | 8% | nm | nm | nm | nm |
| Medidata Solutions | 67.42 | 4,126 | 4,022 | 637 | 752 | 18% | 6.3x | 5.4x | 153 | 24% | 187 | 25% | 26.4x | 21.5x | 41.2x | 36.7x |
| j2 Global | 69.38 | 3,420 | 4,127 | 1,203 | 1,294 | 8% | 3.4x | 3.2x | 489 | 41% | 538 | 42% | 8.4x | 7.7x | 11.0x | 10.2x |
| Anaplan | 26.54 | 3,317 | 2,946 | 235 | 301 | 28% | 12.5x | 9.8x | (68) | nm | (65) | nm | nm | nm | nm | nm |
| Smartsheet | 24.86 | 2,579 | 2,373 | 175 | 243 | 39% | 13.5x | 9.8x | (29) | nm | (33) | nm | nm | nm | nm | nm |
| Workiva | 35.89 | 1,574 | 1,495 | 243 | 279 | 15% | 6.2x | 5.4x | (16) | nm | (9) | nm | nm | nm | nm | nm |
| TechnologyOne | 4.34 | 1,377 | 1,303 | 208 | 237 | 14% | 6.3x | 5.5x | 52 | 25% | 60 | 25% | 25.3x | 21.9x | 38.6x | 31.9x |
| Enghouse Systems | 48.67 | 1,328 | 1,187 | 256 | 273 | 7% | 4.6x | 4.4x | 79 | 31% | 83 | 31% | 14.9x | 14.3x | 27.1x | 25.4x |
| PROS | 31.40 | 1,167 | 1,107 | 195 | 227 | 16% | 5.7x | 4.9x | (21) | nm | (13) | nm | nm | nm | nm | nm |
| QAD | 39.33 | 740 | 615 | 332 | 350 | 5% | 1.9x | 1.8x | 24 | 7% | 24 | 7% | 25.9x | 25.7x | 53.1x | 54.4x |
| Upland Software | 27.18 | 587 | 729 | 148 | 190 | 28% | 4.9x | 3.8x | 52 | 35% | 69 | 36% | 13.9x | 10.5x | 17.0x | 13.7x |
| Synchronoss Technologies | 6.14 | 262 | 460 | 330 | 344 | 4% | 1.4x | 1.3x | 11 | 3% | 53 | 15% | 40.6x | 8.7x | nm | nm |
| Mean | | $10,226 | $10,334 | $1,545 | $1,814 | 17% | 6.2x | 5.2x | $358 | 23% | $431 | 24% | 22.0x | 16.6x | 31.4x | 29.1x |
| Median | | 2,579 | 2,373 | 330 | 344 | 15% | 5.7x | 4.9x | 52 | 25% | 65 | 25% | 21.5x | 14.5x | 27.1x | 25.4x |

Global Diversified

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Notes:
[a] Wall Street consensus estimates
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Sources: Company releases, Wall Street research

# Equity Trading Multiples by Segment  continued

($ millions)

| Company | Share Price (12/31/18) | Market Value | Enterprise Value | Revenue [a] CY18E | CY19E | y/y | EV / Revenue CY18E | CY19E | EBITDA [a] CY18E | mgn | CY19E | mgn | EV / EBITDA [b] CY18E | CY19E | P / E Multiple [b] CY18E | CY19E |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Financial Applications** | | | | | | | | | | | | | | | | |
| Intuit | $ 196.85 | $ 51,090 | $ 50,183 | $ 6,410 | $ 6,881 | 7% | 7.8x | 7.3x | $ 2,441 | 38% | $ 2,487 | 36% | 20.6x | 20.2x | 31.2x | 29.6x |
| FIS | 102.55 | 33,584 | 42,075 | 8,473 | 8,660 | 2% | 5.0x | 4.9x | 3,166 | 37% | 3,346 | 39% | 13.3x | 12.6x | 19.6x | 17.8x |
| Fiserv | 73.49 | 29,284 | 33,886 | 5,828 | 6,180 | 6% | 5.8x | 5.5x | 2,162 | 37% | 2,327 | 38% | 15.7x | 14.6x | 23.5x | 20.9x |
| MSCI | 147.43 | 12,979 | 14,155 | 1,435 | 1,547 | 8% | 9.9x | 9.1x | 781 | 54% | 852 | 55% | 18.1x | 16.6x | 28.1x | 24.7x |
| SS&C Technologies | 45.11 | 11,308 | 17,262 | 3,461 | 4,740 | 37% | 5.0x | 3.6x | 1,252 | 36% | 1,789 | 38% | 13.8x | 9.6x | 16.0x | 12.6x |
| Jack Henry | 126.52 | 9,780 | 9,665 | 1,575 | 1,630 | 3% | 6.1x | 5.9x | 551 | 35% | 547 | 34% | 17.6x | 17.7x | 31.9x | 33.1x |
| Temenos Group | 119.82 | 8,318 | 8,753 | 847 | 958 | 13% | 10.3x | 9.1x | 317 | 37% | 369 | 39% | 27.6x | 23.7x | 40.4x | 34.7x |
| Fair Isaac | 187.00 | 5,415 | 6,089 | 1,062 | 1,146 | 8% | 5.7x | 5.3x | 241 | 23% | 260 | 23% | 25.3x | 23.5x | 29.4x | 26.0x |
| Xero | 29.62 | 4,139 | 4,376 | 348 | 459 | 32% | 12.6x | 9.5x | 46 | 13% | 91 | 20% | nm | 48.3x | nm | nm |
| Coupa Software | 62.86 | 3,737 | 3,502 | 253 | 314 | 24% | 13.8x | 11.2x | 18 | 7% | 23 | 7% | nm | nm | nm | nm |
| SimCorp | 68.35 | 2,680 | 2,644 | 433 | 477 | 10% | 6.1x | 5.5x | 118 | 27% | 135 | 28% | 22.3x | 19.6x | 31.8x | 27.2x |
| Envestnet | 49.19 | 2,249 | 2,551 | 813 | 901 | 11% | 3.1x | 2.8x | 157 | 19% | 181 | 20% | 16.3x | 14.1x | 25.7x | 22.6x |
| BlackLine | 40.95 | 2,238 | 2,113 | 227 | 279 | 23% | 9.3x | 7.6x | 13 | 6% | 19 | 7% | nm | nm | nm | nm |
| Ellie Mae | 62.83 | 2,189 | 1,917 | 480 | 510 | 6% | 4.0x | 3.8x | 128 | 27% | 145 | 28% | 15.0x | 13.3x | 33.1x | 31.8x |
| Q2 Holdings | 49.55 | 2,149 | 2,031 | 241 | 306 | 27% | 8.4x | 6.6x | 19 | 8% | 24 | 8% | nm | nm | nm | nm |
| Avalara | 31.15 | 2,072 | 1,933 | 266 | 318 | 20% | 7.3x | 6.1x | (38) | nm | (29) | nm | nm | nm | nm | nm |
| Bottomline Technologies | 48.00 | 2,068 | 2,091 | 414 | 446 | 8% | 5.1x | 4.7x | 99 | 24% | 107 | 24% | 21.1x | 19.6x | 35.9x | 29.9x |
| Zuora | 18.14 | 1,968 | 1,809 | 234 | 295 | 26% | 7.7x | 6.1x | (40) | nm | (40) | nm | nm | nm | nm | nm |
| IRESS | 7.84 | 1,340 | 1,472 | 328 | 350 | 7% | 4.5x | 4.2x | 89 | 27% | 98 | 28% | 16.6x | 15.0x | 24.9x | 22.4x |
| Ebix | 42.56 | 1,331 | 1,873 | 492 | 601 | 22% | 3.8x | 3.1x | 164 | 33% | 196 | 33% | 11.4x | 9.6x | 11.7x | 9.7x |
| Asseco Poland | 12.30 | 1,021 | 1,548 | 2,466 | 2,510 | 2% | 0.6x | 0.6x | 317 | 13% | 306 | 12% | 4.9x | 5.1x | 11.8x | 12.5x |
| Model N | 13.23 | 416 | 413 | 150 | 144 | -4% | 2.8x | 2.9x | 11 | 7% | 12 | 9% | 38.6x | 33.5x | nm | 83.5x |
| **Mean** | | $ 8,698 | $9,652 | $1,647 | $1,802 | 14% | 6.6x | 5.7x | $546 | 25% | $602 | 26% | 18.6x | 18.6x | 26.3x | 27.4x |
| **Median** | | 2,465 | 2,598 | 486 | 556 | 9% | 6.0x | 5.5x | 142 | 27% | 163 | 28% | 17.1x | 16.6x | 28.1x | 25.4x |
| **Human Capital Management** | | | | | | | | | | | | | | | | |
| Workday | $ 159.68 | $ 35,130 | $ 34,738 | $ 2,810 | $ 3,514 | 25% | 12.4x | 9.9x | $ 470 | 17% | $ 660 | 19% | nm | nm | nm | 99.4x |
| Ultimate Software | 244.87 | 7,657 | 7,532 | 1,136 | 1,363 | 20% | 6.6x | 5.5x | 274 | 24% | 325 | 24% | 27.5x | 23.2x | 45.4x | 39.5x |
| Paycom Software | 122.45 | 7,177 | 7,127 | 560 | 696 | 24% | 12.7x | 10.2x | 234 | 42% | 290 | 42% | 30.5x | 24.6x | 46.9x | 38.2x |
| Ceridian HCM | 34.49 | 4,761 | 5,245 | 743 | 808 | 9% | 7.1x | 6.5x | 149 | 20% | 177 | 22% | 35.1x | 29.6x | nm | 77.3x |
| Pluralsight | 23.55 | 3,232 | 3,031 | 231 | 307 | 33% | 13.1x | 9.9x | (43) | nm | (28) | nm | nm | nm | nm | nm |
| Paylocity | 60.21 | 3,179 | 3,094 | 415 | 498 | 20% | 7.5x | 6.2x | 99 | 24% | 144 | 29% | 31.3x | 21.5x | 42.5x | 41.3x |
| Cornerstone OnDemand | 50.43 | 2,956 | 2,853 | 529 | 567 | 7% | 5.4x | 5.0x | 91 | 17% | 129 | 23% | 31.3x | 22.1x | 68.7x | 48.0x |
| Benefitfocus | 45.72 | 1,461 | 1,540 | 257 | 298 | 16% | 6.0x | 5.2x | 9 | 3% | 22 | 7% | nm | nm | nm | nm |
| **Mean** | | $8,194 | $8,145 | $835 | $1,006 | 19% | 8.8x | 7.3x | $160 | 21% | $215 | 24% | 31.1x | 24.2x | 50.9x | 57.3x |
| **Median** | | 3,997 | 4,170 | 545 | 631 | 20% | 7.3x | 6.3x | 124 | 20% | 160 | 23% | 31.3x | 23.2x | 46.2x | 44.6x |

Sidebar segment list:

- Global Diversified
- Application Delivery & Network Acceleration
- Business Intelligence
- Communications
- Content Management
- eCommerce & Supply Chain Management
- ERP & General Business Applications
- Financial Applications
- Human Capital Management
- IT Operations Management
- IT Security
- Network Infrastructure
- Platforms, Dev Tools & Deployment
- Sales & Marketing Applications
- Storage Management
- Technical & Embedded Apps
- Vertical Applications
- Software-as-a-Service
- Small Cap
- Highly Acquisitive
- High Growth
- High Profitability

Notes:
[a] Wall Street consensus estimates
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# Equity Trading Multiples by Segment  continued

**($ millions)**

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **IT Operations Management** | | | | | | | | | | | | | | | | |
| VMware | $ 137.13 | $ 56,208 | $ 46,921 | $ 8,885 | $ 9,898 | 11% | 5.3x | 4.7x | $ 3,454 | 39% | $ 3,722 | 38% | 13.6x | 12.6x | 22.0x | 20.4x |
| ServiceNow | 178.05 | 31,925 | 31,114 | 2,610 | 3,370 | 29% | 11.9x | 9.2x | 678 | 26% | 938 | 28% | 45.9x | 33.2x | 75.3x | 56.9x |
| Splunk | 104.85 | 15,495 | 14,504 | 1,742 | 2,163 | 24% | 8.3x | 6.7x | 246 | 14% | 350 | 16% | nm | 41.4x | 89.7x | 64.8x |
| New Relic | 80.97 | 4,612 | 4,280 | 442 | 559 | 26% | 9.7x | 7.7x | 68 | 15% | 65 | 12% | nm | nm | nm | nm |
| SolarWinds | 13.83 | 4,287 | 6,244 | 834 | 925 | 11% | 7.5x | 6.7x | 403 | 48% | 450 | 49% | 15.5x | 13.9x | 24.3x | 17.4x |
| LogMeIn | 81.57 | 4,173 | 4,206 | 1,203 | 1,255 | 4% | 3.5x | 3.4x | 443 | 37% | 470 | 37% | 9.5x | 8.9x | 15.3x | 14.1x |
| Netscout Systems | 23.63 | 1,836 | 1,984 | 907 | 961 | 6% | 2.2x | 2.1x | n/a | n/a | n/a | n/a | n/a | n/a | 22.8x | 13.8x |
| MobileIron | 4.59 | 484 | 382 | 194 | 214 | 10% | 2.0x | 1.8x | 1 | 0% | 13 | 6% | nm | 28.9x | nm | nm |
| Comarch | 40.54 | 330 | 353 | 360 | 364 | 1% | 1.0x | 1.0x | 45 | 12% | 47 | 13% | 7.9x | 7.5x | 22.6x | 15.9x |
| Mean | | $13,261 | $12,221 | $1,909 | $2,190 | 14% | 5.7x | 4.8x | $667 | 24% | $757 | 25% | 18.5x | 20.9x | 38.9x | 29.0x |
| Median | | 4,287 | 4,280 | 907 | 961 | 11% | 5.3x | 4.7x | 324 | 21% | 400 | 22% | 13.6x | 13.9x | 22.8x | 17.4x |
| **IT Security** | | | | | | | | | | | | | | | | |
| Verisign | $ 148.29 | $ 17,927 | $ 18,532 | $ 1,215 | $ 1,270 | 5% | 15.3x | 14.6x | $ 871 | 72% | $ 909 | 72% | 21.3x | 20.4x | 31.9x | 28.5x |
| Palo Alto Networks | 188.35 | 17,871 | 16,291 | 2,563 | 3,069 | 20% | 6.4x | 5.3x | 685 | 27% | 819 | 27% | 23.8x | 19.9x | 40.5x | 33.5x |
| Check Point | 102.65 | 16,035 | 14,265 | 1,909 | 1,991 | 4% | 7.5x | 7.2x | 1,026 | 54% | 1,059 | 53% | 13.9x | 13.5x | 18.1x | 16.9x |
| Symantec | 18.90 | 12,072 | 14,675 | 4,761 | 4,883 | 3% | 3.1x | 3.0x | 2,144 | 45% | 2,121 | 43% | 6.8x | 6.9x | 11.7x | 11.3x |
| Fortinet | 70.43 | 11,999 | 10,365 | 1,790 | 2,055 | 15% | 5.8x | 5.0x | 445 | 25% | 525 | 26% | 23.3x | 19.7x | 40.1x | 35.1x |
| Trend Micro | 54.41 | 7,592 | 6,146 | 1,479 | 1,590 | 7% | 4.2x | 3.9x | 508 | 34% | 557 | 35% | 12.1x | 11.0x | 29.2x | 26.1x |
| Okta | 63.80 | 7,046 | 6,768 | 392 | 518 | 32% | 17.3x | 13.1x | (40) | nm | (25) | nm | nm | nm | nm | nm |
| Zscaler | 39.21 | 4,793 | 4,479 | 235 | 311 | 32% | 19.1x | 14.4x | 5 | 2% | 14 | 4% | nm | nm | nm | nm |
| Proofpoint | 83.81 | 4,580 | 4,390 | 711 | 877 | 23% | 6.2x | 5.0x | 107 | 15% | 130 | 15% | 41.1x | 33.7x | 64.0x | 50.6x |
| FireEye | 16.21 | 3,138 | 3,001 | 830 | 890 | 7% | 3.6x | 3.4x | 115 | 14% | 123 | 14% | 26.1x | 24.5x | nm | 88.0x |
| Qualys | 74.74 | 2,943 | 2,617 | 279 | 331 | 19% | 9.4x | 7.9x | 112 | 40% | 126 | 38% | 23.4x | 20.8x | 45.6x | 40.0x |
| CyberArk | 74.14 | 2,674 | 2,287 | 330 | 393 | 19% | 6.9x | 5.8x | 89 | 27% | 100 | 25% | 25.8x | 22.9x | 42.1x | 38.2x |
| Sophos | 4.83 | 2,311 | 2,439 | 707 | 764 | 8% | 3.4x | 3.2x | n/a | n/a | 200 | 26% | n/a | 12.2x | 53.6x | 40.2x |
| Tenable | 22.19 | 2,065 | 1,801 | 265 | 336 | 27% | 6.8x | 5.4x | (46) | nm | (58) | nm | nm | nm | nm | nm |
| SailPoint | 23.49 | 2,062 | 1,989 | 242 | 297 | 23% | 8.2x | 6.7x | 32 | 13% | 34 | 11% | nm | nm | 91.0x | 89.0x |
| Mimecast | 33.63 | 2,020 | 2,053 | 319 | 383 | 20% | 6.4x | 5.4x | 43 | 14% | 65 | 17% | 47.5x | 31.4x | nm | 86.3x |
| Varonis Systems | 52.90 | 1,559 | 1,401 | 270 | 318 | 18% | 5.2x | 4.4x | 10 | 4% | 16 | 5% | nm | nm | nm | nm |
| Rapid7 | 31.16 | 1,473 | 1,374 | 242 | 291 | 20% | 5.7x | 4.7x | (15) | nm | 8 | 3% | nm | nm | nm | nm |
| Secureworks | 16.89 | 1,380 | 1,265 | 521 | 570 | 9% | 2.4x | 2.2x | 12 | 2% | 20 | 3% | nm | nm | nm | nm |
| ForeScout Technologies | 25.99 | 1,114 | 921 | 291 | 349 | 20% | 3.2x | 2.6x | (19) | nm | (8) | nm | nm | nm | nm | nm |
| Carbon Black | 13.42 | 911 | 748 | 208 | 256 | 23% | 3.6x | 2.9x | (50) | nm | (42) | nm | nm | nm | nm | nm |
| OneSpan | 12.95 | 517 | 425 | 208 | 233 | 12% | 2.0x | 1.8x | 17 | 8% | 24 | 10% | 24.9x | 17.9x | 40.2x | 31.8x |
| F-Secure | 2.65 | 417 | 435 | 218 | 250 | 15% | 2.0x | 1.7x | 14 | 7% | 23 | 9% | 30.6x | 18.9x | 91.0x | 44.2x |
| ZixCorp | 5.73 | 311 | 287 | 70 | 75 | 7% | 4.1x | 3.8x | 20 | 28% | 23 | 31% | 14.4x | 12.3x | 17.4x | 15.8x |
| Mean | | $5,200 | $4,956 | $836 | $929 | 16% | 6.6x | 5.6x | $264 | 24% | $282 | 23% | 23.9x | 19.1x | 44.0x | 42.2x |
| Median | | 2,492 | 2,363 | 324 | 388 | 18% | 5.7x | 4.9x | 32 | 20% | 50 | 21% | 23.6x | 19.7x | 40.3x | 36.6x |

