



April 2019


# Infrastructure Software Insights

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# Houlihan Lokey's Team Focused on Infrastructure Software

## Fully Integrated Team, Ensuring Deep Industry and Sector Knowledge



has sold substantially all its assets, pursuant to Section 363 of the U.S. Bankruptcy Code, to



Company Advisor




has been acquired by




MADISON DEARBORN PARTNERS, LLC

Sellside Advisor



has received an equity investment from



Financial Advisor



a wholly owned subsidiary of




has been acquired by



LOOKINGGLASS  
Transforming the Art of Threat Intelligence

Sellside Advisor



has been acquired by

International Business Machines Corporation

Fairness Opinion



has been acquired by



Sellside Advisor\*



has been acquired by



Sellside Advisor\*



has been acquired by



Sellside Advisor\*

## Infrastructure Software Team



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Houlihan Lokey is the trusted advisor to more top decision-makers than any other independent global investment bank.

**1,300+** Employees  
**24** Offices Globally

## Corporate Finance

2018 M&A Advisory Rankings All U.S. Transactions		
	Advisor	Deals
1	<b>Houlihan Lokey</b>	<b>207</b>
2	Goldman Sachs & Co	197
3	JP Morgan	154
4	Morgan Stanley	135
5	Jefferies LLC	117

Source: Thomson Reuters

**No. 1** U.S. M&A Advisor

**Top 10** Global M&A Advisor

**Leading** Capital Markets Advisor

## Financial Advisory

1999 to 2018 Global M&A Fairness Advisory Rankings		
	Advisor	Deals
1	<b>Houlihan Lokey</b>	<b>1,073</b>
2	JP Morgan	971
3	Duff & Phelps	728
4	Bank of America Merrill Lynch	660
5	Morgan Stanley	659

Source: Thomson Reuters. Announced or completed transactions.

**No. 1** Global M&A Fairness Opinion  
Advisor Over the Past 20 Years

**1,000+** Annual Valuation  
Engagements

## Financial Restructuring

2018 Global Distressed Debt & Bankruptcy Restructuring Rankings		
	Advisor	Deals
1	<b>Houlihan Lokey</b>	<b>63</b>
2	PJT Partners Inc.	45
3*	Moelis & Co.	36
3*	Lazard	36
3*	Rothschild & Co.	36

Source: Thomson Reuters  
\* Denotes tie

**No. 1** Global Restructuring Advisor

**1,000+** Transactions Completed  
Valued at More Than \$2.5 Trillion  
Collectively

## TMT

2018 M&A Advisory Rankings U.S. Technology, Media, Entertainment & Telecom Transactions Under \$1 Billion		
	Advisor	Deals
1	<b>Houlihan Lokey</b>	<b>35</b>
2*	Duff & Phelps	33
2*	Raymond James Financial Inc	33
4	Moelis & Co	31
5	Morgan Stanley	30

Source: Thomson Reuters \*Denotes tie

**No. 1** M&A Advisor for U.S.  
Technology, Media, Entertainment &  
Telecom Transactions Under \$1 Billion

**35** Completed Transactions in 2018

# Selected Recent Infrastructure Software Transactions

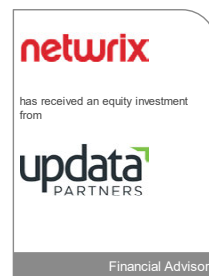
## BlueCat Sale to Madison Dearborn Partners



Houlihan Lokey served as the exclusive financial advisor to BlueCat in its sale to Madison Dearborn Partners

BlueCat provides IP address management (IPAM), domain name system (DNS), and DHCP solutions for organizations in Canada and internationally.

## Netwrix Equity Investment From Udata Partners



Houlihan Lokey served as the exclusive financial advisor to Netwrix

Netwrix provides a market-leading IT infrastructure management platform that offers fully automated, end-to-end system configuration and data access auditing.

## Cyveillance Sale to LookingGlass



Houlihan Lokey served as the exclusive financial advisor to Cyveillance in its sale to LookingGlass

Cyveillance provides open-source web-based enterprise threat management, anti-phishing, identity theft and corporate brand protection, anti-fraud, corporate compliance, anti-counterfeiting, and business interruption monitoring SaaS.

## Cleversafe Sale to IBM



Houlihan Lokey served as the provider of the fairness opinion to Cleversafe in its sale to IBM

Cleversafe provides object-based dispersed storage network (dsNet) SaaS, enabling cloud-based big-data encryption, archiving, backup, and slice dispersal.

# Key Trends in Infrastructure and Ops Software



## Increasing DevOps Adoption

- Brought about from the combination of development and ITOM (Ops) in the modern enterprise
- A fundamental change to the way software is built, sold, delivered, and integrated
  - Iterative development methods necessitate continuous everything: development, quality, code integration, releases, performance management, etc.



