MESOSPHERE 2018
CLOUD NATIVE ECOSYSTEM REPORT

Forward by Ben Hindman, Co-Founder, Mesosphere

Welcome to the *Mesosphere 2018 Cloud Native Ecosystem Report*. Each year, we survey Mesosphere users to get insight into usage statistics and industry trends. This year, our survey results have clearly highlighted growth in two key areas— multi-cloud and Kubernetes.

Mesosphere is accelerating multi-cloud in two ways. The first is automating infrastructure services across multiple cloud service providers–we've seen a 2x increase in this use case over the past year. The second is running hybrid cloud infrastructures that include a combination of service providers and on-prem infrastructures. In fact, hybrid Mesosphere deployments now exceed cloud provider-only deployments.

Kubernetes is the most popular ecosystem workload users are launching on Mesosphere. Users run Kubernetes on Mesosphere for a few reasons: Kubernetes service orchestration, fine-grained resource sharing between Kubernetes and data services, and running multiple Kubernetes clusters.

In addition to multi-cloud and Kubernetes coming up as key trends, we were also able to uncover a number of other interesting data points.

We hope you find the information in this survey report useful.

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Apache Mesos PMC Chair & Mesosphere Co-Founder
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Methodology: This report include survey responses of 744 respondents in 2016 and 2018, polled from the Mesos and Mesosphere DC/OS user community. This report also incorporates monthly download statistics to determine which services (e.g., Kubernetes, Kafka, Spark) are being used.

Part 1:
Adoption of Mesosphere in the Enterprise
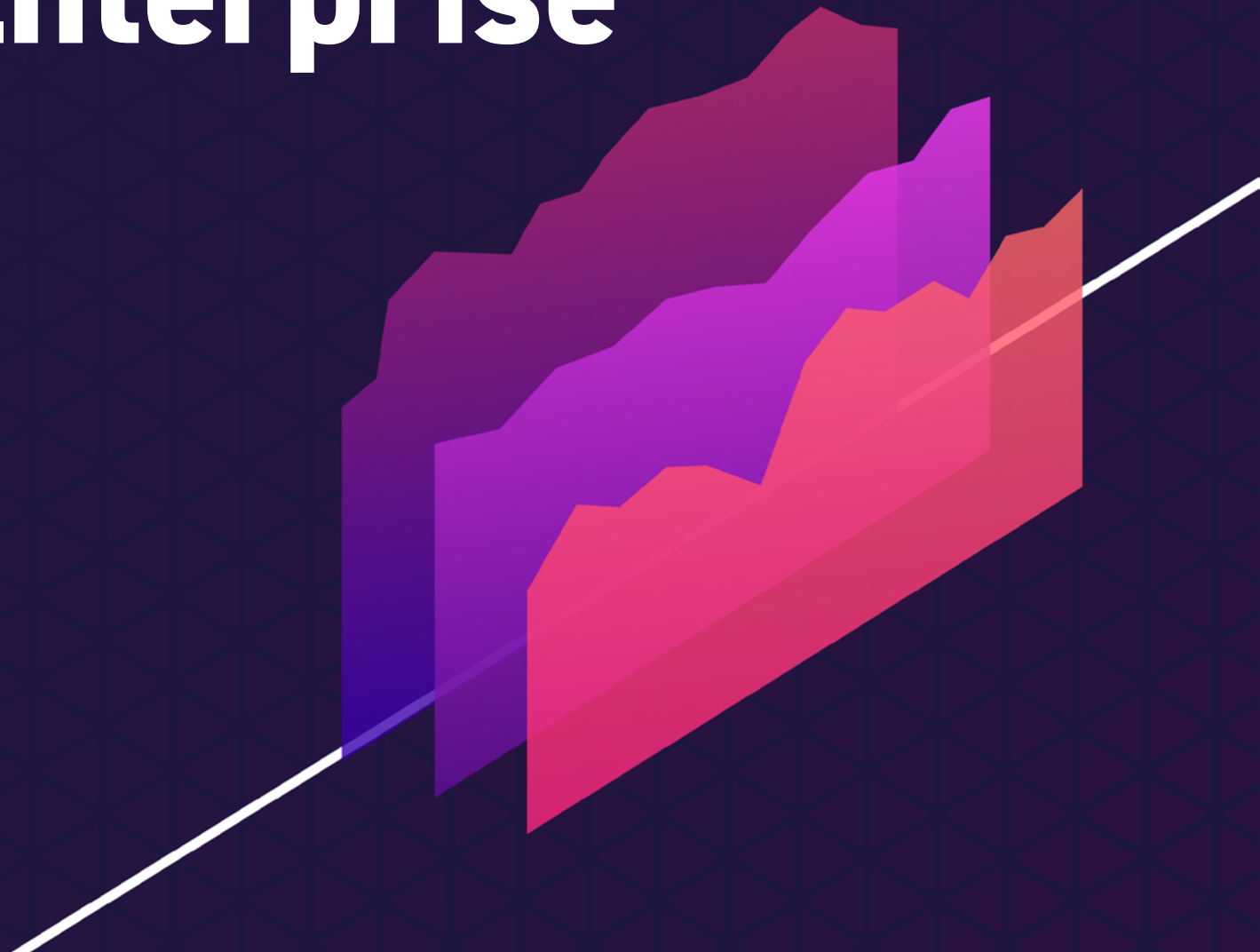
Adoption of Mesosphere in large enterprise companies is quickly growing.