Global Diversified

Application Delivery & Network Acceleration

Business Intelligence

Communications

Content Management

eCommerce & Supply Chain Management

ERP & General Business Applications

Financial Applications

Human Capital Management

IT Operations Management

IT Security

Network Infrastructure

Platforms, Dev Tools & Deployment

Sales & Marketing Applications

Storage Management

Technical & Embedded Apps

Vertical Applications

Software-as-a-Service

Small Cap

Highly Acquisitive

High Growth

High Profitability

Notes:
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# Equity Trading Multiples by Segment *continued*

($ millions)

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Network Infrastructure** | | | | | | | | | | | | | | | | |
| Juniper Networks | $ 26.91 | $ 9,288 | $ 8,037 | $ 4,691 | $ 4,787 | 2% | 1.7x | 1.7x | $ 1,048 | 22% | $ 1,090 | 23% | 7.7x | 7.4x | 14.4x | 13.2x |
| Presidio | 13.05 | 1,074 | 2,075 | 2,864 | 2,934 | 2% | 0.7x | 0.7x | 222 | 8% | 237 | 8% | 9.3x | 8.7x | 9.4x | 8.2x |
| Extreme Networks | 6.10 | 722 | 766 | 1,025 | 1,046 | 2% | 0.7x | 0.7x | 111 | 11% | 129 | 12% | 6.9x | 5.9x | 11.3x | 8.6x |
| Mean | | $3,695 | $3,626 | $2,860 | $2,922 | 2% | 1.1x | 1.0x | $461 | 14% | $486 | 14% | 8.0x | 7.4x | 11.7x | 10.0x |
| Median | | 1,074 | 2,075 | 2,864 | 2,934 | 2% | 0.7x | 0.7x | 222 | 11% | 237 | 12% | 7.7x | 7.4x | 11.3x | 8.6x |
| **Platforms, Development Tools & Deployment** | | | | | | | | | | | | | | | | |
| Atlassian | $ 88.98 | $ 21,190 | $ 20,223 | $ 1,018 | $ 1,326 | 30% | 19.9x | 15.3x | $ 289 | 28% | $ 356 | 27% | nm | nm | nm | nm |
| Twilio | 89.30 | 8,828 | 8,511 | 630 | 832 | 32% | 13.5x | 10.2x | 26 | 4% | 44 | 5% | nm | nm | nm | nm |
| Micro Focus | 17.63 | 7,377 | 11,395 | 3,956 | 3,627 | -8% | 2.9x | 3.1x | 1,422 | 36% | 1,388 | 38% | 8.0x | 8.2x | 11.2x | 7.8x |
| MongoDB | 83.74 | 4,489 | 4,180 | 245 | 346 | 42% | 17.1x | 12.1x | (71) | nm | (53) | nm | nm | nm | nm | nm |
| Pivotal | 16.35 | 4,291 | 3,627 | 659 | 814 | 24% | 5.5x | 4.5x | (57) | nm | (26) | nm | nm | nm | nm | nm |
| Pegasystems | 47.83 | 3,764 | 3,558 | 888 | 942 | 6% | 4.0x | 3.8x | 69 | 8% | 57 | 6% | nm | nm | 78.4x | 75.0x |
| Appian | 26.71 | 1,701 | 1,593 | 222 | 255 | 15% | 7.2x | 6.3x | (30) | nm | (26) | nm | nm | nm | nm | nm |
| Progress Software | 35.49 | 1,594 | 1,573 | 395 | 398 | 1% | 4.0x | 3.9x | 167 | 42% | 160 | 40% | 9.4x | 9.8x | 14.4x | 14.2x |
| Bandwidth | 40.75 | 791 | 728 | 201 | 226 | 12% | 3.6x | 3.2x | 10 | 5% | (9) | nm | n/a | n/a | 13.4x | 12.4x |
| Magic Software | 7.63 | 340 | 286 | 286 | 308 | 8% | 1.0x | 0.9x | n/a | n/a | n/a | n/a | n/a | n/a | 13.4x | 12.4x |
| Axway Software | 14.22 | 300 | 304 | 331 | 334 | 1% | 0.9x | 0.9x | 39 | 12% | 37 | 11% | 7.8x | 8.2x | 10.6x | 11.5x |
| Mean | | $4,970 | $5,089 | $803 | $855 | 15% | 7.2x | 5.8x | $186 | 19% | $193 | 21% | 8.4x | 8.7x | 25.6x | 24.2x |
| Median | | 3,764 | 3,558 | 395 | 398 | 12% | 4.0x | 3.9x | 33 | 12% | 41 | 19% | 8.0x | 8.2x | 13.4x | 12.4x |
| **Sales & Marketing Applications** | | | | | | | | | | | | | | | | |
| Hubspot | $ 125.73 | $ 4,933 | $ 4,685 | $ 506 | $ 635 | 25% | 9.3x | 7.4x | $ 53 | 10% | $ 75 | 12% | nm | nm | nm | nm |
| Teradata | 38.36 | 4,534 | 4,263 | 2,142 | 2,153 | 1% | 2.0x | 2.0x | 331 | 15% | 392 | 18% | 12.9x | 10.9x | 30.9x | 24.2x |
| SurveyMonkey | 12.27 | 1,535 | 1,687 | 252 | 287 | 14% | 6.7x | 5.9x | 58 | 23% | 54 | 19% | 29.0x | 31.0x | nm | nm |
| Yext | 14.85 | 1,498 | 1,391 | 228 | 298 | 31% | 6.1x | 4.7x | (34) | nm | (31) | nm | nm | nm | nm | nm |
| LivePerson | 18.86 | 1,196 | 1,130 | 249 | 284 | 14% | 4.5x | 4.0x | 19 | 8% | 24 | 8% | nm | 47.1x | nm | nm |
| ChannelAdvisor | 11.35 | 310 | 263 | 131 | 140 | 7% | 2.0x | 1.9x | 8 | 6% | 11 | 8% | 32.5x | 24.9x | nm | 76.2x |
| Mean | | $2,334 | $2,236 | $585 | $633 | 15% | 5.1x | 4.3x | $72 | 13% | $88 | 13% | 24.8x | 28.5x | 30.9x | 50.2x |
| Median | | 1,516 | 1,539 | 251 | 293 | 14% | 5.3x | 4.3x | 36 | 10% | 39 | 12% | 29.0x | 27.9x | nm | 50.2x |

Sidebar segments:
- Global Diversified
- Application Delivery & Network Acceleration
- Business Intelligence
- Communications
- Content Management
- eCommerce & Supply Chain Management
- ERP & General Business Applications
- Financial Applications
- Human Capital Management
- IT Operations Management
- IT Security
- Network Infrastructure
- Platforms, Dev Tools & Deployment
- Sales & Marketing Applications
- Storage Management
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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Storage Management** | | | | | | | | | | | | | | | | |
| NetApp | $ 59.67 | $ 15,030 | $ 12,517 | $ 6,235 | $ 6,504 | 4% | 2.0x | 1.9x | $ 1,549 | 25% | $ 1,669 | 26% | 8.1x | 7.5x | 13.9x | 12.5x |
| Dropbox | 20.43 | 8,305 | 7,432 | 1,386 | 1,604 | 16% | 5.4x | 4.6x | 327 | 24% | 374 | 23% | 22.7x | 19.9x | 53.6x | 44.7x |
| Nutanix | 41.59 | 7,450 | 6,922 | 1,238 | 1,597 | 29% | 5.6x | 4.3x | (65) | nm | (15) | nm | nm | nm | nm | nm |
| Pure Storage | 16.08 | 3,885 | 3,185 | 1,381 | 1,763 | 28% | 2.3x | 1.8x | 140 | 10% | 202 | 11% | 22.8x | 15.7x | 62.6x | 37.0x |
| CommVault Systems | 59.09 | 2,735 | 2,251 | 711 | 761 | 7% | 3.2x | 3.0x | 110 | 15% | 148 | 19% | 20.5x | 15.2x | 39.6x | 29.1x |
| Box | 16.88 | 2,421 | 2,319 | 609 | 733 | 20% | 3.8x | 3.2x | 26 | 4% | 53 | 7% | nm | 44.2x | nm | nm |
| Carbonite | 25.26 | 873 | 789 | 302 | 334 | 11% | 2.6x | 2.4x | 89 | 30% | 98 | 29% | 8.9x | 8.0x | 15.5x | 14.0x |
| Mean | | $5,814 | $5,059 | $1,694 | $1,900 | 16% | 3.6x | 3.0x | $311 | 18% | $361 | 19% | 16.6x | 18.4x | 37.0x | 27.4x |
| Median | | 3,885 | 3,185 | 1,238 | 1,597 | 16% | 3.2x | 3.0x | 110 | 20% | 148 | 21% | 20.5x | 15.5x | 39.6x | 29.1x |
| **Technical & Embedded Applications** | | | | | | | | | | | | | | | | |
| Dassault Systemes | $ 118.73 | $ 30,279 | $ 28,347 | $ 3,948 | $ 4,385 | 11% | 7.2x | 6.5x | $ 1,348 | 34% | $ 1,513 | 34% | 21.0x | 18.7x | 34.2x | 30.4x |
| Autodesk | 128.61 | 28,167 | 28,676 | 2,541 | 3,267 | 29% | 11.3x | 8.8x | 364 | 14% | 933 | 29% | nm | 30.7x | nm | 40.5x |
| Synopsys | 84.24 | 12,595 | 12,347 | 3,147 | 3,383 | 7% | 3.9x | 3.6x | 764 | 24% | 884 | 26% | 16.2x | 14.0x | 22.3x | 19.0x |
| Cadence Design | 43.48 | 12,268 | 12,063 | 2,118 | 2,262 | 7% | 5.7x | 5.3x | 720 | 34% | 754 | 33% | 16.8x | 16.0x | 23.8x | 22.2x |
| ANSYS | 142.94 | 11,944 | 11,215 | 1,248 | 1,370 | 10% | 9.0x | 8.2x | 589 | 47% | 638 | 47% | 19.0x | 17.6x | 26.9x | 25.4x |
| Parametric Technology | 82.90 | 9,838 | 10,196 | 1,270 | 1,370 | 8% | 8.0x | 7.4x | 337 | 27% | 390 | 28% | 30.2x | 26.2x | 53.2x | 44.5x |
| Aspen Technology | 82.18 | 5,816 | 5,934 | 488 | 568 | 16% | 12.2x | 10.4x | 221 | 45% | 283 | 50% | 26.9x | 20.9x | 33.7x | 24.0x |
| Mean | | $15,844 | $15,540 | $2,109 | $2,372 | 13% | 8.2x | 7.2x | $620 | 32% | $771 | 35% | 21.7x | 20.6x | 32.4x | 29.4x |
| Median | | 12,268 | 12,063 | 2,118 | 2,262 | 10% | 8.0x | 7.4x | 589 | 34% | 754 | 33% | 20.0x | 18.7x | 30.3x | 25.4x |
| **Vertical Applications** | | | | | | | | | | | | | | | | |
| Danaher | $ 103.12 | $ 72,277 | $ 82,130 | $ 19,856 | $ 20,525 | 3% | 4.1x | 4.0x | $ 4,695 | 24% | $ 5,042 | 25% | 17.5x | 16.3x | 22.8x | 21.4x |
| Roper Industries | 266.52 | 27,566 | 32,419 | 5,178 | 5,385 | 4% | 6.3x | 6.0x | 1,788 | 35% | 1,874 | 35% | 18.1x | 17.3x | 22.7x | 21.7x |
| Veeva | 89.32 | 12,978 | 11,926 | 857 | 1,019 | 19% | 13.9x | 11.7x | 311 | 36% | 364 | 36% | 38.4x | 32.8x | 56.6x | 50.4x |
| Tyler Technologies | 185.82 | 7,214 | 6,942 | 938 | 1,039 | 11% | 7.4x | 6.7x | 281 | 30% | 320 | 31% | 24.7x | 21.7x | 38.7x | 34.6x |
| Guidewire Software | 80.23 | 6,501 | 5,718 | 728 | 764 | 5% | 7.9x | 7.5x | 170 | 23% | 139 | 18% | 33.6x | 41.1x | 56.9x | 63.1x |
| RealPage | 48.19 | 4,362 | 4,679 | 873 | 1,004 | 15% | 5.4x | 4.7x | 232 | 27% | 286 | 28% | 20.2x | 16.4x | 32.4x | 27.3x |
| Blackbaud | 62.90 | 2,977 | 3,376 | 850 | 887 | 4% | 4.0x | 3.8x | 185 | 22% | 183 | 21% | 18.2x | 18.4x | 25.2x | 26.4x |
| Appfolio | 59.22 | 2,028 | 1,983 | 188 | 238 | 27% | 10.6x | 8.3x | 44 | 24% | 64 | 27% | 44.8x | 31.1x | 73.4x | 49.1x |
| Mean | | $16,988 | $18,647 | $3,683 | $3,858 | 11% | 7.4x | 6.6x | $963 | 27% | $1,034 | 28% | 26.9x | 24.4x | 41.1x | 36.7x |
| Median | | 6,858 | 6,330 | 865 | 1,011 | 8% | 6.8x | 6.4x | 256 | 25% | 303 | 28% | 22.4x | 20.1x | 35.6x | 31.0x |