## Abstraction of Code From Underlying Infrastructure

### Containers

- Application virtualization—more flexible, lightweight, and portable than server virtualization
- Suited for cross-platform, cross-environment deployments and migration
- Kubernetes is the leading tool for container orchestration

### Serverless

- Relatively new to the PaaS sector, further abstracting applications; potential to fundamentally change software and application architectures



## MicroServices

- Breaking development projects into reusable components, with the potential to yield significant improvement in development efficiency, speed, and reliability



## Open-Source Software

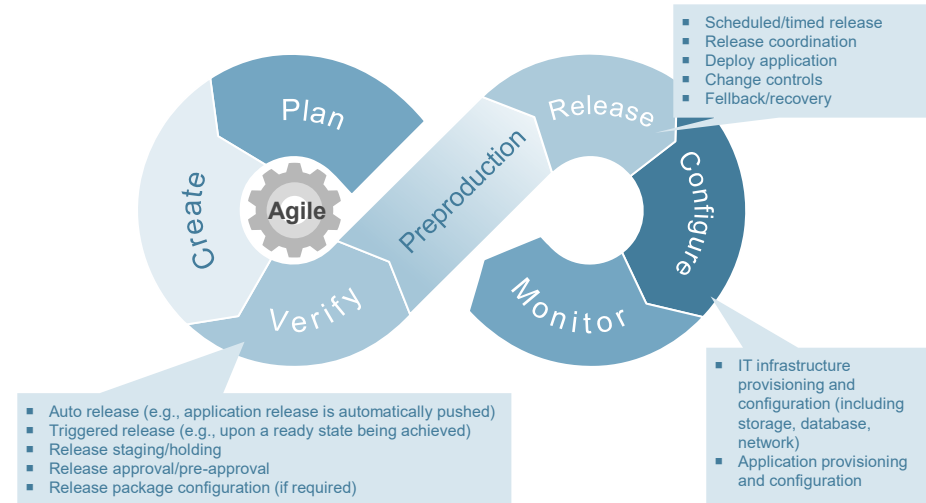
- The availability of quality applications, components, and libraries via freely available, community-maintained code has caused a massive disruption to some segments of the infrastructure software market while enabling the rise of commercial open source for the enterprise

# Increasing DevOps Adoption

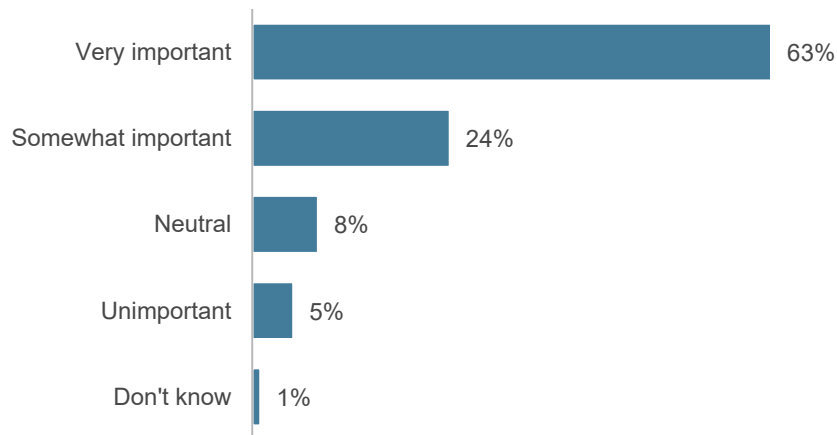
## DevOps Workflow and Areas of Automation

- Started by combining the work of IT development and operations teams
- DevOps is an approach to develop and run IT services faster and with higher quality through the adoption of agile and lean practices as well as automation
- Bringing a revitalization of the broader tool chain, setting in motion a period of change and innovation