According to our survey respondents, adoption of Mesosphere has grown across a variety of industries and company sizes. Most notably, Mesosphere continues to have a strong presence in the top Fortune 100 companies.
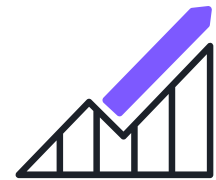
Who uses Mesosphere?

30% of the Fortune 50 U.S. Companies

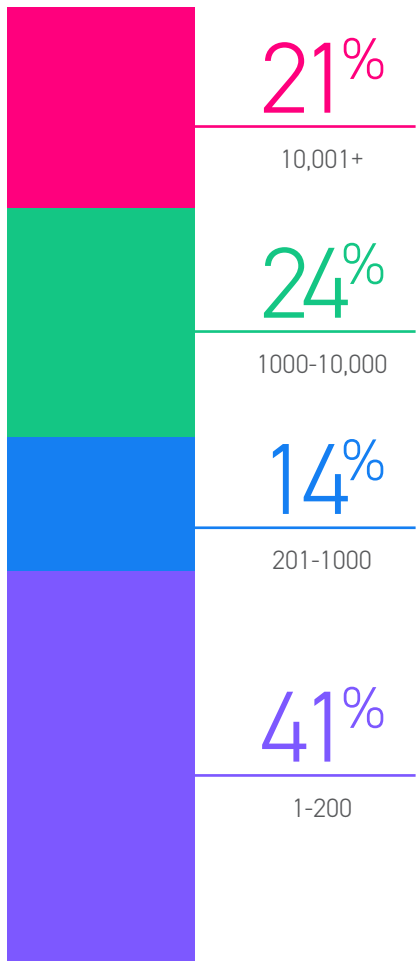5 of the top 10 North American Banks

7 of the top 12 Worldwide Telcos

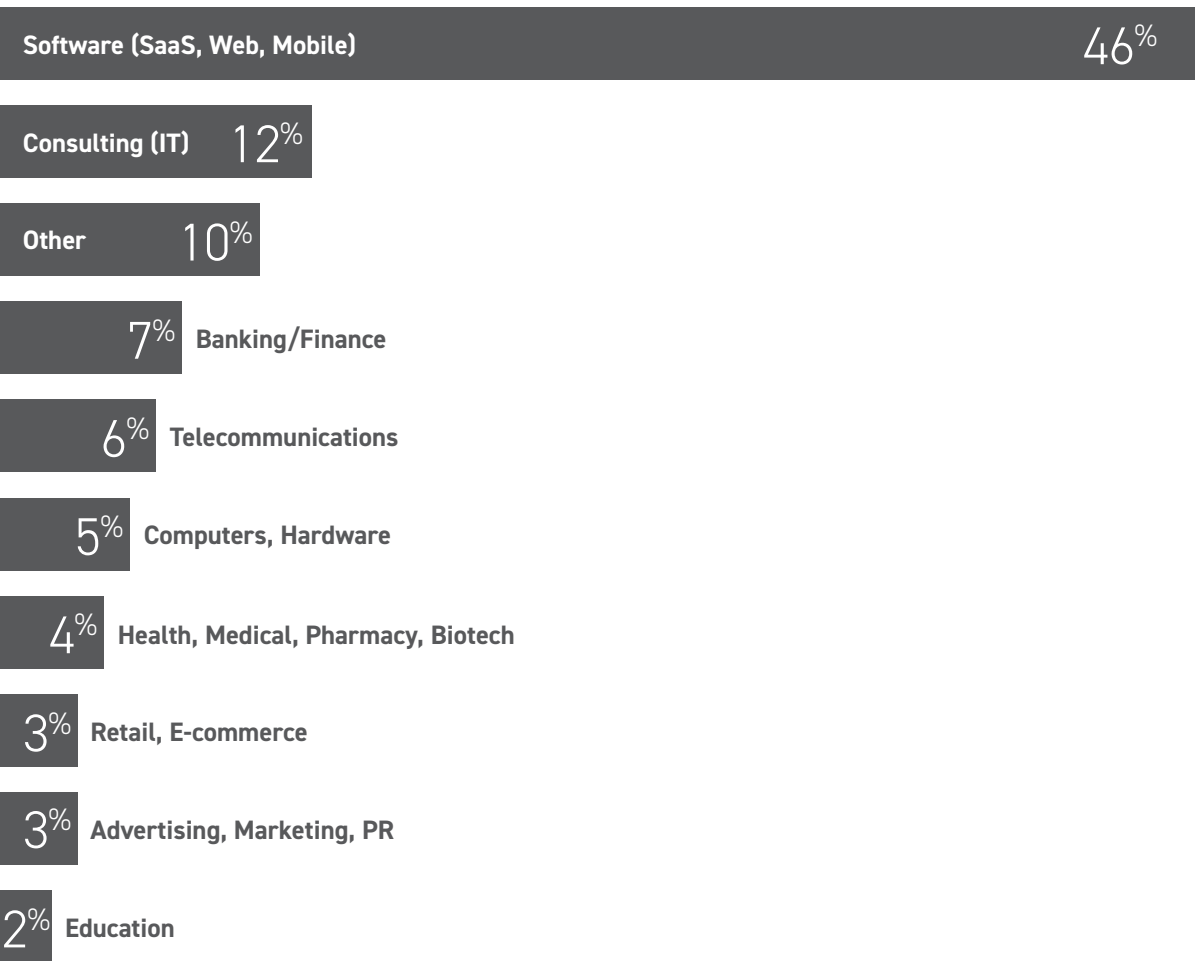5 of the top 10 Highest Valued Startups

This year, nearly 50% of respondents work in companies with over 1000 employees and 20% work in companies with over 10,000 employees.

Not surprisingly, technology is the number one industry leveraging Mesosphere today—which makes sense given technology companies are typically early adopters and are often very focused on implementing innovative technologies that enable digital transformation.

Company size: Number of employees

21% 10,001+

24% 1000-10,000

14% 201-1000

41% 1-200

Survey respondents by industry

Software (SaaS, Web, Mobile) — 46%

Consulting (IT) 12%

Other 10%

7% Banking/Finance

6% Telecommunications

5% Computers, Hardware

4% Health, Medical, Pharmacy, Biotech

3% Retail, E-commerce

3% Advertising, Marketing, PR

2% Education

Enterprises are using Mesosphere to enable growth, efficiency, and digital transformation.

Companies adopt Mesosphere to enable the scale and speed of their modernization initiatives. We are seeing some incredibly interesting use cases being enabled by the Mesosphere platform—think IoT, machine learning, personalization, and more.

Here are some of the top use cases.

Internet of Things

In the automotive industry, one of the largest German auto manufacturers is using Mesosphere to enable connected cars with integrated data services like real-time traffic information and sensor data.

Machine Learning

Telecom is a large adopter of Mesosphere technology. Deutsche Telekom built its Connect app on Mesosphere, utilizing machine learning to help its 156 million customers connect to the best hotspots or networks, improve customer experience, and unblock network capacities.

Efficiency and Speed

Athena Health uses Mesosphere to build high performance applications with modern data technologies, while still connecting to legacy data systems on-premise. With hybrid architecture, they reduced data queries from minutes to milliseconds. Now they can deliver new data-driven doctor-patient services for 100,000 medical providers