Sidebar segments:
Global Diversified · Application Delivery & Network Acceleration · Business Intelligence · Communications · Content Management · eCommerce & Supply Chain Management · ERP & General Business Applications · Financial Applications · Human Capital Management · IT Operations Management · IT Security · Network Infrastructure · Platforms, Dev Tools & Deployment · Sales & Marketing Applications · **Storage Management** · **Technical & Embedded Apps** · **Vertical Applications** · Software-as-a-Service · Small Cap · Highly Acquisitive · High Growth · High Profitability

Notes:
[a] Wall Street consensus estimates
[b] EV / EBITDA multiples in excess of 50x or less than 0x and P / E multiples in excess of 100x or less than 0x are considered to be not meaningful
Sources: Company releases, Wall Street research

# Equity Trading Multiples by Comparable Subset

| ($ millions) |
|---|

| Company | Share Price (12/31/18) | Market Value | Enterprise Value | Revenue [a] | | | EV / Revenue | | EBITDA [a] | | | | EV / EBITDA [b] | | P / E Multiple [b] | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | CY18E | CY19E | y/y | CY18E | CY19E | CY18E | mgn | CY19E | mgn | CY18E | CY19E | CY18E | CY19E |
| **Software-as-a-Service** | | | | | | | | | | | | | | | | |
| Adobe | $ 226.24 | $ 110,435 | $ 111,331 | $ 9,001 | $ 11,154 | 24% | 12.4x | 10.0x | n/a | n/a | $ 4,934 | 44% | n/a | 22.6x | 33.4x | 29.1x |
| Salesforce.com | 136.97 | 104,782 | 105,723 | 13,243 | 15,984 | 21% | 8.0x | 6.6x | 3,177 | 24% | 3,956 | 25% | 33.3x | 26.7x | 52.5x | 49.7x |
| Workday | 159.68 | 35,130 | 34,738 | 2,810 | 3,514 | 25% | 12.4x | 9.9x | 470 | 17% | 660 | 19% | nm | nm | nm | 99.4x |
| ServiceNow | 178.05 | 31,925 | 31,114 | 2,610 | 3,370 | 29% | 11.9x | 9.2x | 678 | 26% | 938 | 28% | 45.9x | 33.2x | 75.3x | 56.9x |
| Atlassian | 88.98 | 21,190 | 20,223 | 1,018 | 1,326 | 30% | 19.9x | 15.3x | 289 | 28% | 356 | 27% | nm | nm | nm | nm |
| Splunk | 104.85 | 15,495 | 14,504 | 1,742 | 2,163 | 24% | 8.3x | 6.7x | 246 | 14% | 350 | 16% | nm | 41.4x | 89.7x | 64.8x |
| Shopify | 138.45 | 15,276 | 13,697 | 1,057 | 1,473 | 39% | 13.0x | 9.3x | 40 | 4% | 94 | 6% | nm | nm | nm | nm |
| Veeva | 89.32 | 12,978 | 11,926 | 857 | 1,019 | 19% | 13.9x | 11.7x | 311 | 36% | 364 | 36% | 38.4x | 32.8x | 56.6x | 50.4x |
| Twilio | 89.30 | 8,828 | 8,511 | 630 | 832 | 32% | 13.5x | 10.2x | 26 | 4% | 44 | 5% | nm | nm | nm | nm |
| Dropbox | 20.43 | 8,305 | 7,432 | 1,386 | 1,604 | 16% | 5.4x | 4.6x | 327 | 24% | 374 | 23% | 22.7x | 19.9x | 53.6x | 44.7x |
| Ultimate Software | 244.87 | 7,657 | 7,532 | 1,136 | 1,363 | 20% | 6.6x | 5.5x | 274 | 24% | 325 | 24% | 27.5x | 23.2x | 45.4x | 39.5x |
| Paycom Software | 122.45 | 7,177 | 7,127 | 560 | 696 | 24% | 12.7x | 10.2x | 234 | 42% | 290 | 42% | 30.5x | 24.6x | 46.9x | 38.2x |
| Okta | 63.80 | 7,046 | 6,768 | 392 | 518 | 32% | 17.3x | 13.1x | (40) | nm | (25) | nm | nm | nm | nm | nm |
| DocuSign | 40.08 | 6,623 | 5,962 | 694 | 856 | 23% | 8.6x | 7.0x | 40 | 6% | 84 | 10% | nm | nm | nm | nm |
| RingCentral | 82.44 | 6,623 | 6,411 | 666 | 823 | 24% | 9.6x | 7.8x | 79 | 12% | 102 | 12% | nm | nm | nm | nm |
| Zendesk | 58.37 | 6,248 | 6,249 | 592 | 779 | 32% | 10.6x | 8.0x | 35 | 6% | 65 | 8% | nm | nm | nm | nm |
| Hubspot | 125.73 | 4,933 | 4,685 | 506 | 635 | 25% | 9.3x | 7.4x | 53 | 10% | 75 | 12% | nm | nm | nm | nm |
| Zscaler | 39.21 | 4,793 | 4,479 | 235 | 311 | 32% | 19.1x | 14.4x | 5 | 2% | 14 | 4% | nm | nm | nm | nm |
| New Relic | 80.97 | 4,612 | 4,280 | 442 | 559 | 26% | 9.7x | 7.7x | 68 | 15% | 65 | 12% | nm | nm | nm | nm |
| Proofpoint | 83.81 | 4,580 | 4,390 | 711 | 877 | 23% | 6.2x | 5.0x | 107 | 15% | 130 | 15% | 41.1x | 33.7x | 64.0x | 50.6x |
| RealPage | 48.19 | 4,362 | 4,679 | 873 | 1,004 | 15% | 5.4x | 4.7x | 232 | 27% | 286 | 28% | 20.2x | 16.4x | 32.4x | 27.3x |
| LogMeIn | 81.57 | 4,173 | 4,206 | 1,203 | 1,255 | 4% | 3.5x | 3.4x | 443 | 37% | 470 | 37% | 9.5x | 8.9x | 15.3x | 14.1x |
| Medidata Solutions | 67.42 | 4,126 | 4,022 | 637 | 752 | 18% | 6.3x | 5.4x | 153 | 24% | 187 | 25% | 26.4x | 21.5x | 41.2x | 36.7x |
| Pure Storage | 16.08 | 3,885 | 3,185 | 1,381 | 1,763 | 28% | 2.3x | 1.8x | 140 | 10% | 202 | 11% | 22.8x | 15.7x | 62.6x | 37.0x |
| Coupa Software | 62.86 | 3,737 | 3,502 | 253 | 314 | 24% | 13.8x | 11.2x | 18 | 7% | 23 | 7% | nm | nm | nm | nm |
| j2 Global | 69.38 | 3,420 | 4,127 | 1,203 | 1,294 | 8% | 3.4x | 3.2x | 489 | 41% | 538 | 42% | 8.4x | 7.7x | 11.0x | 10.2x |
| Paylocity | 60.21 | 3,179 | 3,094 | 415 | 498 | 20% | 7.5x | 6.2x | 99 | 24% | 144 | 29% | 31.3x | 21.5x | 42.5x | 41.3x |
| Cornerstone OnDemand | 50.43 | 2,956 | 2,853 | 529 | 567 | 7% | 5.4x | 5.0x | 91 | 17% | 129 | 23% | 31.3x | 22.1x | 68.7x | 48.0x |
| Qualys | 74.74 | 2,943 | 2,617 | 279 | 331 | 19% | 9.4x | 7.9x | 112 | 40% | 126 | 38% | 23.4x | 20.8x | 45.6x | 40.0x |
| 2U | 49.72 | 2,880 | 2,437 | 412 | 547 | 33% | 5.9x | 4.5x | 18 | 4% | 12 | 2% | nm | nm | nm | nm |
| Smartsheet | 24.86 | 2,579 | 2,373 | 175 | 243 | 39% | 13.5x | 9.8x | (29) | nm | (33) | nm | nm | nm | nm | nm |
| Five9 | 43.72 | 2,570 | 2,497 | 252 | 295 | 17% | 9.9x | 8.5x | 41 | 16% | 50 | 17% | nm | 49.5x | 86.5x | 75.4x |
| Box | 16.88 | 2,421 | 2,319 | 609 | 733 | 20% | 3.8x | 3.2x | 26 | 4% | 53 | 7% | nm | 44.2x | nm | nm |
| Envestnet | 49.19 | 2,249 | 2,551 | 813 | 901 | 11% | 3.1x | 2.8x | 157 | 19% | 181 | 20% | 16.3x | 14.1x | 25.7x | 22.6x |
| BlackLine | 40.95 | 2,238 | 2,113 | 227 | 279 | 23% | 9.3x | 7.6x | 13 | 6% | 19 | 7% | nm | nm | nm | nm |
| Ellie Mae | 62.83 | 2,189 | 1,917 | 480 | 510 | 6% | 4.0x | 3.8x | 128 | 27% | 145 | 28% | 15.0x | 13.3x | 33.1x | 31.8x |
| Q2 Holdings | 49.55 | 2,149 | 2,031 | 241 | 306 | 27% | 8.4x | 6.6x | 19 | 8% | 24 | 8% | nm | nm | nm | nm |
| Appfolio | 59.22 | 2,028 | 1,983 | 188 | 238 | 27% | 10.6x | 8.3x | 44 | 24% | 64 | 27% | 44.8x | 31.1x | 73.4x | 49.1x |

Global Diversified

Application Delivery & Network Acceleration

Business Intelligence

Communications

Content Management

eCommerce & Supply Chain Management

ERP & General Business Applications

Financial Applications

Human Capital Management

IT Operations Management

IT Security

Network Infrastructure

Platforms, Dev Tools & Deployment

Sales & Marketing Applications

Storage Management

Technical & Embedded Apps

Vertical Applications

Software-as-a-Service

Small Cap

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Notes:
[a] Wall Street consensus estimates
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Sources: Company releases, Wall Street research

# Equity Trading Multiples by Comparable Subset  continued

($ millions)

| Company | Share Price (12/31/18) | Market Value | Enterprise Value | Revenue [a] CY18E | CY19E | y/y | EV / Revenue CY18E | CY19E | EBITDA [a] CY18E | mgn | CY19E | mgn | EV / EBITDA [b] CY18E | CY19E | P / E Multiple [b] CY18E | CY19E |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Software-as-a-Service (continued) | | | | | | | | | | | | | | | | |
| Mimecast | $ 33.63 | $ 2,020 | $ 2,053 | $ 319 | $ 383 | 20% | 6.4x | 5.4x | $ 43 | 14% | $ 65 | 17% | 47.5x | 31.4x | nm | 86.3x |
| Zuora | 18.14 | 1,968 | 1,809 | 234 | 295 | 26% | 7.7x | 6.1x | (40) | nm | (40) | nm | nm | nm | nm | nm |
| Apptio | 0.00 | 1,730 | 1,584 | 234 | 272 | 16% | 6.8x | 5.8x | 13 | 6% | 16 | 6% | nm | nm | nm | nm |
| Everbridge | 56.76 | 1,683 | 1,673 | 146 | 185 | 27% | 11.5x | 9.0x | (3) | nm | 3 | 2% | nm | nm | nm | nm |
| Workiva | 35.89 | 1,574 | 1,495 | 243 | 279 | 15% | 6.2x | 5.4x | (16) | nm | (9) | nm | nm | nm | nm | nm |
| Varonis Systems | 52.90 | 1,559 | 1,401 | 270 | 318 | 18% | 5.2x | 4.4x | 10 | 4% | 16 | 5% | nm | nm | nm | nm |
| Yext | 14.85 | 1,498 | 1,391 | 228 | 298 | 31% | 6.1x | 4.7x | (34) | nm | (31) | nm | nm | nm | nm | nm |
| Benefitfocus | 45.72 | 1,461 | 1,540 | 257 | 298 | 16% | 6.0x | 5.2x | 9 | 3% | 22 | 7% | nm | nm | nm | nm |
| SPS Commerce | 82.38 | 1,455 | 1,266 | 247 | 274 | 11% | 5.1x | 4.6x | 51 | 21% | 62 | 23% | 24.7x | 20.3x | 44.3x | 40.3x |
| Instructure | 37.51 | 1,315 | 1,144 | 209 | 259 | 24% | 5.5x | 4.4x | (16) | nm | (11) | nm | nm | nm | nm | nm |
| Talend | 37.08 | 1,115 | 1,026 | 205 | 250 | 22% | 5.0x | 4.1x | (14) | nm | (8) | nm | nm | nm | nm | nm |
| Carbonite | 25.26 | 873 | 789 | 302 | 334 | 11% | 2.6x | 2.4x | 89 | 30% | 98 | 29% | 8.9x | 8.0x | 15.5x | 14.0x |
| ZixCorp | 5.73 | 311 | 287 | 70 | 75 | 7% | 4.1x | 3.8x | 20 | 28% | 23 | 31% | 14.4x | 12.3x | 17.4x | 15.8x |
| ChannelAdvisor | 11.35 | 310 | 263 | 131 | 140 | 7% | 2.0x | 1.9x | 8 | 6% | 11 | 8% | 32.5x | 24.9x | nm | 76.2x |
| Mean | | $9,566 | $9,369 | $1,030 | $1,257 | 21% | 8.3x | 6.7x | $171 | 18% | $309 | 19% | 26.8x | 23.7x | 47.2x | 44.0x |
| Median | | 3,299 | 3,139 | 461 | 553 | 23% | 7.6x | 6.2x | 44 | 16% | 70 | 17% | 25.7x | 22.1x | 45.5x | 40.3x |

Right-hand navigation panel:
- Global Diversified
- Application Delivery & Network Acceleration
- Business Intelligence
- Communications
- Content Management
- eCommerce & Supply Chain Management
- ERP & General Business Applications
- Financial Applications
- Human Capital Management
- IT Operations Management
- IT Security
- Network Infrastructure
- Platforms, Dev Tools & Deployment
- Sales & Marketing Applications
- Storage Management
- Technical & Embedded Apps
- Vertical Applications
- Software-as-a-Service
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Notes:
[a] Wall Street consensus estimates
[b] EV / EBITDA multiples in excess of 50x or less than 0x and P / E multiples in excess of 100x or less than 0x are considered to be not meaningful
Sources: Company releases, Wall Street research