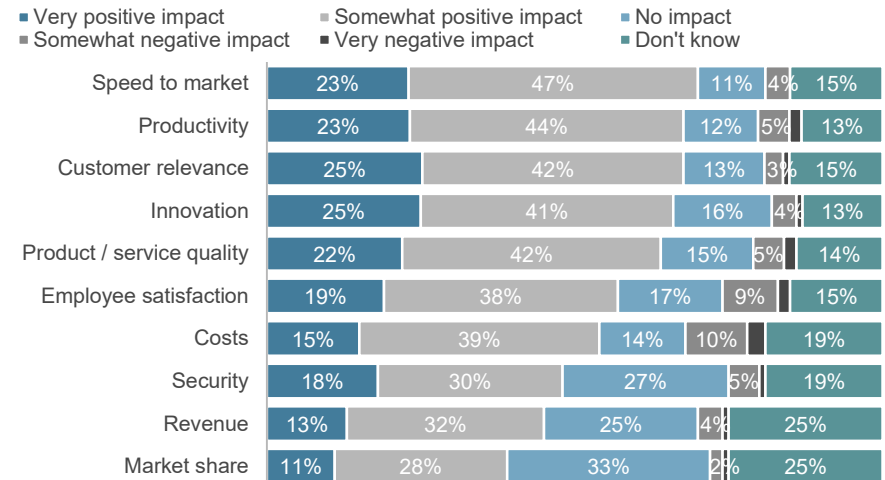
## Key Steps in the DevOps Toolchain



## Importance of the DevOps Philosophy in Companies



## DevOps Delivers Key Business Results



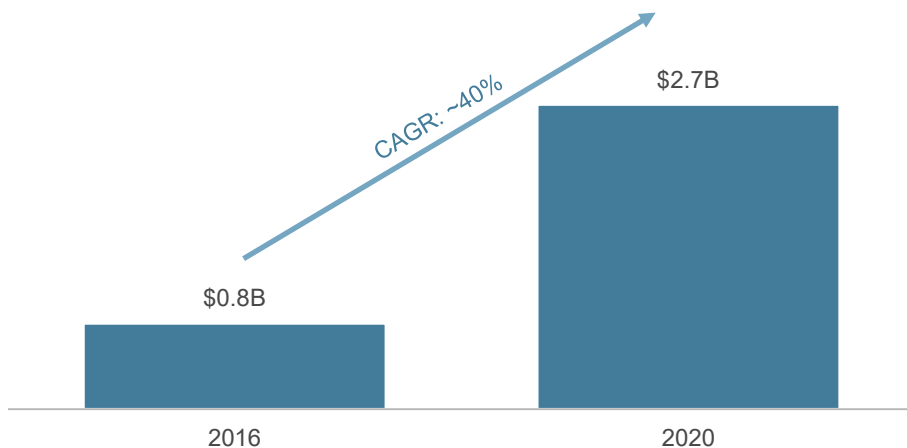


# Abstraction of Code From Underlying Infrastructure: Containers

## Containers Have Become an Important Tool for Application Virtualization

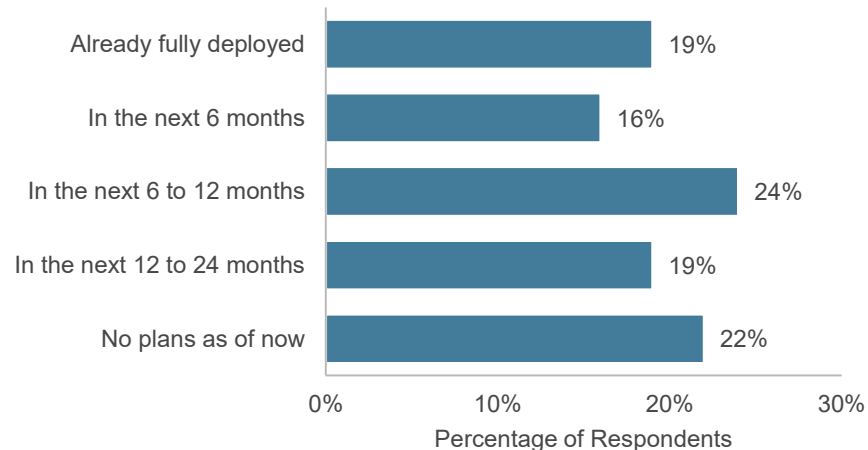
- Containers are foundational tools that bridge multiple cloud and on-premises environments to allow for consistent management across any environment
- Containers enable open architectures that give IT leaders the flexibility to tap the best cloud platforms/operating systems that meet their unique business needs
- Container adoption continues to show strong growth, with ~80% of enterprises expecting to use container technology in their IT stack

## Container Market Growing Quickly

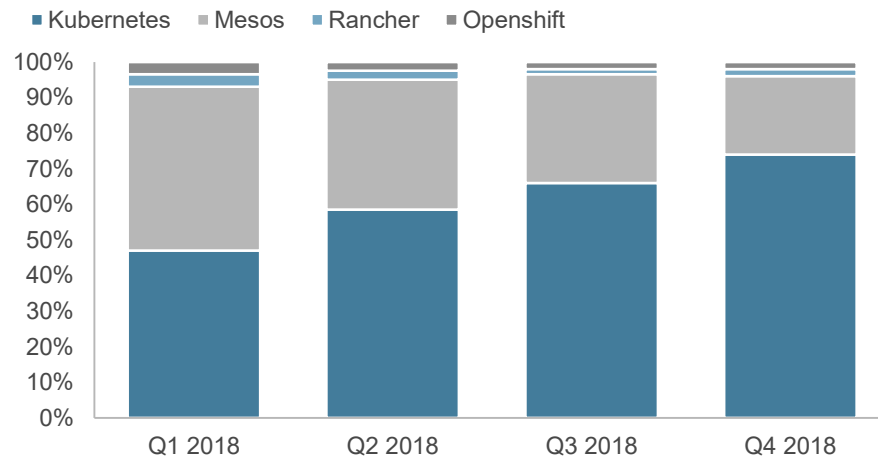


Source: Gartner, Oppenheimer & Co. Inc.