# Equity Trading Multiples by Comparable Subset  continued

**($ millions)**

| Company | Share Price (12/31/18) | Market Value | Enterprise Value | Revenue [a] CY18E | Revenue [a] CY19E | y/y | EV / Revenue CY18E | EV / Revenue CY19E | EBITDA [a] CY18E | mgn | EBITDA [a] CY19E | mgn | EV / EBITDA [b] CY18E | EV / EBITDA [b] CY19E | P / E Multiple [b] CY18E | P / E Multiple [b] CY19E |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Small Cap (<$250m Market Value)** | | | | | | | | | | | | | | | | |
| Cardlytics | $ 10.83 | $ 232 | $ 231 | $ 147 | $ 197 | 34% | 1.6x | 1.2x | $ (8) | nm | $ (2) | nm | nm | nm | nm | nm |
| Absolute Software | 5.67 | 230 | 197 | 96 | 103 | 7% | 2.1x | 1.9x | 12 | 13% | 15 | 15% | 15.8x | 12.8x | 37.8x | 43.0x |
| Amber Road | 8.23 | 229 | 240 | 85 | 91 | 7% | 2.8x | 2.6x | 5 | 6% | 6 | 6% | 48.3x | 41.2x | nm | nm |
| Avid Technology | 4.75 | 199 | 379 | 411 | 421 | 2% | 0.9x | 0.9x | 43 | 11% | 47 | 11% | 8.7x | 8.1x | 31.0x | 14.6x |
| The Rubicon Project | 3.73 | 188 | 92 | 121 | 145 | 20% | 0.8x | 0.6x | (16) | nm | 11 | 8% | nm | 8.3x | nm | nm |
| eGain | 6.57 | 183 | 178 | 63 | 71 | 11% | 2.8x | 2.5x | 4 | 6% | 4 | 6% | 48.1x | 41.4x | 89.6x | 78.9x |
| CYREN | 3.00 | 162 | 149 | 36 | 45 | 24% | 4.1x | 3.3x | n/a | n/a | n/a | n/a | n/a | n/a | nm | nm |
| ServiceSource | 1.08 | 100 | 71 | 238 | 230 | -3% | 0.3x | 0.3x | 13 | 5% | 15 | 6% | 5.6x | 4.8x | 27.0x | 12.0x |
| Asure Software | 5.08 | 77 | 171 | 88 | 104 | 18% | 1.9x | 1.6x | 19 | 22% | 23 | 22% | 8.9x | 7.5x | 9.3x | 8.2x |
| Veritone | 3.80 | 73 | 9 | 26 | 43 | 69% | 0.3x | 0.2x | (41) | nm | (41) | nm | nm | nm | nm | nm |
| NetSol | 6.15 | 73 | 72 | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | nm | nm |
| Marin Software | 5.31 | 31 | 19 | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | nm | nm |
| FalconStor | 0.04 | 20 | 30 | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | n/a | nm | nm |
| NexJ Systems | 0.92 | 19 | 11 | 16 | 18 | 13% | 0.7x | 0.6x | (3) | nm | (1) | nm | nm | nm | nm | nm |
| Boxlight | 1.20 | 12 | 14 | 37 | 45 | 22% | 0.4x | 0.3x | n/a | n/a | n/a | n/a | n/a | n/a | nm | nm |
| Top Image Systems | 0.50 | 9 | 14 | 29 | 30 | 6% | 0.5x | 0.5x | n/a | n/a | n/a | n/a | n/a | n/a | nm | nm |
| Determine | 0.23 | 4 | 18 | 26 | n/a | n/a | 0.7x | n/a | (6) | nm | n/a | n/a | nm | n/a | nm | nm |
| | Mean | $108 | $112 | $101 | $119 | 18% | 1.4x | 1.3x | $2 | 10% | $8 | 11% | 22.6x | 17.7x | 39.0x | 31.3x |
| | Median | 77 | 72 | 74 | 91 | 13% | 0.8x | 0.9x | 4 | 8% | 8 | 8% | 12.3x | 8.3x | 31.0x | 14.6x |
| **Highly Acquisitive** | | | | | | | | | | | | | | | | |
| Danaher | $ 103.12 | $ 72,277 | $ 82,130 | $ 19,856 | $ 20,525 | 3% | 4.1x | 4.0x | $ 4,695 | 24% | $ 5,042 | 25% | 17.5x | 16.3x | 22.8x | 21.4x |
| Roper Industries | 266.52 | 27,566 | 32,419 | 5,173 | 5,398 | 4% | 6.3x | 6.0x | 1,788 | 35% | 1,874 | 35% | 18.1x | 17.3x | 22.7x | 21.7x |
| Constellation Software | 640.41 | 13,571 | 13,517 | 3,030 | 3,469 | 15% | 4.5x | 3.9x | 763 | 25% | 914 | 26% | 17.7x | 14.8x | 23.8x | 19.8x |
| SS&C Technologies | 45.11 | 11,237 | 17,191 | 3,461 | 4,740 | 37% | 5.0x | 3.6x | 1,252 | 36% | 1,789 | 38% | 13.7x | 9.6x | 16.0x | 12.6x |
| OpenText | 32.60 | 8,721 | 10,554 | 2,837 | 2,873 | 1% | 3.7x | 3.7x | 1,038 | 37% | 1,096 | 38% | 10.2x | 9.6x | 12.6x | 11.8x |
| Micro Focus | 17.63 | 7,377 | 11,395 | 3,956 | 3,627 | -8% | 2.9x | 3.1x | 1,422 | 36% | 1,388 | 38% | 8.0x | 8.2x | 11.2x | 7.8x |
| j2 Global | 69.38 | 3,420 | 4,127 | 1,203 | 1,294 | 8% | 3.4x | 3.2x | 489 | 41% | 538 | 42% | 8.4x | 7.7x | 11.0x | 10.2x |
| Bottomline Technologies | 48.00 | 2,068 | 2,091 | 414 | 446 | 8% | 5.1x | 4.7x | 99 | 24% | 107 | 24% | 21.1x | 19.6x | 35.9x | 29.9x |
| Descartes Systems | 26.40 | 2,030 | 2,047 | 276 | 305 | 11% | 7.4x | 6.7x | 94 | 34% | 107 | 35% | 21.8x | 19.1x | 23.2x | 20.5x |
| Enghouse Systems | 48.67 | 1,328 | 1,187 | 256 | 273 | 7% | 4.6x | 4.4x | 79 | 31% | 83 | 31% | 14.9x | 14.3x | 27.1x | 25.4x |
| Upland Software | 27.18 | 587 | 729 | 148 | 190 | 28% | 4.9x | 3.8x | 52 | 35% | 69 | 36% | 13.9x | 10.5x | 17.0x | 13.7x |
| Asure Software | 5.08 | 77 | 171 | 88 | 104 | 18% | 1.9x | 1.6x | 19 | 22% | 23 | 22% | 8.9x | 7.5x | 9.3x | 8.2x |
| | Mean | $1,585 | $1,725 | $397 | $435 | 13% | 4.6x | 4.1x | $139 | 31% | $155 | 32% | 14.8x | 13.1x | 20.6x | 18.0x |
| | Median | 1,679 | 1,617 | 266 | 289 | 9% | 4.8x | 4.1x | 87 | 33% | 95 | 33% | 14.4x | 12.4x | 20.1x | 17.1x |

Global Diversified

Application Delivery & Network Acceleration

Business Intelligence

Communications

Content Management

eCommerce & Supply Chain Management

ERP & General Business Applications

Financial Applications

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Small Cap

Highly Acquisitive

High Growth

High Profitability

Notes:
[a] Wall Street consensus estimates
[b] EV / EBITDA multiples in excess of 50x or less than 0x and P / E multiples in excess of 100x or less than 0x are considered to be not meaningful
Sources: Company releases, Wall Street research

# Equity Trading Multiples by Comparable Subset  continued

**($ millions)**

| Company | Share Price (12/31/18) | Market Value | Enterprise Value | Revenue [a] CY18E | CY19E | y/y | EV / Revenue CY18E | CY19E | EBITDA [a] CY18E | mgn | CY19E | mgn | EV / EBITDA [b] CY18E | CY19E | P / E Multiple [b] CY18E | CY19E |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| High Growth (>=25% CY19E Revenue Growth) | | | | | | | | | | | | | | | | |
| Veritone | $ 3.80 | $ 73 | $ 9 | $ 26 | $ 43 | 69% | 0.3x | 0.2x | $ (41) | nm | $ (41) | nm | nm | nm | nm | nm |
| MongoDB | 83.74 | 4,489 | 4,180 | 245 | 346 | 42% | 17.1x | 12.1x | (71) | nm | (53) | nm | nm | nm | nm | nm |
| Shopify | 138.45 | 15,276 | 13,697 | 1,057 | 1,473 | 39% | 13.0x | 9.3x | 40 | 4% | 94 | 6% | nm | nm | nm | nm |
| Smartsheet | 24.86 | 2,579 | 2,373 | 175 | 243 | 39% | 13.5x | 9.8x | (29) | nm | (33) | nm | nm | nm | nm | nm |
| Tableau Software | 120.00 | 10,028 | 9,071 | 979 | 1,350 | 38% | 9.3x | 6.7x | (15) | nm | 213 | 16% | nm | 42.5x | nm | 73.6x |
| Alteryx | 59.47 | 3,650 | 3,493 | 201 | 272 | 35% | 17.4x | 12.8x | 1 | 1% | 4 | 1% | nm | nm | nm | nm |
| Cardlytics | 10.83 | 232 | 231 | 147 | 197 | 34% | 1.6x | 1.2x | (8) | nm | (1) | nm | nm | nm | nm | nm |
| Pluralsight | 23.55 | 3,232 | 3,031 | 231 | 307 | 33% | 13.1x | 9.9x | (43) | nm | (28) | nm | nm | nm | nm | nm |
| 2U | 49.72 | 2,880 | 2,437 | 412 | 547 | 33% | 5.9x | 4.5x | 18 | 4% | 12 | 2% | nm | nm | nm | nm |
| Zscaler | 39.21 | 4,793 | 4,479 | 235 | 311 | 32% | 19.1x | 14.4x | 5 | 2% | 14 | 4% | nm | nm | nm | nm |
| Okta | 63.80 | 7,046 | 6,768 | 392 | 518 | 32% | 17.3x | 13.1x | (40) | nm | (25) | nm | nm | nm | nm | nm |
| Twilio | 89.30 | 8,828 | 8,511 | 630 | 832 | 32% | 13.5x | 10.2x | 26 | 4% | 44 | 5% | nm | nm | nm | nm |
| Xero | 29.62 | 4,139 | 4,376 | 348 | 459 | 32% | 12.6x | 9.5x | 46 | 13% | 91 | 20% | nm | 48.3x | nm | nm |
| Zendesk | 58.37 | 6,248 | 6,249 | 592 | 779 | 32% | 10.6x | 8.0x | 35 | 6% | 65 | 8% | nm | nm | nm | nm |
| Yext | 14.85 | 1,498 | 1,391 | 228 | 298 | 31% | 6.1x | 4.7x | (34) | nm | (31) | nm | nm | nm | nm | nm |
| Atlassian | 88.98 | 21,190 | 20,223 | 1,023 | 1,326 | 30% | 19.8x | 15.3x | 289 | 28% | 356 | 27% | nm | nm | nm | nm |
| ServiceNow | 178.05 | 31,925 | 31,114 | 2,610 | 3,370 | 29% | 11.9x | 9.2x | 678 | 26% | 938 | 28% | 45.9x | 33.2x | 75.3x | 56.9x |
| Nutanix | 41.59 | 7,450 | 6,922 | 1,238 | 1,597 | 29% | 5.6x | 4.3x | (65) | nm | (15) | nm | nm | nm | nm | nm |
| Upland Software | 27.18 | 587 | 729 | 148 | 190 | 28% | 4.9x | 3.8x | 52 | 35% | 69 | 36% | 13.9x | 10.5x | 17.0x | 13.7x |
| Pure Storage | 16.08 | 3,885 | 3,185 | 1,381 | 1,763 | 28% | 2.3x | 1.8x | 140 | 10% | 202 | 11% | 22.8x | 15.7x | 62.6x | 37.0x |
| Q2 Holdings | 49.55 | 2,149 | 2,031 | 241 | 306 | 27% | 8.4x | 6.6x | 19 | 8% | 24 | 8% | nm | nm | nm | nm |
| Tenable | 22.19 | 2,065 | 1,801 | 265 | 336 | 27% | 6.8x | 5.4x | (46) | nm | (58) | nm | nm | nm | nm | nm |
| Wix | 90.34 | 4,368 | 3,986 | 602 | 763 | 27% | 6.6x | 5.2x | 113 | 19% | 176 | 23% | 35.2x | 22.6x | nm | 62.8x |
| Appfolio | 59.22 | 2,028 | 1,983 | 188 | 238 | 27% | 10.6x | 8.3x | 44 | 24% | 64 | 27% | 44.8x | 31.1x | 73.4x | 49.1x |
| Everbridge | 56.76 | 1,683 | 1,673 | 146 | 185 | 27% | 11.5x | 9.0x | (3) | nm | 3 | 2% | nm | nm | nm | nm |
| New Relic | 80.97 | 4,612 | 4,280 | 442 | 559 | 26% | 9.7x | 7.7x | 68 | 15% | 65 | 12% | nm | nm | nm | nm |
| Zuora | 18.14 | 1,968 | 1,809 | 234 | 295 | 26% | 7.7x | 6.1x | (40) | nm | (40) | nm | nm | nm | nm | nm |
| Hubspot | 125.73 | 4,933 | 4,685 | 506 | 635 | 25% | 9.3x | 7.4x | 53 | 10% | 75 | 12% | nm | nm | nm | nm |
| Workday | 159.68 | 35,130 | 34,738 | 2,810 | 3,514 | 25% | 12.4x | 9.9x | 470 | 17% | 660 | 19% | nm | nm | nm | 99.4x |
| Mean | | $6,861 | $6,533 | $611 | $795 | 32% | 10.3x | 7.8x | $57 | 13% | $98 | 14% | 32.5x | 29.1x | 57.1x | 56.0x |
| Median | | 4,139 | 3,986 | 348 | 459 | 31% | 10.6x | 8.0x | 18 | 10% | 24 | 12% | 35.2x | 31.1x | 68.0x | 56.9x |

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Notes:
[a] Wall Street consensus estimates
[b] EV / EBITDA multiples in excess of 50x or less than 0x and P / E multiples in excess of 100x or less than 0x are considered to be not meaningful
Sources: Company releases, Wall Street research

# Equity Trading Multiples by Comparable Subset  continued

**($ millions)**

| Company | Share Price (12/31/18) | Market Value | Enterprise Value | Revenue [a] CY18E | Revenue CY19E | y/y | EV / Revenue CY18E | EV / Revenue CY19E | EBITDA [a] CY18E | mgn | EBITDA CY19E | mgn | EV / EBITDA [b] CY18E | EV / EBITDA CY19E | P / E Multiple [b] CY18E | P / E Multiple [b] CY19E |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **High Profitability (>=35% CY18E EBITDA Margin)** | | | | | | | | | | | | | | | | |
| Verisign | $ 148.29 | $ 17,927 | $ 18,532 | $ 1,215 | $ 1,270 | 5% | 15.3x | 14.6x | $ 871 | 72% | $ 909 | 72% | 21.3x | 20.4x | 31.9x | 28.5x |
| MSCI | 147.43 | 12,979 | 14,155 | 1,435 | 1,547 | 8% | 9.9x | 9.1x | 781 | 54% | 852 | 55% | 18.1x | 16.6x | 28.1x | 24.7x |
| Check Point | 102.65 | 16,035 | 14,265 | 1,909 | 1,991 | 4% | 7.5x | 7.2x | 1,026 | 54% | 1,059 | 53% | 13.9x | 13.5x | 18.1x | 16.9x |
| ANSYS | 142.94 | 11,944 | 11,215 | 1,248 | 1,370 | 10% | 9.0x | 8.2x | 589 | 47% | 638 | 47% | 19.0x | 17.6x | 26.9x | 25.4x |
| Oracle | 45.15 | 162,040 | 171,425 | 39,758 | 40,025 | 1% | 4.3x | 4.3x | 18,615 | 47% | 18,524 | 46% | 9.2x | 9.3x | 13.6x | 12.7x |
| Aspen Technology | 82.18 | 5,816 | 5,934 | 488 | 568 | 16% | 12.2x | 10.4x | 221 | 45% | 283 | 50% | 26.9x | 20.9x | 33.7x | 24.0x |
| Symantec | 18.90 | 12,072 | 14,675 | 4,760 | 4,888 | 3% | 3.1x | 3.0x | 2,144 | 45% | 2,121 | 43% | 6.8x | 6.9x | 11.7x | 11.3x |
| Intel | 46.93 | 214,189 | 228,877 | 71,220 | 73,348 | 3% | 3.2x | 3.1x | 32,075 | 45% | 32,997 | 45% | 7.1x | 6.9x | 10.3x | 10.3x |
| Progress Software | 35.49 | 1,594 | 1,573 | 395 | 398 | 1% | 4.0x | 3.9x | 167 | 42% | 160 | 40% | 9.4x | 9.8x | 14.4x | 14.2x |
| Microsoft | 101.57 | 779,805 | 731,962 | 118,467 | 130,439 | 10% | 6.2x | 5.6x | 49,866 | 42% | 55,567 | 43% | 14.7x | 13.2x | 23.6x | 21.9x |
| Paycom Software | 122.45 | 7,177 | 7,127 | 560 | 696 | 24% | 12.7x | 10.2x | 234 | 42% | 290 | 42% | 30.5x | 24.6x | 46.9x | 38.2x |
| j2 Global | 69.38 | 3,420 | 4,127 | 1,203 | 1,294 | 8% | 3.4x | 3.2x | 489 | 41% | 538 | 42% | 8.4x | 7.7x | 11.0x | 10.2x |
| Akamai Technologies | 61.08 | 9,948 | 9,691 | 2,704 | 2,920 | 8% | 3.6x | 3.3x | 1,084 | 40% | 1,200 | 41% | 8.9x | 8.1x | 17.2x | 15.1x |
| Qualys | 74.74 | 2,943 | 2,617 | 279 | 331 | 19% | 9.4x | 7.9x | 112 | 40% | 126 | 38% | 23.4x | 20.8x | 45.6x | 40.0x |
| F5 Networks | 162.03 | 9,823 | 8,784 | 2,186 | 2,259 | 3% | 4.0x | 3.9x | 851 | 39% | 884 | 39% | 10.3x | 9.9x | 15.9x | 14.9x |
| VMware | 137.13 | 56,208 | 46,921 | 8,885 | 9,898 | 11% | 5.3x | 4.7x | 3,454 | 39% | 3,722 | 38% | 13.6x | 12.6x | 22.0x | 20.4x |
| Intuit | 196.85 | 51,090 | 50,183 | 6,410 | 6,881 | 7% | 7.8x | 7.3x | 2,441 | 38% | 2,468 | 36% | 20.6x | 20.3x | 31.2x | 29.6x |
| Temenos Group | 119.82 | 8,318 | 8,753 | 847 | 958 | 13% | 10.3x | 9.1x | 317 | 37% | 369 | 39% | 27.6x | 23.7x | 40.4x | 34.7x |
| FIS | 102.55 | 33,584 | 42,075 | 8,473 | 8,660 | 2% | 5.0x | 4.9x | 3,166 | 37% | 3,346 | 39% | 13.3x | 12.6x | 19.6x | 17.8x |
| Citrix Systems | 102.46 | 13,808 | 14,131 | 2,963 | 3,085 | 4% | 4.8x | 4.6x | 1,099 | 37% | 1,118 | 36% | 12.9x | 12.6x | 18.4x | 16.9x |
| Fiserv | 73.49 | 29,284 | 33,886 | 5,828 | 6,180 | 6% | 5.8x | 5.5x | 2,162 | 37% | 2,327 | 38% | 15.7x | 14.6x | 23.5x | 20.9x |
| LogMeIn | 81.57 | 4,173 | 4,206 | 1,203 | 1,255 | 4% | 3.5x | 3.4x | 443 | 37% | 470 | 37% | 9.5x | 8.9x | 15.3x | 14.1x |
| OpenText | 32.60 | 8,721 | 10,554 | 2,837 | 2,873 | 1% | 3.7x | 3.7x | 1,038 | 37% | 1,096 | 38% | 10.2x | 9.6x | 12.6x | 11.8x |
| Veeva | 89.32 | 12,978 | 11,926 | 857 | 1,019 | 19% | 13.9x | 11.7x | 311 | 36% | 364 | 36% | 38.4x | 32.8x | 56.6x | 50.4x |
| SS&C Technologies | 45.11 | 11,237 | 17,191 | 3,461 | 4,740 | 37% | 5.0x | 3.6x | 1,252 | 36% | 1,789 | 38% | 13.7x | 9.6x | 16.0x | 12.6x |
| Micro Focus | 17.63 | 7,377 | 11,395 | 3,956 | 3,627 | -8% | 2.9x | 3.1x | 1,422 | 36% | 1,388 | 38% | 8.0x | 8.2x | 11.2x | 7.8x |
| Cisco Systems | 43.33 | 194,810 | 177,862 | 50,802 | 52,285 | 3% | 3.5x | 3.4x | 17,966 | 35% | 18,506 | 35% | 9.9x | 9.6x | 15.3x | 13.7x |
| Upland Software | 27.18 | 587 | 729 | 148 | 190 | 28% | 4.9x | 3.8x | 52 | 35% | 69 | 36% | 13.9x | 10.5x | 17.0x | 13.7x |
| **Mean** | $ 60,710 | $59,813 | $12,304 | $13,035 | 9% | 6.6x | 6.0x | $5,152 | 42% | $5,471 | 42% | 15.5x | 14.0x | 23.1x | 20.5x | |
| **Median** | 12,008 | 13,029 | 2,445 | 2,566 | 7% | 5.0x | 4.7x | 1,032 | 39% | 1,078 | 39% | 13.7x | 12.6x | 18.2x | 16.9x | |

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Notes:
[a] Wall Street consensus estimates
[b] EV / EBITDA multiples in excess of 50x or less than 0x and P / E multiples in excess of 100x or less than 0x are considered to be not meaningful
Sources: Company releases, Wall Street research

# Equity Financing Activity
## Software IPOs: Trailing Six Months
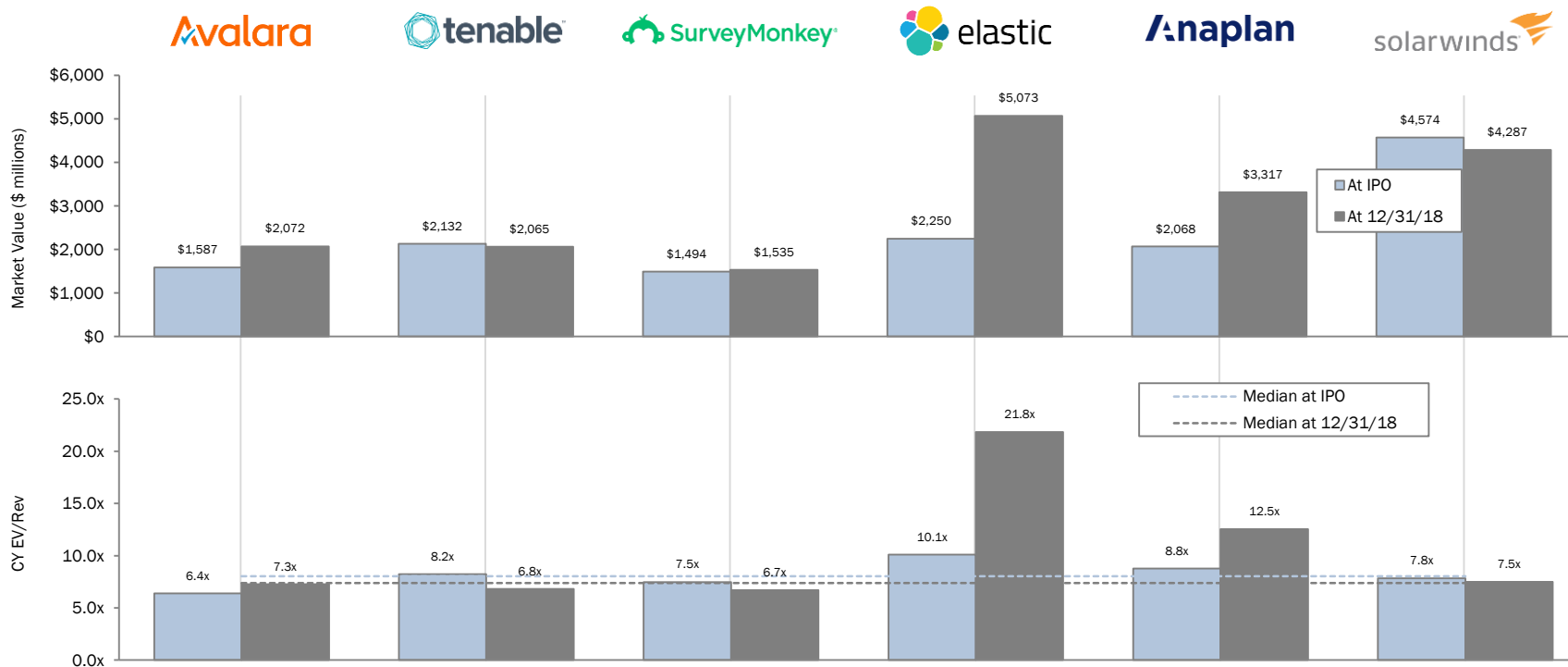


| IPO Pricing | | | | | | |
|---|---|---|---|---|---|---|
| IPO Date | 06/14/18 | 07/26/18 | 09/25/18 | 10/04/18 | 10/11/18 | 10/18/18 |
| Original Range | $19 - $21 | $17 - $19 | $9 - $11 | $26 - $29 | $13 - $15 | $17 - $19 |
| Pricing | $24.00 | $23.00 | $12.00 | $36.00 | $17.00 | $15.00 |
| *vs. Midpoint* | *20%* | *28%* | *20%* | *31%* | *21%* | *(17%)* |
| Current | $31.15 | $22.19 | $12.27 | $71.48 | $26.54 | $13.83 |
| *vs. Pricing* | *30%* | *(4%)* | *2%* | *99%* | *56%* | *(8%)* |

| Operating Statistics at IPO ($ millions) | | | | | | |
|---|---|---|---|---|---|---|
| CY Revenue | $256 | $258 | $249 | $218 | $226 | $834 |
| CY+1 Revenue | $305 | $328 | $282 | $296 | $290 | $925 |
| *Growth* | *19%* | *27%* | *13%* | *36%* | *28%* | *11%* |

Sources: Company releases, Wall Street research

# Software IPO Pricing & Performance Data

| Initial Equity Issuances from Q2 2016 – Q4 2018 ($ millions) |
|---|

| | Current Trading Data | | | | | | Valuation at IPO | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Share Price | Market | Enterprise | EV / Revenue | | Performance | IPO Date | Share | Amount | Market | Enterprise | EV / Revenue | | |
| Company | 12/31/18 | Value | Value | CY18E | CY19E | Since IPO | | Price | Raised [a] | Value | Value | LTM | CY | CY + 1 |
| SolarWinds | $ 13.83 | $ 4,287 | $ 6,244 | 7.5x | 6.7x | -8% | 10/18/18 | $ 15.00 | $ 375 | $ 4,574 | $ 6,532 | 8.1x | 7.8x | 7.1x |
| Anaplan | 26.54 | 3,317 | 2,946 | 12.5x | 9.8x | 56% | 10/11/18 | 17.00 | 264 | 2,068 | 1,981 | 9.9x | 8.8x | 6.8x |
| Elastic | 71.48 | 5,073 | 4,752 | 21.8x | 16.1x | 99% | 10/04/18 | 36.00 | 252 | 2,250 | 2,197 | 11.9x | 10.1x | 7.4x |
| SurveyMonkey | 12.27 | 1,535 | 1,687 | 6.7x | 5.9x | 2% | 09/25/18 | 12.00 | 180 | 1,494 | 1,860 | 8.0x | 7.5x | 6.6x |
| Tenable | 22.19 | 2,065 | 1,801 | 6.8x | 5.4x | -4% | 07/26/18 | 23.00 | 251 | 2,132 | 2,121 | 9.4x | 8.2x | 6.5x |
| Avalara | 31.15 | 2,072 | 1,933 | 7.3x | 6.1x | 30% | 06/14/18 | 24.00 | 180 | 1,587 | 1,631 | 7.2x | 6.4x | 5.4x |
| Pluralsight | 23.55 | 3,232 | 3,031 | 13.1x | 9.9x | 57% | 05/16/18 | 15.00 | 311 | 2,026 | 2,137 | 11.9x | 9.9x | 7.6x |
| Carbon Black | 13.42 | 911 | 748 | 3.6x | 2.9x | -29% | 05/03/18 | 19.00 | 152 | 1,273 | 1,240 | 7.1x | 6.1x | 5.0x |
| Ceridian HCM | 34.49 | 4,761 | 5,245 | 7.1x | 6.5x | 57% | 04/26/18 | 22.00 | 462 | 3,037 | 4,095 | 5.3x | 5.6x | 5.2x |
| DocuSign | 40.08 | 6,623 | 5,962 | 8.6x | 7.0x | 38% | 04/26/18 | 29.00 | 629 | 4,582 | 4,325 | 8.3x | 6.9x | 5.7x |
| Smartsheet | 24.86 | 2,579 | 2,373 | 13.5x | 9.8x | 66% | 04/26/18 | 15.00 | 175 | 1,510 | 1,458 | 13.1x | 9.4x | 6.7x |
| Pivotal | 16.35 | 4,291 | 3,627 | 5.5x | 4.5x | 9% | 04/20/18 | 15.00 | 555 | 3,838 | 3,785 | 7.4x | 6.1x | 4.9x |
| Zuora | 18.14 | 1,968 | 1,809 | 7.7x | 6.1x | 30% | 04/11/18 | 14.00 | 154 | 1,472 | 1,440 | 8.6x | 6.7x | 5.3x |
| Dropbox | 20.43 | 8,305 | 7,432 | 5.4x | 4.6x | -3% | 03/22/18 | 21.00 | 756 | 8,550 | 8,329 | 7.5x | 6.2x | 5.4x |
| Zscaler | 39.21 | 4,793 | 4,479 | 19.1x | 14.4x | 145% | 03/15/18 | 16.00 | 192 | 1,906 | 1,835 | 11.9x | 9.0x | 6.8x |
| Cardlytics | 10.83 | 232 | 231 | 1.6x | 1.2x | -17% | 02/08/18 | 13.00 | 70 | 264 | 300 | 2.3x | 1.9x | 1.3x |
| Boxlight | 1.20 | 12 | 14 | 0.4x | 0.3x | -83% | 11/28/17 | 7.00 | 7 | 66 | 70 | 2.8x | n/a | n/a |
| SailPoint | 23.49 | 2,062 | 1,989 | 8.2x | 6.7x | 96% | 11/16/17 | 12.00 | 240 | 1,052 | 1,188 | 7.3x | 6.8x | 5.5x |
| SendGrid | 43.17 | 2,057 | 1,893 | 13.0x | 10.5x | 170% | 11/14/17 | 16.00 | 131 | 694 | 673 | 6.5x | 6.1x | 4.9x |
| Bandwidth | 40.75 | 791 | 728 | 3.6x | 3.2x | 104% | 11/09/17 | 20.00 | 80 | 364 | 397 | 2.5x | 2.5x | 2.2x |
| ForeScout Technologies | 25.99 | 1,114 | 921 | 3.2x | 2.6x | 18% | 10/26/17 | 22.00 | 116 | 832 | 784 | 3.7x | 3.7x | 3.1x |
| MongoDB | 83.74 | 4,489 | 4,180 | 17.1x | 12.1x | 249% | 10/18/17 | 24.00 | 192 | 1,204 | 1,112 | 8.9x | 7.6x | 5.6x |
| Appian | 26.71 | 1,701 | 1,593 | 7.2x | 6.3x | 123% | 05/24/17 | 12.00 | 75 | 716 | 701 | 5.2x | 4.5x | 3.8x |
| Veritone | 3.80 | 73 | 9 | 0.3x | 0.2x | -75% | 05/11/17 | 15.00 | 38 | 208 | 215 | 21.6x | 11.9x | 5.6x |
| Cloudera | 11.06 | 1,698 | 1,308 | 2.9x | 2.4x | -26% | 04/27/17 | 15.00 | 225 | 1,955 | 1,720 | 6.6x | 5.1x | 4.1x |
| Yext | 14.85 | 1,498 | 1,391 | 6.1x | 4.7x | 35% | 04/12/17 | 11.00 | 116 | 958 | 938 | 7.6x | 5.7x | 4.2x |
| Okta | 63.80 | 7,046 | 6,768 | 17.3x | 13.1x | 275% | 04/06/17 | 17.00 | 187 | 1,571 | 1,533 | 9.6x | 6.8x | 4.9x |
| Alteryx | 59.47 | 3,650 | 3,493 | 17.4x | 12.8x | 325% | 03/23/17 | 14.00 | 126 | 807 | 755 | 8.8x | 6.4x | 4.6x |
| Presidio | 13.05 | 1,074 | 2,075 | 0.7x | 0.7x | -7% | 03/09/17 | 14.00 | 233 | 1,276 | 2,425 | 0.9x | 0.8x | 0.8x |
| BlackLine | 40.95 | 2,238 | 2,113 | 9.3x | 7.6x | 141% | 10/27/16 | 17.00 | 146 | 861 | 907 | 8.1x | 7.6x | 5.7x |
| Coupa Software | 62.86 | 3,737 | 3,502 | 13.8x | 11.2x | 249% | 10/05/16 | 18.00 | 133 | 886 | 806 | 7.4x | 6.5x | 5.1x |
| Nutanix | 41.59 | 7,450 | 6,922 | 5.6x | 4.3x | 160% | 09/29/16 | 16.00 | 238 | 2,232 | 2,120 | 4.2x | n/a | 2.5x |
| Apptio | 37.96 | 1,730 | 1,584 | 6.8x | 5.8x | 137% | 09/22/16 | 16.00 | 96 | 611 | 588 | 4.1x | 3.8x | 3.2x |
| Everbridge | 56.76 | 1,683 | 1,673 | 11.5x | 9.0x | 373% | 09/15/16 | 12.00 | 90 | 337 | 351 | 5.2x | 4.7x | 3.7x |
| Talend | 37.08 | 1,115 | 1,026 | 5.0x | 4.1x | 106% | 07/28/16 | 18.00 | 95 | 512 | 515 | 5.8x | 5.0x | 3.8x |
| Mean | $2,893 | $2,785 | 8.5x | 6.7x | | | | | $215 | $1,706 | $1,802 | 7.6x | 6.4x | 4.9x |
| Median | 2,065 | 1,989 | 7.2x | 6.1x | | | | | 180 | 1,276 | 1,440 | 7.4x | 6.4x | 5.1x |