## ~80% Enterprises Expecting to Use Containers in Their IT Stack



## Kubernetes Gaining Share in Container Orchestration Software





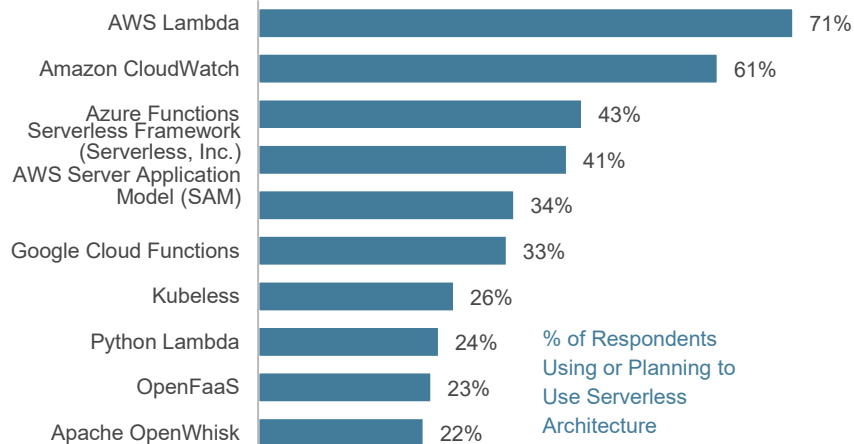
# Abstraction of Code From Underlying Infrastructure: Serverless

## Serverless Proving the Greatest Flexibility in Application Deployment

- New "born-in-the-cloud" platform model offering the highest degree of application abstraction
- Serverless architectures enable developers to deploy and run applications without provisioning or managing the underlying infrastructure
- All of the server management and capacity planning decisions are completely hidden from the developer and are automatically scaled with built-in availability and fault tolerance by a cloud service provider (e.g., Amazon AWS, Microsoft Azure, and Google Cloud)
- No software or runtime to install, maintain, or administer, and no resources that need to be pre-provisioned or paid for
- Serverless architectures are event-driven, support MicroServices, are available on demand, offer fast scaling and deployment flexibility, and can dramatically cut time to market

## Top 10 Technologies on Serverless Roadmaps

Technology in Use or Planning to Use in Next 18 Months



Source: Gartner, Oppenheimer & Co. Inc., Cloudability State of the Cloud 2018

## Key Providers



AWS Lambda



Google Cloud Functions



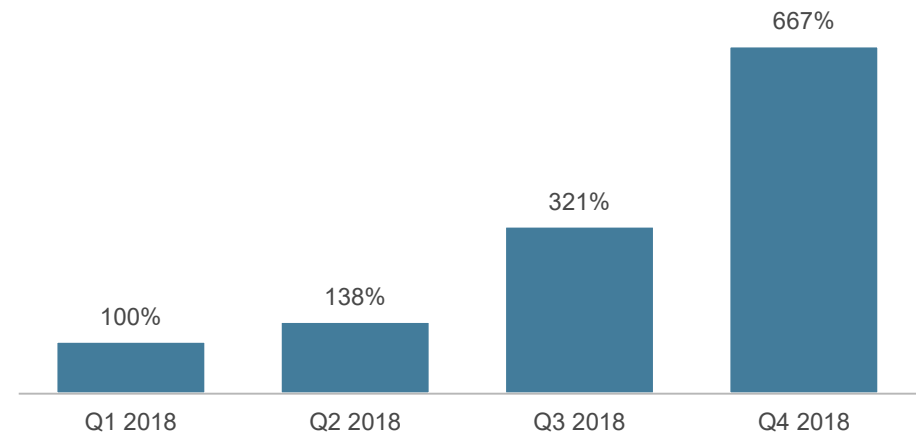
Azure Functions



APACHE OpenWhisk™

## Pace of Serverless Adoption Rapidly Increasing

(% Growth Rate)

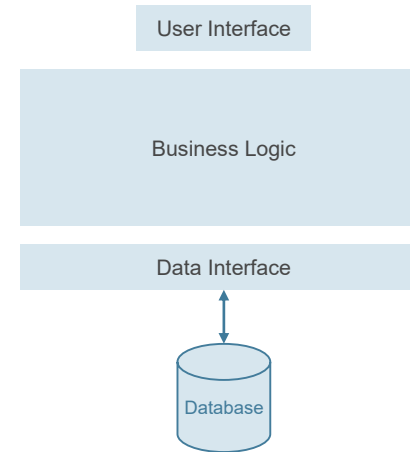


# MicroServices-Based Architectures Becoming the New Paradigm

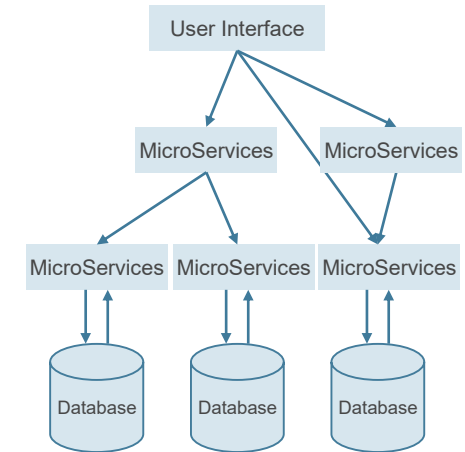
## The Growth of MicroServices

- Application development moving from the traditional approach of building “monolithic” applications from scratch to a development model based on small, reusable MicroServices
  - Significant improvement in development efficiency, speed, and reliability
- In the MicroServices paradigm, managing the connectivity between services and eliminating performance bottlenecks is critical and has given rise to an important class of infrastructure software:
  - Service Meshes: Istio, Linkerd
  - API Management: CA/Layer 7, Intel/Mashery, MuleSoft
  - Containers: CoreOS, Docker, Kubernetes, Rancher Labs

## Monolithic Architecture

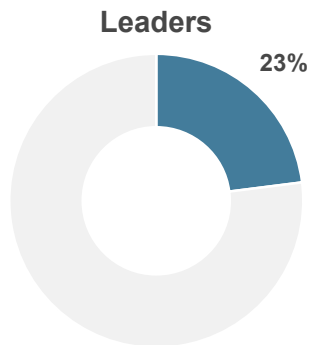


## MicroServices Architecture

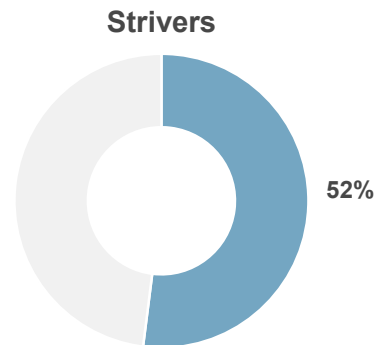


## Companies Fall Into Three Categories of MicroServices Adoption

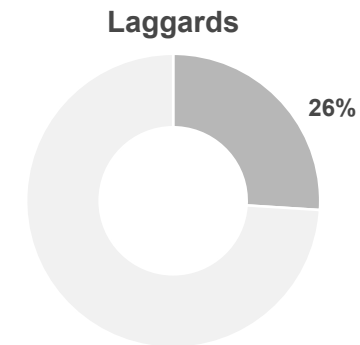
Companies fall into three categories:



Have already implemented a MicroServices infrastructure; robust API layer

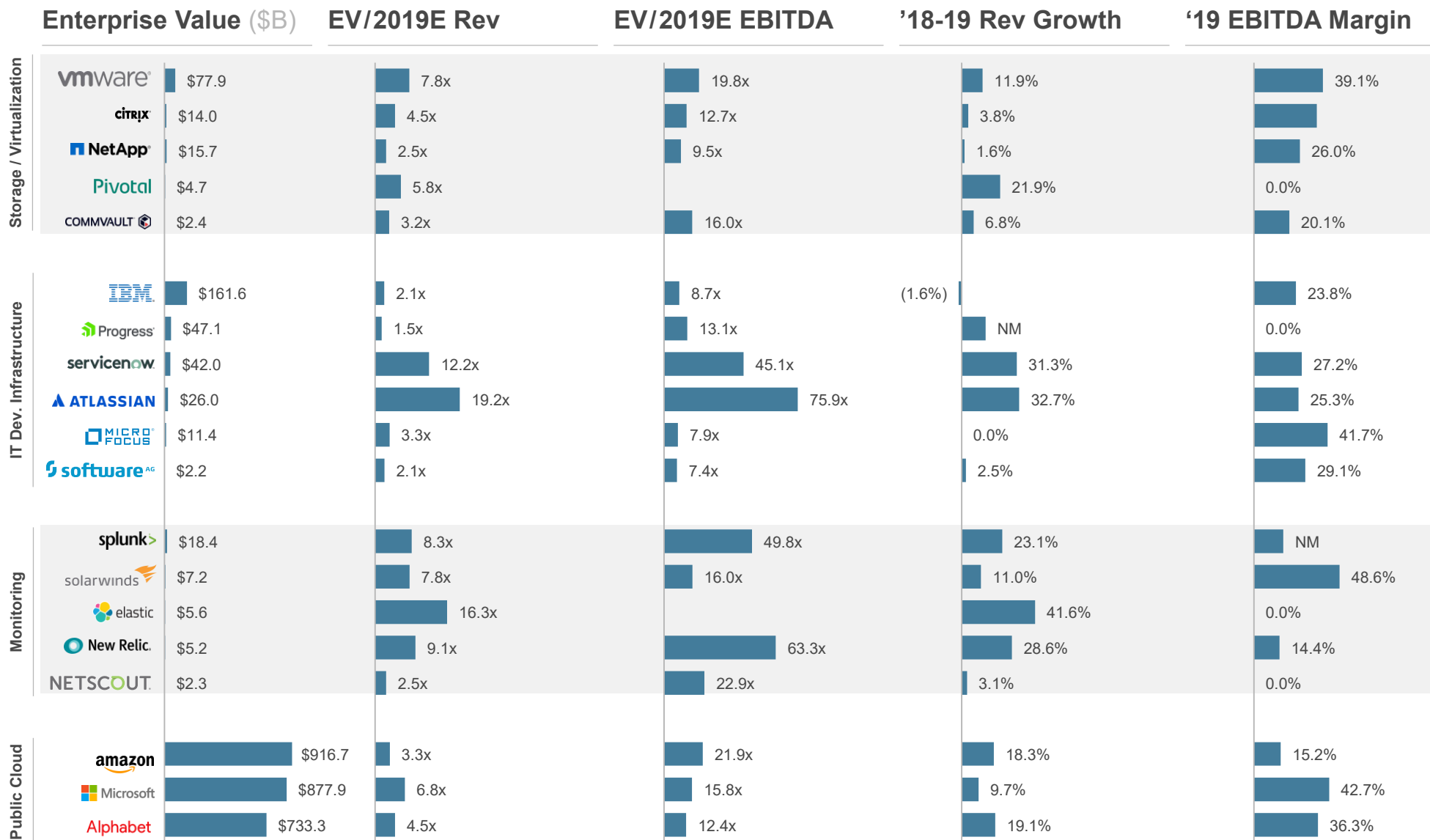


See APIs as critical to their technology strategy but have not yet implemented a MicroServices infrastructure



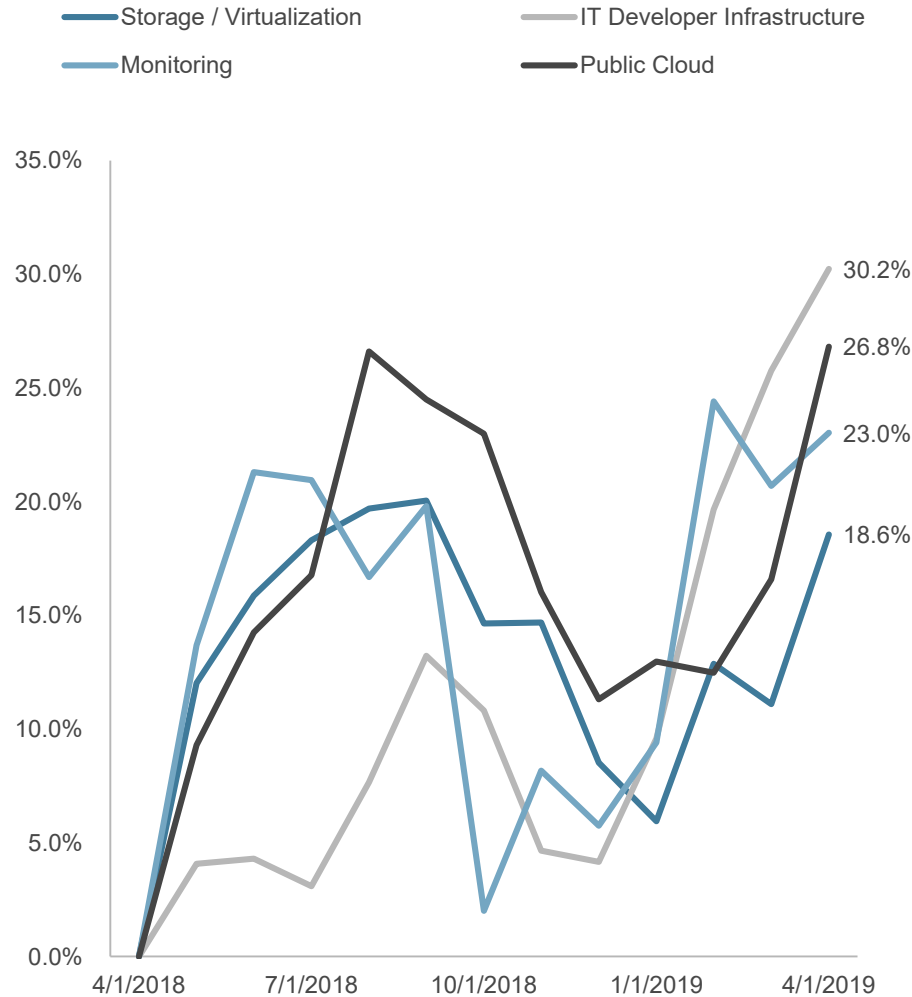
Do not see APIs as critical to their technology strategy and have not implemented a MicroServices infrastructure