Notes:
[a] Primary shares only
Sources: Company releases, Wall Street research

# Software IPO Pipeline

**Historical IPO Filing Trends**

Equity Financing Activity

# Software Private Capital Raise Activity: 4Q 2018

| ($ millions) | | | | |
|---|---|---|---|---|
| Close Date | Company | Participating Investor(s) | Description | Amount |
| 12/28/18 | Measurabl | Borealis Ventures, Building Ventures, Camber Creek, Concrete VC, DivcoWest, Impact Engine, Salesforce Ventures, Sway Ventures | Sustainability performance data collection and reporting | $25 |
| 12/28/18 | NuoDB | n/a | Distributed SQL database platform | $31 |
| 12/28/18 | Samsara | Andreessen Horowitz, General Catalyst | Physical operation safety and efficiency integration and optimization | $100 |
| 12/27/18 | Carta | Menlo Ventures, Meritech Capital Partners, Spark Capital, Tribe Capital, Union Square Ventures | Data consolidation, ownership management and compliance | $80 |
| 12/27/18 | Decisiv | n/a | Service relationship management and maintenance optimization | $30 |
| 12/20/18 | Nara Logics | n/a | Synaptic business intelligence layer | $5 |
| 12/19/18 | Dataiku | Alven Capital Partners, Battery Ventures, Dawn Capital, FirstMark Capital, ICONIQ Capital | Data science aggregation and collaboration | $101 |
| 12/19/18 | Price f(x) | Bain & Company, Credo Ventures, Digital+ Partners, Talis Capital | Pricing management and optimization | $29 |
| 12/19/18 | Socotra | n/a | Insurance billing automation, integration and reporting | $5 |
| 12/19/18 | Sprout Social | Australia Future Fund, NEA, Goldman Sachs | Social media management and analytics | $41 |
| 12/18/18 | Ambi | Global Investment Group, NXT Ventures | LMS integration and engagement platform | $5 |
| 12/18/18 | Dwelo | GSD Capital, Moderne Ventures, Perot Jain, Peterson Partners | Smart apartment integration and optimization | $7 |
| 12/18/18 | Egress | Albion Capital, FTV Capital | Unstructured data security and compliance | $40 |
| 12/18/18 | Geli | Plug and Play Tech Center | Energy storage design and automation | $6 |
| 12/18/18 | import.io | IP Group, OpenOcean, Oxford Capital Partners, Talis Capital, Wellington Partners | Unstructured web data extraction and conversion | $16 |
| 12/18/18 | Seismic | General Atlantic, Jackson Square Ventures, JMI Equity, Lightspeed Venture Partners, T. Rowe Price | Personalized pitch creation automation and sales enablement | $100 |
| 12/18/18 | Vimcar | Acton Capital Partners, Atlantic Labs, Coparion, Unternehmertum Venture Capital Partners | Commercial vehicle fleet management and compliance | $13 |
| 12/17/18 | Avanan | Greenfield Cities Holdings, Magma Venture Partners, StageOne Ventures | Email security and compliance standardization | $25 |
| 12/17/18 | DataCamp | Accomplice VC, Arthur Ventures, Spectrum Equity | Personalized data science LMS | $25 |
| 12/16/18 | Cloudify | BRM Group, CEIIF, Claridge Israel, Intel Capital, KPN Ventures, VMware | Open source digital transformation and cloud orchestration | $7 |
| 12/14/18 | Fortanix | n/a | Data protection | $22 |
| 12/14/18 | Trumid Financial | Arbor Ventures, Deutsche Börse Group, Red Bear Angels, Singapore Exchange, Soros Fund Management | Electronic credit trading platform | $60 |
| 12/13/18 | Chorus | Emergence, Georgian Partners, Redpoint Ventures | Sales conversation analytics | $33 |
| 12/13/18 | Finalcad | Aster Capital Partners, CapHorn Invest, Cathay Innovation, Draper Esprit, Salesforce Ventures, Serena Capital | Construction and site management collaboration | $40 |
| 12/13/18 | Olono | Lontra Ventures, Wildcat Venture Partners | Predictive sales process management | $7 |
| 12/13/18 | Procore | Bessemer, ICONIQ Capital, Lumia Capital, Tiger Global Management | Construction and real estate project management | $75 |
| 12/13/18 | Quickstart | Moneta Ventures, Sattar Ventures | Cognitive learning platform for IT professionals | $6 |
| 12/13/18 | Volta Networks | n/a | Scalable network infrastructure | $6 |
| 12/12/18 | AtScale | Atlantic Bridge Capital, Morgan Stanley, Storm Ventures, UMC Capital, Wells Fargo | Scalable big data querying and business intelligence | $50 |
| 12/12/18 | Celect | Activant Capital Group, August Capital, Fung Capital, NGP Capital | Predictive retail supply chain optimization | $15 |
| 12/12/18 | Cybric | n/a | Application vulnerability management and containerization | $6 |
| 12/12/18 | Juniper Square | Felicis Ventures, Ribbit Capital, Zigg Capital | Real estate investment management | $25 |
| 12/12/18 | Nexthink | Auriga Partners, Forestay Capital, Galeo-Ventures, Highland Europe, Index Ventures, TOP Funds, VI Partners | Real-time end-user security management and analytics | $85 |
| 12/12/18 | Optibus | Alibaba, Insight Venture Partners, New Era Capital, Pitango, Ronald Cohen, Verizon Ventures | End to end planning and scheduling for mass transit | $40 |
| 12/12/18 | Tigera | Insight Venture Partners, Madrona Venture Group, NEA, Wing Venture Partners | Zero trust network security and continuous compliance | $30 |
| 12/12/18 | Whisbi | Active Venture Partners, Bertelsmann Digital Media Investments, Columbia Lake Partners | Omnichannel conversational sales and marketing platform | $6 |
| 12/11/18 | Plaid | Andreessen Horowitz, Goldman Sachs Investment Partners, Index Ventures, Kleiner Perkins, NEA, Spark Capital | Bank transaction and personal data authentication and verification | $250 |
| 12/07/18 | American Prison Data Systems | Converge, FinTech Collective, New Markets Venture Partners, Partnership for New York City | Digital content management and rehabilitation resources for inmates | $17 |
| 12/07/18 | Guru | n/a | Marketing information capturing, sharing and verification | $25 |
| 12/06/18 | EdCast | Cervin Ventures, Crescent Enterprises, Mistletoe, REV Venture Partners, SoftBank, SSGA Funds, Stanford, The London Fund | AI-based employee personalized learning | $34 |

# Software Private Capital Raise Activity:  4Q 2018  continued

| | | | | |
|---|---|---|---|---|
| **($ millions)** | | | | |

| Close Date | Company | Participating Investor(s) | Description | Amount |
|---|---|---|---|---|
| 12/06/18 | Forethought | K9 Ventures, NEA, Village Global | Intelligent workflow automation | $9 |
| 12/06/18 | Forge.AI | n/a | AI data transformation platform | $11 |
| 12/06/18 | LeanIX | Capnamic Ventures, Deutsche Telekom Capital Partners, Insight, Iris Capital | Web-based enterprise architecture management | $30 |
| 12/06/18 | Liqid | n/a | Composable infrastructure automation | $7 |
| 12/06/18 | Looker | CapitalG, Cross Creek, IVP, Meritech, Premji Invest, Redpoint Ventures | Big data analytics, exploration and application integration | $103 |
| 12/06/18 | Luminoso | Acadia Woods Partners, Accord Ventures, DF Enterprises, DVI Equity Partners, Liberty Global Ventures, Raptor Group | Contact center automation and unstructured data analytics | $9 |
| 12/06/18 | Unite Genomics | Digital Horizon | Genomic and health data analysis | $6 |
| 12/06/18 | Weave | Bessemer, Catalyst Investors, Crosslink Capital, Lead Edge Capital, Pelion Venture Partners | Customer experience management and email marketing | $38 |
| 12/06/18 | Wise Systems | E14 Fund Management, Fontinalis Partners, Gradient Ventures, Neoteny, Trucks Venture Capital | Logistic dispatch and routing automation | $7 |
| 12/05/18 | 15Five | Chaifetz Group, Launch Fund, Matrix Partners, New Ground Ventures, Origin Ventures | Employee performance tracking and analytics | $8 |
| 12/05/18 | Amplitude | Battery, Benchmark, IVP, Lead Edge Capital, Sequoia | User behavior tracking and engagement | $80 |
| 12/05/18 | Camunda BPM | Highland Europe | Business process modeling and process data analysis | $29 |
| 12/05/18 | Contentful | Balderton Capital, Benchmark, General Catalyst, Hercules, OMERS Ventures, Salesforce Ventures, Sapphire | API accessible content editing, sharing and publishing | $34 |
| 12/05/18 | Facilio | Accel, Tiger Global Management | Facility optimization platform designed to manage building operations | $6 |
| 12/05/18 | Gitlab | Goldman Sachs Principal Strategic Investments, GV, ICONIQ, Khosla Ventures | Open-source code review, deployment and collaboration | $120 |
| 12/05/18 | Hosco | Athos Capital, Nauta Capital | Hospitality talent recruitment platform | $6 |
| 12/05/18 | LightStep | Altimeter Capital, Cowboy Ventures, Harrison Metal Capital, Redpoint Ventures, Sequoia | Performance management platform | $41 |
| 12/05/18 | MetaCX | Upfront Ventures | Enterprise software transparency and collaboration | $14 |
| 12/05/18 | NuORDER | BoxGroup, Cowboy Ventures, Greycroft, NewSpring Capital, Novel TMT Ventures, The Argentum Group, Upfront Ventures | Product and catalog browsing, order placing and inventory analysis | $15 |
| 12/05/18 | Pindrop | Allegion Ventures, Andreessen Horowitz, CapitalG, Citi Ventures, Cross Creek, Dimension Data, EDBI, GV, IVP, Goldman Sachs | Fraudulent phone call detection and call center authentication | $90 |
| 12/05/18 | SourceDay | ATX Seed Ventures, Draper Associates, Silverton Partners | Purchase order fulfillment and automation | $7 |
| 12/05/18 | Workato | Battery, ServiceNow, Storm Ventures, Workday Ventures | Automation-focused integration platform | $25 |
| 12/04/18 | Eclypsium | Andreessen Horowitz, Intel Capital, Madrona, Ubiquity Ventures | Firmware and hardware cyber risk mitigation and threat defense | $9 |
| 12/04/18 | Fivetran | ACE & Company, Draper Associates, Matrix Partners | Cloud data extraction, data integrations and file storage | $15 |
| 12/04/18 | MachineMetrics | n/a | Industrial production monitoring | $10 |
| 12/04/18 | MoEngage | Exfinity Venture Partners, Helion Venture Partners, Matrix Partners India, VenturEast | User analytics and marketing automation | $9 |
| 12/03/18 | Wickr | n/a | Mobile messaging and encrypted communications | $6 |
| 12/02/18 | Iov42 | n/a | Multi-asset blockchain operating platform | $23 |
| 11/30/18 | Azur | American International Group, Ascot Underwriting, Hyperion Insurance Group | Insurance underwriting, premium renewals and portfolio insurance | $17 |
| 11/29/18 | Aras | GE Ventures, Goldman Sachs Private Capital Investing Group, Silver Lake Management | Enterprise product lifecycle management | $70 |
| 11/29/18 | Asana | 8VC, Benchmark, Founders Fund, Generation Investment Management, Lead Edge Capital, WiL | Task organizer, completion tracker and communication platform | $50 |
| 11/29/18 | Big Squid | n/a | Executive decision processes identification and predictive modeling | $9 |
| 11/29/18 | MondoBrain | FINAMAR, Financière Japia, | Future issue prediction, problem solving and optimization | $13 |
| 11/29/18 | PebblePost | Advance Venture Partners, Capital One, Greycroft, Kickstart Seed Fund, RRE Ventures, Tribeca Venture Partners | Personalized direct mail segmentation and campaign management | $31 |
| 11/29/18 | Venafi | NextEquity Partners, QuestMark Partners, Technology Crossover Ventures | Intelligent cryptographic identity protection platform | $100 |
| 11/28/18 | Aibee | C Ventures, China Renaissance, K2 Ventures, Lenovo Capital and Incubator Group, Red Star Furniture, Sequoia, Zhonglian Fund | Speech recognition and big data analytics improvement | $60 |
| 11/28/18 | CyberGRX | Aetna Ventures, Allegis Group, Bessemer, ClearSky, GV, MassMutual Ventures, Scale, Ten Eleven Ventures, The Blackstone Group | Third-party cyber risk assessment and advanced data analytics | $30 |
| 11/28/18 | Deputy | EVP Capital Management, IVP, OpenView Venture Partners, Square Peg Capital | Work scheduling, timesheets, tasking and communication | $81 |
| 11/28/18 | Deskera | Cisco, InnoVen Capital, Jungle Ventures, Susquehanna Growth Equity, Tembusu Partners | Accounts receivable, inventory and payments tracking | $60 |
| 11/28/18 | Numerated | Fidelity National Information Services, FINTOP Capital, Venrock | Digital lending and direct marketing and sales | $8 |