# Infrastructure Software Companies by Enterprise Value

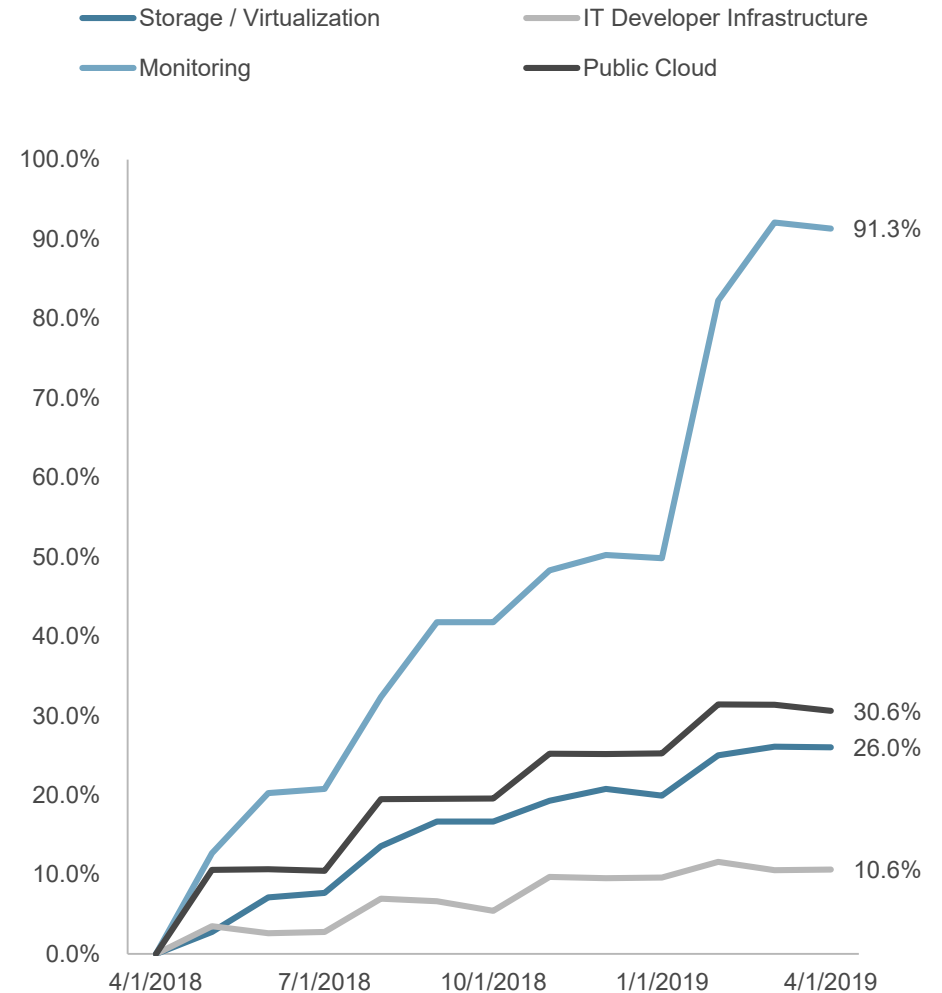


# Public Valuation Trends

## LTM Stock Price Performance



## Relative NTM EBITDA Estimates to LTM



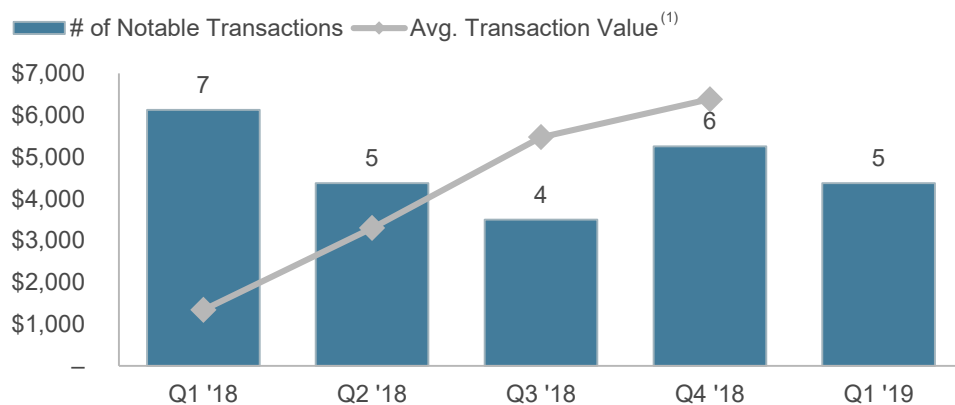
Source: As of 04/08/2019

Note: Storage/Virtualization includes Commvault Systems, Pivotal Software, NetApp, Citrix Systems, VMware; IT Developer Infrastructure includes Micro Focus, Software AG, Atlassian, ServiceNow, Progress Software, IBM; Monitoring includes NetScout, New Relic, Elastic, SolarWinds, Splunk; Public Cloud includes Alphabet, Microsoft, Amazon

# Recent Infrastructure Software M&A Activity

## Infrastructure Software Notable M&A Transactions

(\$ in millions)



## Key M&A Drivers

- As hybrid clouds and container technology become important, software providers are acquiring capabilities via M&A (IBM/Red Hat, VMware/Heptio)
- Demand and attractiveness of open-source software with developer community is on the rise (Microsoft/GitHub, EQT/SUSE)
- Emergence of “citizen developers” is driving demand for low code/no code software (Perforce/Perfecto)
- Increasing concern about costs in public cloud/hybrid cloud environments is driving opportunities in cloud monitoring (Vista/Apptio)
- Participants in the DevOps toolchain seeking to broaden their portfolios (JFrog/Shippable, Idera/Travis CI)

## Recent Notable M&A Transactions

(\$ in millions)

Date	Acquirer	Target	TEV	LTM Rev. Multiple
02/21/2019	JFrog	shippable	~\$43.0	NA
01/23/2019	IDERA	Travis CI	NA	NA
11/15/2018	CITRIX	sapho	\$200.0	NA
11/11/2018	VISTA EQUITY PARTNERS	APPTIO	\$1,851.2	8.2x
11/06/2018	vmware	heptio	NA	NA
10/28/2018	IBM	redhat	\$34,025.9	10.8x
10/15/2018	MARTELLO	savision <small>A subsidiary of Martello Technologies</small>	\$120.0	4.0x
10/08/2018	BainCapital	Rocket	\$2,000.0	NA
10/08/2018	PERFORCE	Perfecto	\$180.0	3.3x
09/04/2018	ATLASSIAN	Opsgenie	\$295.0	NA
08/02/2018	NUTANIX	FRAME	\$165.0	11.x
07/11/2018	BROADCOM	ca technologies	\$18,900.0	NA
07/02/2018	EQT	SUSE	\$2,535.0	NA
06/11/2018	splunk	VictorOps	\$120.0	24.0x
06/04/2018	Microsoft	GitHub	\$7,500.0	NA
03/20/2018	salesforce	MuleSoft	\$6,579.6	21.9x
03/07/2018	inovalon	ABILITY	\$1,200.0	8.6x
02/06/2018	cloudbees	CODESHIP	NA	NA

Source: CB Insights, Capital IQ, 451 Research

























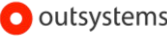









(1) Q1 2019 is reflective of transactions announced up to March 4, 2019

Note: Financing activity includes investments from VC, corporate VC, and private equity investors.

# Notable Infrastructure Software Investments by PE/VC Firms





## Recent Investments

(\$ in millions)

Date	Company	Series	Funding Round	VC Investors	PE/Crossover Investors
01/15/2019	 rubrik	Series E	\$261.0	    	
01/14/2019	 QUICK BASE	NA	NA		
11/01/2018	 HashiCorp	Series D	\$100.0	     	
10/04/2018	 JFrog	Series D	\$165.0	  GEODESIC Silicon Valley Investment Fund	
09/07/2018	 Sonatype	Series E	\$80.0		
09/06/2018	 pagerduty	Series D	\$90.0	 ANDREESSEN HOROWITZ 	 WELLINGTON MANAGEMENT®
06/05/2018	 outsystems	Series D	\$360.0		 
04/04/2018	 cherwell	NA	\$172.0		
02/12/2018	 XebiaLabs	Series B	\$100.0		
01/30/2018	 BrowserStack	Series A	\$50.0		

## Notable Companies Funding History

(\$ in millions)

Series	 HashiCorp	 JFrog	 pagerduty	 rubrik
Series A	\$10.0	\$3.5	\$10.7	\$10.0
Series B	\$24.0	\$7.0	\$27.2	\$41.0
Series C	\$40.0	\$50.0	\$43.8	\$61.0
Series D	\$100.0	\$165.0	\$90.0	\$180.0
Series E	NA	NA	NA	\$261.0
<b>Total Funding</b>	<b>\$174.0</b>	<b>\$227.5</b>	<b>\$173.8</b>	<b>\$553.0</b>

## Key Takeaways

- Large recent funding rounds for DevOps-focused companies (PagerDuty, Hashicorp) demonstrate investor enthusiasm toward the cloud-native IT application development market
- As traditional IT application providers seek to transition their offerings to the cloud and for cloud-native customers, PE firms are seeking buyouts of these companies to help accomplish this transition as private companies

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