# Software Private Capital Raise Activity: 4Q 2018 continued

| ($ millions) | | | | |
|---|---|---|---|---|
| Close Date | Company | Participating Investor(s) | Description | Amount |
| 11/28/18 | OpenLegacy | Cathay Innovation, CommerzVentures, Leumi Partners, O.G. Tech, Prytek, Rafael Development Corporation, Silverhorn | Automatic API creation, deployment, testing and management | $30 |
| 11/26/18 | Aquant | Angular Ventures, Lightspeed, Silvertech Ventures, World Trade Ventures | Predictive maintenance and NLP for CRM | $10 |
| 11/26/18 | Cogito | Avaya, Battery, Hearst Ventures, OpenView Venture Partners, Salesforce Ventures, Goldman Sachs | Real-time customer experience enhancement | $45 |
| 11/26/18 | Corvus | .406 Ventures, Bain Capital Ventures, Hudson Structured Capital Management | Commercial insurance risk selection, management and underwriting | $10 |
| 11/26/18 | Eko | 500 Startups, East Ventures, Gobi, Itochu, Lord Rothschild, Malaysia VC, Redbeat, Sinar Mas Digital Ventures, Tigerlabs, Wavemaker | Team project, e-form and report collaboration | $20 |
| 11/26/18 | Homerez | Entrepreneur Venture, Seventure Partners, XAnge Private Equity | Holiday rental management application | $7 |
| 11/26/18 | Securitize | Blockchain Capital, Coinbase Ventures, Donna Redel, Global Brain, NXTP Labs, OK Capital, SeedRocket 4Founders Capital, Xpring | Digital security issuance and compliance | $13 |
| 11/23/18 | Universal Avenue | MOOR Capital | On-demand sales and digital marketing | $6 |
| 11/21/18 | Botkeeper | Gradient Ventures, Greycroft, Half Court Ventures, Ignition Partners, Sorenson Capital | Automated bookkeeping and digital accounting | $18 |
| 11/21/18 | Sentieo | Centana Growth Partners | Financial research and report generation | $32 |
| 11/21/18 | Skymind | n/a | Open-source deep learning data analytics platform | $9 |
| 11/21/18 | Workable | 83North, Balderton Capital, Endeavor Catalyst, Notion, TriplePoint Venture Growth, Zouk Capital | HR job listing and streamlined hiring | $50 |
| 11/20/18 | Alcide | CEIIF, Elron Electronic Industries, Intel Capital | DevSecOps application-aware security and attack prevention | $7 |
| 11/20/18 | Data Impact Analytics | Bpifrance, Red River West | Inventory analytics and multichannel distribution optimization | $9 |
| 11/20/18 | SysAid Technologies | Israel Growth Partners | Service desk incident ticketing and root cause analysis | $30 |
| 11/20/18 | Visible Body | Capitala Group, Lineage Capital | Pharmaceutical, biotech and healthcare LMS | $6 |
| 11/19/18 | CorpU | n/a | Strategic initiatives deployment and monitoring | $7 |
| 11/19/18 | GoodData | Zendesk | Data management, analytics and insight application deployment | $24 |
| 11/19/18 | Mercaux | Nauta Capital | Physical store digitalization platform | $11 |
| 11/19/18 | Netronome | n/a | Networking and communication device flow processing | $19 |
| 11/19/18 | Wonolo | AMN Healthcare Services, Bain Capital Ventures, Base10 Partners, Cendana Capital, DAG Ventures, Sequoia | Pre-screen, staffing and candidate matching platform | $32 |
| 11/16/18 | Kaloom | Fonds de solidarité FTQ, MBUZZ Investments, Somel Investments | Automated data center networking platform | $10 |
| 11/16/18 | MapAnything | GM Ventures, Greycroft, Harbert Growth Partners, Salesforce Ventures | Field sales location intelligence and geo-analytics | $43 |
| 11/15/18 | Airspace Technologies | Cross Culture Ventures, Defy, Qualcomm Ventures, Scale, Schematic Ventures | Automatic shipment quoting, routing and tracking | $20 |
| 11/15/18 | Airtable | Benchmark, Caffeinated Capital, Charles River Ventures, Coatue Management, Delphine Arnault, Thread Capital, Thrive Capital | Due diligence, spend management and data visualization | $100 |
| 11/15/18 | Automation Anywhere | General Atlantic, Goldman Sachs Merchant Banking Division, NEA, SoftBank Group, WiL | Robotic process automation and embedded workforce analytics | $550 |
| 11/15/18 | Pachyderm | ACE & Company, Benchmark, Blumberg, Data Collective, Foundation Capital, Susa Ventures, Tuesday Capital, Y Combinator | Containerized data storage and analytics | $10 |
| 11/15/18 | Primer | Amplify Partners, Avalon Ventures, Data Collective, In-Q-Tel, Lux Capital, Mubadala Investment Company, Section 32 | Automatic document reading, analysis and report generation | $40 |
| 11/15/18 | Propel | Cloud Apps Capital Partners, NVP, Salesforce Ventures, SignalFire | Product information management and inter office collaboration | $18 |
| 11/15/18 | Shyft | Ignition Partners, Madrona | Labor optimization and scheduling compliance | $7 |
| 11/14/18 | Dedrone | Aqton | Drone security threat detection, classification and mitigation | $15 |
| 11/14/18 | Dragos | Canaan Partners, Emerson, National Grid Partners, Schweitzer Engineering Laboratories | Malware analysis, anomaly threat detection and workflow automation | $37 |
| 11/14/18 | FortressIQ | Lightspeed | Imitation learning and live activity analysis | $12 |
| 11/14/18 | SAM Seamless Network | ADT Security Services, Blumberg Capital, Intel Capital, NightDragon Security | Virtual patching and network gateway source security | $12 |
| 11/14/18 | ServiceTitan | Battery, Bessemer, Dragoneer Investment Group, ICONIQ, Index Ventures, T. Rowe Price | CRM, custom reporting and marketing automation for real estate | $165 |
| 11/14/18 | ShiftLeft | n/a | Sensitive data flow mapping and vulnerability tracing automation | $15 |
| 11/14/18 | UiPath | Accel, CapitalG, IVP, Madrona, Meritech, Sequoia | Agile and scalable robotic process automation | $265 |
| 11/13/18 | 4iQ | C5 Capital | Digital identity protection and threat intelligence | $18 |
| 11/13/18 | Automox | Blue Note Ventures, Charles River Ventures, TechOperators | OS patching, configuration and maintenance | $9 |
| 11/13/18 | ClearSky Data | General Catalyst, Highland Capital Partners, Pear Tree Partners, Polaris Partners | Data storage, protection and disaster recovery | $20 |

# Software Private Capital Raise Activity: 4Q 2018  *continued*

| ($ millions) | | | | |
|---|---|---|---|---|
| **Close Date** | **Company** | **Participating Investor(s)** | **Description** | **Amount** |
| 11/13/18 | Cloud Elements | Access Ventures, American Express Ventures, Grotech Ventures, Harbert Growth Partners, Rally Ventures | Data transformations, API provisioning and integration | $8 |
| 11/13/18 | Fluidly | Anthemis Group, Nyca Partners, Octopus Ventures | Credit control and cash flow forecasting and management | $7 |
| 11/13/18 | Netskope | Accel, Base Partners, Geodesic, ICONIQ, Lightspeed, Sapphire, Social Capital | Data protection, incident response and compliance platform | $168 |
| 11/13/18 | Poynt | Elavon, National Australian Bank Ventures | Secure payment terminal transactions | $100 |
| 11/13/18 | Savi Technology | Eastward Capital Partners, LaSalle Capital, SGS | Radio frequency identification based assets location tracking | $8 |
| 11/13/18 | Sojern | Technology Crossover Ventures | Multi-channel travel marketing | $120 |
| 11/12/18 | XM Cyber | Macquarie Capital Markets, Nasdaq Ventures, Our Innovation Fund, UST Global | Threat simulation and remediation automation | $22 |
| 11/08/18 | Datacoral | Madrona, Social Capital | Data collection, gathering and plumbing automation | $10 |
| 11/08/18 | RealtimeBoard | Accel, AltaIR Capital | Secure video and document collaboration | $25 |
| 11/08/18 | Samanage | Morgan Stanley Expansion Capital | Service desk business processes automation | $30 |
| 11/08/18 | TripActions | Andreessen Horowitz, Lightspeed, SGVC, Zeev Ventures | Corporate travel planning and visualized reporting | $154 |
| 11/08/18 | Turvo | Activant Capital Group, Felicis Ventures, Future Shape, G2VP, Mubadala Development Company, Next47, Upside Partnership | Real-time logistic collaboration | $60 |
| 11/07/18 | Fraugster | CommerzVentures, Earlybird Venture Capital, Munich Re/HSB Ventures, Rancilio Cube, Seedcamp, Speedinvest | Real-time payment fraud anticipation and detection | $15 |
| 11/07/18 | Thought Machine | Axos Capital Partners, Lloyds Banking Group | Intelligent core banking and customer management automation | $23 |
| 11/07/18 | YotaScale | Crosslink Capital, Engineering Capital, Pelion Venture Partners | Infrastructure performance management | $8 |
| 11/06/18 | Afiniti | GAM Holding, The Resource Group, Zeke Capital Advisors | Customer and employee interpersonal behavior prediction | $135 |
| 11/06/18 | Engineer.ai | Deepcore, Jungle Ventures, Lakestar | AI-based development collaboration | $30 |
| 11/06/18 | PredictHQ | AddVenture, Aspect Ventures, Lightspeed, Rampersand | Business event data aggregator | $10 |
| 11/06/18 | Taranis | Cavallo Ventures, Finistere Ventures, Nutrien, OurCrowd, Sumitomo Corporation Europe, Vertex Ventures Israel, Viola Ventures | Agricultural field monitoring and weather forecasting | $20 |
| 11/06/18 | Templafy | Dawn Capital, Insight, SEED Capital | Business template sharing and automated brand compliance | $32 |
| 11/05/18 | Esperanto Technologies | Comet Labs | Energy-efficient computing solutions for AI and Machine Learning | $58 |
| 11/05/18 | MyLife Digital | Business Growth Fund | Personal data management platform | $7 |
| 11/05/18 | Partnerize | GP Bullhound | Real time business partnership formation and measurement | $9 |
| 11/05/18 | Payzer | Ferguson Ventures | Online field payment, loan and electronic cash management services | $9 |
| 11/05/18 | Quantilope | Dawn Capital, Senovo, Surplus Invest | Automatic market research and consumer insights management | $8 |
| 11/05/18 | ShipMonk | Grotech Ventures, SJF Ventures, Supply Chain Ventures | Order fulfillment and shipping automation | $10 |
| 11/02/18 | Dynamic Yield | Bessemer, Naver, Union Tech Ventures, Viola Growth | Multi-channel marketing personalization and behavioral messaging | $38 |
| 11/02/18 | Inpher | Bowery Capital, Crosslink Capital, JPMorgan Chase & Company, Polytech Ecosystem Ventures | Privacy-compliant analytics | $10 |
| 11/02/18 | Scale Computing | ABS, Allos, Benchmark, Blue Chip, CID Equity, Collina Ventures, First Analysis, Heron Capital, Lenovo, Northgate Capital, Reservoir | Scalable storage management and automation | $35 |
| 11/01/18 | BenchPrep | Jump Capital, Newview Capital, Owl Ventures, Revolution | Competitive examinations learning platform | $15 |
| 11/01/18 | Blue Hexagon | Altimeter Capital | Malware detection and automated network threat protection | $26 |
| 11/01/18 | ConversionPoint Technologies | n/a | Media and advertisement expenditure optimization and CRM | $15 |
| 11/01/18 | HashiCorp | AppDynamics, Bessemer, GGV Capital, IVP, Mayfield Fund, Redpoint Ventures, Slack, Snap, True Ventures | Multi-cloud infrastructure security and automation | $100 |
| 11/01/18 | Mojix | Oak Investment Partners | Infrastructure sensor network data collection, storage and analysis | $25 |
| 11/01/18 | Neo4j | Creandum, Eight Roads, Greenbridge Partners, Morgan Stanley Expansion Capital, One Peak Partners | Open-source graph database | $80 |
| 11/01/18 | PlayerLync | Anschutz Investment, Volition Capital | Automatic enterprise content distribution and controlling | $13 |
| 11/01/18 | RingDNA | Goldman Sachs Merchant Banking Division, Palisades Growth Capital | Sales call tracking and telephone conversation intelligence | $30 |
| 11/01/18 | Rubicon | New Zealand Superannuation Fund, Promecap | Multi-location waste and recycling tracking and management | $127 |
| 11/01/18 | Sentryo | ACE Management, Alliance Entreprendre, BNP Paribas Développement, Breed Reply, Kreaxi, Omnes Capital, Sopra Steria | Situational awareness and threat response | $12 |
| 11/01/18 | Shape Security | AllegisCyber, Baseline, EPIC, Focus, JetBlue, Kleiner Perkins, NVP, Raging Capital, Singtel Innov8, TomorrowVentures, Venrock | Imitation attack prevention and alerting | $26 |

# Software Private Capital Raise Activity:  4Q 2018  continued

**($ millions)**

| Close Date | Company | Participating Investor(s) | Description | Amount |
|---|---|---|---|---|
| 10/31/18 | Deposco | n/a | Warehouse management, inventory control and order fulfillment | $9 |
| 10/30/18 | AppZen | Lightspeed, NAV.VC, Redpoint eventures, Resolute Ventures | Automatic expense report, receipt and travel document auditing | $35 |
| 10/30/18 | Backstop Solutions | David Bradley, Huizenga Capital Management, Roger Kafker, Tao Huang, Vistara Capital Partners | Alternative investment portfolio management and CRM | $20 |
| 10/30/18 | Concord | Alven Capital Partners, Charles River Ventures, Tenaya Capital | Internal and third party contract document collaboration | $25 |
| 10/30/18 | Deliv | Clayton, General Catalyst, GV, Macerich, PivotNorth Capital, RPM Ventures, Upfront Ventures, UPS Strategic Enterprise Fund | Last mile logistic analytics and return automation | $40 |
| 10/30/18 | HeadSpin | Battery, Digital Horizon, EQT, Ericsson, GV, ICONIQ, KAAJ,  Next World, Nexus Venture Partners,  Sierra Ventures, Telstra, Wipro | Mobile application remote testing and monitoring | $20 |
| 10/30/18 | Intersec | CM-CIC Capital Innovation, Highland Europe, Innovacom, Omnes Capital, Turenne Capital Partenaires | Customer experience and data analytics | $9 |
| 10/30/18 | Jemez Technology | ReignRock Capital Partners | Critical infrastructure video surveillance system | $7 |
| 10/30/18 | Omni:us | Anthemis Group, MMC Ventures, Talis Capital, Target Global | Handwritten text document processing and analysis | $23 |
| 10/30/18 | The Credit Junction | Century Equity Partners | Asset based lending and working capital and supply chain financing | $23 |
| 10/30/18 | ZypMedia | Archer Venture Capital, Sinclair Digital Ventures, US Venture Partners | Digital advertising and programmatic campaign management | $6 |
| 10/29/18 | Conversica | CIBC Capital Partners, Kennet Partners, Providence Equity Partners, Savano Capital Partners, Toba Capital | Multi channel and multi language lead engagement | $31 |
| 10/29/18 | LoopMe | BGF Ventures, Harbert Management, HV Holtzbrinck Ventures, ImpulseVC, OpenOcean | Customized audience segmentation and ad placement optimization | $17 |
| 10/29/18 | Properly | AccorHotels, Asset Management Ventures, Boost Heroes, Keyword Venture Capital | Property rental cleaning, housekeeping and maintenance operations | $9 |
| 10/29/18 | Quid | ARTIS Ventures, Founders Fund, Lixil Group, REV Venture Partners, Salesforce Ventures | Text-based investment and market trend analysis and visualization | $38 |
| 10/29/18 | Waterline Data | Infosys, Jackson Square Ventures, Menlo Ventures, Partech Partners | Data lifecycle management | $15 |
| 10/26/18 | ShipHawk | Autotech Ventures, DN Capital, Mucker Capital | Multi-carrier rating and supply chain optimization | $7 |
| 10/26/18 | Skyword | n/a | Editorial review and content promotion | $8 |
| 10/25/18 | Arctic Wolf | Adams Street Partners, Knollwood, Lightspeed, Redpoint Ventures, Sonae IM, The Future Fund, Unusual Ventures | Real-time cyber crime monitoring and analysis | $45 |
| 10/25/18 | Coople | Goldman Sachs Private Capital Investing Group, Harbert Management, One Peak Partners | Automated HR planning, recruitment and onboarding | $21 |
| 10/25/18 | Infoworks | Centerview Capital Technology, NEA, Nexus Venture Partners | Data engineering and big data workflow automation | $25 |
| 10/25/18 | Tado | Amazon Alexa Fund, E.ON, Energy Innovation Capital, European Investment Bank, Inven Capital, Total Energy Ventures | Automatic user proximity detection and temperature adjustment | $50 |
| 10/25/18 | Teikametrics | FJ Labs, Granite Point Capital, Jump Capital | Retail and e-commerce pricing and advertising optimization | $10 |
| 10/25/18 | WireWheel | Grotech Ventures, NEA, PSP Partners, Revolution, Sands Capital Ventures | Data privacy protection addressing GDPR and CCPA | $10 |
| 10/25/18 | Yoyo | Hard Yaka | Loyalty marketing and mobile payment platform | $30 |
| 10/24/18 | Carbon Lighthouse | CEAS Investments | Real estate energy optimization and building data analysis | $8 |
| 10/24/18 | CHAOSSEARCH | .406 Ventures, Glasswing Ventures, Stage 1 Ventures | Data searching, querying and historical log analysis | $9 |
| 10/24/18 | Yellowbrick Data | GV, Menlo Ventures, Next47, Samsung Venture Investment, Third Point Ventures | Data warehousing and scalable analytics | $48 |
| 10/23/18 | Assignar | Our Innovation Fund, Tola Capital | Field operations, project scheduling and job tracking | $6 |
| 10/23/18 | Bright Machines | Balyasny Asset Management, Eclipse Ventures, EDBI, FlexTronics, Lux Capital | Intelligent and adaptive manufacturing automation | $179 |
| 10/23/18 | Ethic | Kapor Capital, Nyca Partners, ThirdStream Partners, UCLA Ventures, Urban Innovation Fund | Passive portfolio construction and financial planning services | $7 |
| 10/23/18 | Ople | Hack VC, Triage Ventures | Automatic data science modeling | $8 |
| 10/23/18 | Paperspace | Battery, Initialized Capital Management, Intel Capital, SineWave Ventures, Sorenson Ventures | Cloud-based virtual desktop | $19 |
| 10/23/18 | People.ai | Andreessen Horowitz, GGV Capital, Lightspeed, Y Combinator | CRM activity logging automation and sales data analysis | $30 |
| 10/23/18 | Rtbrick | Deutsche Telekom Capital Partners, Swisscom Ventures | Networking switch operating system, visibility and analytics | $6 |
| 10/22/18 | Assent Compliance | Warburg Pincus | Supplier management, ethical sourcing and materials compliance | $100 |
| 10/22/18 | Cleartax | Composite Capital Partners, SAIF Partners, Sequoia | Income tax return filing platform | $54 |
| 10/22/18 | Domio | FJ Labs, Loric Ventures, Rubicon Venture Capital, SoftBank, Tribeca Venture Partners | Vacation rental and consumer experience platform | $12 |
| 10/22/18 | Finn.ai | 1843 Capital, BDC Capital, Flying Fish Partners, Yaletown Partners | Automatic payment, budget tracking and spend analysis | $11 |
| 10/22/18 | MYPINPAD | n/a | Biometric multi-factor user authentication and verification platform | $20 |

# Software Private Capital Raise Activity:  4Q 2018  continued

| ($ millions) | | | | |
|---|---|---|---|---|
| Close Date | Company | Participating Investor(s) | Description | Amount |
| 10/22/18 | Pulumi | Madrona, Tola Capital | Multi-cloud application and infrastructure deployment | $15 |
| 10/22/18 | Wallarm | Gagarin Capital Partners, Partech Partners, Toba Capital, Y Combinator | Intelligent vulnerability testing and security automation | $8 |
| 10/22/18 | WiredScore | Bessemer, Fifth Wall Ventures, KingSett Capital, Legal & General Capital, Momeni, Savitt Partners, SterlingVC, Town Centre Securities, | Digital connectivity rating system for real estate | $9 |
| 10/22/18 | xbAV | Armada Investment, Cinco Capital | Digitized retirement and benefit management | $24 |
| 10/19/18 | Metron | BNP Paribas, Financière Fonds Privés | Industrial energy consumption monitoring, analysis and optimization | $9 |
| 10/19/18 | Nozomi Networks | Activate Capital Partners, Energize Ventures, GGV Capital, Lux Capital, Planven Investments, THI Investments | Real-time ICS monitoring, threat detection and vulnerability assessment | $30 |
| 10/19/18 | SyncHR | Grayhawk Capital | Automated HR benefit and payroll processing and reporting | $17 |
| 10/18/18 | InCorta | GV, M12, Telstra | Business data aggregation and complex analytics | $30 |
| 10/18/18 | ProducePay | Anterra Capital, CoVenture, FJ Labs, Greenhouse Capital Partners, Moonshots Capital, Rabo Frontier Ventures, Social Leverage, Tribec | Agricultural financing and trading | $19 |
| 10/18/18 | Thunder Industries | n/a | Cross-channel advertising personalization and optimization | $6 |
| 10/18/18 | Vacasa | Assurant Growth Investing, Level Equity, NewSpring Capital, Riverwood Capital | Vacation rental management | $64 |
| 10/18/18 | Zhizhangyi | Apus Investments, Changan Capital, F&G Ventures, Fosun RZ Capital, Gaocheng Capital, GGV Capital, Lightspeed China, Shenzhen CD | Information protection and mobile security | $29 |
| 10/17/18 | Crux Informatics | Citigroup, Goldman Sachs Principal Strategic Investments, SenaHill Partners, Two Sigma Investments | Data exploration, evaluation and data audit trails | $20 |
| 10/17/18 | Infusionsoft | MicroVentures, ORIX Growth Capital | Email marketing and e-commerce platform | $20 |
| 10/17/18 | LucidChart | ICONIQ, Meritech, Spectrum Equity | Collaborative diagramming and brand management software | $72 |
| 10/17/18 | Unifonic | Endeavor Catalyst, Raed Ventures, RTF ELM, Saudi Technology Ventures | Cloud communication access, messaging and tracking | $21 |
| 10/17/18 | Xage Security | City Light Capital, GE Ventures, Interdigital, March Capital Partners, NexStar Partners | Industrial IoT authentication and data exchange | $16 |
| 10/16/18 | Hubb | Elevate Capital, Five Elms Capital, Oregon Venture Fund | Event management task and workflow automation | $6 |
| 10/16/18 | Numerify | DAG Ventures, Focus Opportunity Fund, Lightspeed, Sequoia, Tenaya Capital | Business intelligence platform driving customer experience | $28 |
| 10/16/18 | Syncron | Summit Partners | Manufacturer and part distributor aftermarket SCM | $67 |
| 10/16/18 | TravelPerk | DST Global, Felix Capital, Kinnevik, LocalGlobe, Spark Capital, Sunstone Technology Ventures, Target Capital | Business travel booking, payment and trip management | $44 |
| 10/16/18 | ZIVVER | Dawn Capital, DN Capital, HenQ | Secure communications and data leak prevention | $12 |
| 10/15/18 | Docker | Base Partners, Benchmark, Cross Creek, Greenspring Associates, SharesPost, TheFamily | Docker container code collaboration | $92 |
| 10/15/18 | Garrison | BGF Ventures, Dawn Capital, IP Group, NM Capital | Anti-malware, web content and cyber-attack protection | $30 |
| 10/15/18 | Homeday | Project A, Purplebricks | Online real estate transaction platform | $23 |
| 10/15/18 | Sovrn | Archer Venture Capital, Foundry Group, Lexington Partners, Oak Investment Partners | Programmatic strategy controlling and audience engagement | $25 |
| 10/15/18 | Springbot | Forté Ventures, Harbert Growth Partners, North Atlantic Capital, Silicon Valley Bank, TechOperators, TechSquare Labs, TTV Capital | E-commerce marketing automation and analytics | $15 |
| 10/15/18 | Yottaa | DN Capital | E-commerce, content delivery and UX acceleration | $11 |
| 10/12/18 | CitiXsys | Housatonic Partners | Retail point of sale application and SCM management | $20 |
| 10/12/18 | Zentail | FundersClub, Initialized Capital Management, Y Combinator | Retail operation centralization and automation | $6 |
| 10/11/18 | CybelAngel | Bpifrance, Serena Capital | Sensitive document and data leak detection and protection | $12 |
| 10/11/18 | G2 Crowd | Accel, Emergence, IVP, Pritzker Group Venture Capital | Enterprise software comparison and review platform | $55 |
| 10/11/18 | Rollick | Anthem Venture Partners, Autotech Ventures, Capital Factory, LiveOak Venture Partners, ManchesterStory Group, Silverton Partners | Industrial equipment online marketing platform | $8 |
| 10/11/18 | Snowflake | Altimeter Capital, Capital One, ICONIQ, Madrona, Meritech, Redpoint Ventures, Sequoia, Sutter Hill Ventures, Wing Venture Partners | Cloud data warehousing and analytics | $450 |
| 10/11/18 | Total Expert | Arthur Ventures, Emergence, Rally Ventures | Enterprise marketing, compliance and custom reporting and analytics | $20 |
| 10/10/18 | Demisto | Accel, ClearSky, Greylock Partners | Incident response and security orchestration automation | $43 |
| 10/10/18 | Mission Secure | Blue Bear Capital, Chevron, Energy Innovation Capital, Felton Group, Macquarie Group, R/GA Ventures, UVA LVG Seed Fund | Cyber visibility and endpoint protection platform | $8 |
| 10/10/18 | My Ally | Eileses Capital, Firebolt Ventures, Storm Ventures | Interview scheduling and recruiting coordination automation | $7 |
| 10/10/18 | nVoq | n/a | Voice-enabled contact center workflow automation | $19 |
| 10/10/18 | PayActiv | Generation Partners | Financial savings and budgeting, measurement and counseling | $20 |

Sources:  Company releases, Wall Street research

# Software Private Capital Raise Activity:  4Q 2018  continued

| ($ millions) | | | | |
|---|---|---|---|---|
| **Close Date** | **Company** | **Participating Investor(s)** | **Description** | **Amount** |
| 10/10/18 | Pipedrive | Atomico, Bessemer, Deutsche Telekom Capital Partners, Insight, Rembrandt Venture Partners | Sales activity planning, deal tracking and conversation recording | $60 |
| 10/10/18 | RedShelf | DNS Capital | Educational improvement learning platform | $25 |
| 10/10/18 | Skello | Aglaé Ventures, XAnge Private Equity | Restaurant staff scheduling and automated payroll processing | $7 |
| 10/09/18 | Acorus Networks | Elaia Partners, Kima Ventures, Partech Partners | Web traffic visualization and automatic web infrastructure protection | $6 |
| 10/09/18 | CiValue | Emery Investments, Sonae IM, The Nielsen Company | Customer behavior and preferences prediction and retention | $6 |
| 10/09/18 | ContentWatch | n/a | Objectionable digital content protection | $7 |
| 10/09/18 | Frontify | Blossom Capital | Brand management and design feedback collaboration | $8 |
| 10/09/18 | LoadSmart | Chromo Invest, Connor Capital, Maersk Growth | Freight quotation, booking and tracking | $22 |
| 10/09/18 | Oblong | n/a | Digital content collaboration and data visualization | $10 |
| 10/09/18 | Pitch Software | BlueYard Capital, Index Ventures, Slack | Open source presentation and content collaboration | $22 |
| 10/09/18 | Shipwell | Aspect Ventures, Base10 Partners, Fifth Wall Ventures, First Round Capital, Global Founders Capital, Village Global | Shipment quoting, booking and tracking | $10 |
| 10/09/18 | Solarflare | DRW Venture Capital, Oak Investment Partners, Xilinx | Network server adapter and application middleware acceleration | $16 |
| 10/09/18 | Stratifyd | Georgian Partners | Customer feedback and interaction data analytics | $20 |
| 10/08/18 | Goodlord | Finch Capital, Global Founders Capital, Rocket Internet | Cloud-based rental transaction platform | $9 |
| 10/08/18 | Machinify | Battery, GV, Matrix Partners | Database management and predictive analytics | $10 |
| 10/08/18 | RevUp | Alumni Ventures Group, Royal Street Ventures, Salesforce Ventures, Spero Ventures | Fundraising identification, targeting and engagement platform | $8 |
| 10/05/18 | DataRobot | Cisco, DFJ Growth, IA Ventures, Intel Capital, Meritech, NEA, Sapphire | Machine learning based predictive model automation | $100 |
| 10/05/18 | Stay Alfred | Nine Four Ventures | Online vacation rental platform | $47 |
| 10/05/18 | TidalScale | Bain Capital Ventures, Hummer Winblad Venture Partners, Infosys, Sapphire, SK Hynix | Data center server right-sizing | $24 |
| 10/05/18 | Vectaury | Jolt Capital | Predictive marketing and geo-profiling | $23 |
| 10/04/18 | Arachnys | QED Investors, Thwack Partners | Financial crime risk assessment, auditing, reporting and compliance | $10 |
| 10/04/18 | Artificial Solutions | n/a | Natural language interaction development and analytics | $16 |
| 10/04/18 | Coolfire Solutions | Clayton Capital Partners, IrishAngels, IrishAngels Ventures | Real-time mobile situational awareness | $12 |
| 10/04/18 | CrediFi | n/a | Commercial real estate loan data aggregator | $6 |
| 10/04/18 | Glassbox | CEIIF, Gefen Capital, Ibex Investors, Updata Partners | Customer experience optimization and insight analytics | $25 |
| 10/04/18 | JFrog | Battery, Dell, Gemini Israel Ventures, Geodesic, Insight, Qumra, Sapphire, Scale, Silicon Valley Fund, Spark Capital, Vintage, VMware | DevOps centralization, control and distribution enhancement | $165 |
| 10/04/18 | Lilt | Redpoint Ventures, Sequoia, XSeed Capital, Zetta Venture Partners | Automatic professional document translation platform | $10 |
| 10/04/18 | ProtectWise | n/a | Collective network security and real-time threat detection | $15 |
| 10/04/18 | PureSec | Entrée Capital, Square Peg Capital, TLV Partners | Serverless architecture threat protection | $7 |
| 10/03/18 | Aras | Savano Capital Partners | Enterprise product lifecycle management | $70 |
| 10/03/18 | Braze | Cross Creek, Meritech, Spark Capital | Customer data management and personalized messaging | $80 |
| 10/03/18 | CloudKnox | ClearSky, Dell, Foundation Capital | Compromised credentials detection and insider threat prevention | $9 |
| 10/03/18 | Hopper | Accomplice VC, BDC Capital IT Venture Fund, Brightspark, Citi Ventures, Investissement Québec, OMERS Ventures | Data-driven travel planning application | $100 |
| 10/03/18 | Hysolate | Bessemer, Innovation Endeavors, NGP Capital | Hybrid endpoint device security and virtualization | $18 |
| 10/03/18 | Talkdesk | Draper Fisher Jurvetson Management, Viking Global Investors | Skills-based call routing and call center operations management | $100 |
| 10/02/18 | Arcadia Data | Blumberg Capital, Intel Capital, Mayfield Fund, Pelion Venture Partners | Visual analytics and BI platform for Hadoop | $15 |
| 10/02/18 | Brightwheel | Bessemer, Chan Zuckerberg Initiative, Eniac Ventures, GGV Capital, Golden Ventures, Lowercase Capital, Omidyar Network | Parent teacher communication and education operations management | $21 |
| 10/02/18 | CTERA Networks | Benchmark, Bessemer, Cisco, Red Dot Capital Partners, Singtel Innov8, Venrock, Vintage, Viola Group | Cloud data storage, backup, file sharing and mobile collaboration | $30 |
| 10/02/18 | STRIVR | GreatPoint Ventures, Purple Arch Ventures, The Yard Ventures | Virtual reality enabled employee training | $16 |
| 10/02/18 | Tanium | Adage Capital Management, Baillie Gifford, Wellington Management | IT endpoint security and configuration compliance | $200 |

Sources:  Company releases, Wall Street research

# Software Private Capital Raise Activity:  4Q 2018  continued

| ($ millions) | | | | |
|---|---|---|---|---|
| Close Date | Company | Participating Investor(s) | Description | Amount |
| 10/01/18 | Ivideon | Sistema-Rusnano Capital Fund, Skolkovo Ventures | Cloud-based video surveillance software | $8 |
| 10/01/18 | Linkfluence | Ring Capital, Tikehau Capital Advisors | Social media monitoring and intelligence | $21 |
| 10/01/18 | Preservica | Mobeus Equity Partners | Documents digital preservation and electronic archiving | $10 |
| 10/01/18 | Project44 | 8VC, Chicago Ventures, Emergence, High Alpha, Insight, Omidyar, OpenView Venture Partners, Pritzker Group Venture Capital | Shipment pricing, routing, tracking and delivery documentation | $80 |
| 10/01/18 | Qualia | 8VC, Bienville Capital Management, CIP Capital, Clocktower Technology Ventures, Eniac Ventures, Menlo Ventures | Real estate transaction document exchange and messaging | $33 |
| 10/01/18 | Simplus | n/a | Data synchronization and integration | $8 |
| 10/01/18 | Site 1001 | n/a | Building and facility management automation | $12 |

Sources:  Company releases, Wall Street research

# People ▪ Industry Expertise ▪ Process Excellence

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