Revenue Growth

PVH Group, the owner of Tommy Hilfiger and Calvin Klein built an immersive multimedia showroom experience for its brands on Mesosphere. The digital showroom has enabled them to increase the number of buyer visits by 3x, which has resulted in a 50% increase in sales of Tommy jeans.

Real-Time Personalization

NBC Universal, the third largest media company in the world, is breathing new life into traditional TV advertising. With Mesosphere, they are now combining batch and real-time analytics to deliver customized ads in real-time based on audience view.

Cost Reduction

A leading North American Bank needed a way to solve multi-tenancy in their big data and CI/CD environment to support multiple technologies across various lines of business. With Mesosphere, they were able to accelerate many use cases and initiatives by reducing the time to provision new data services to minutes with a self-service portal, while reducing required infrastructure footprint by 50%.
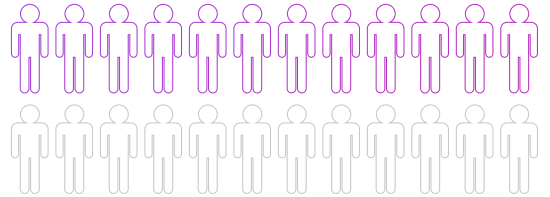
Part 2:
Trends in Hybrid, On-Prem, and Cloud Deployment

More users are moving to large scale production environments.

Mesosphere is known for its large scale and ability to run thousands of nodes. While most of our respondents still run clusters of less than 100 nodes, we saw a 50% increase in users who are moving to large scale production environments of more than 1000 nodes.

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Hybrid is gaining traction and Microsoft Azure is the fastest growing cloud provider.

Due to a variety of reasons such as vendor lock-in, security, flexibility, and more, many companies are opting for hybrid deployments. Compared to 2016, hybrid deployment has grown by 33%, becoming more prevalent than cloud-only deployments.

Because Mesosphere provides the flexibility for companies to consistently automate platform technologies on any infrastructure, users are choosing Mesosphere for hybrid environments.

Another interesting data point is that Microsoft Azure usage has experienced an 85% growth since 2016–the highest growth of any cloud providers. Google follows with a 40% growth and AWS, while still being the top overall provider, has remained relatively flat.

How do you deploy Mesosphere?   ■ 2016   ■ 2018

Which cloud providers are you using?
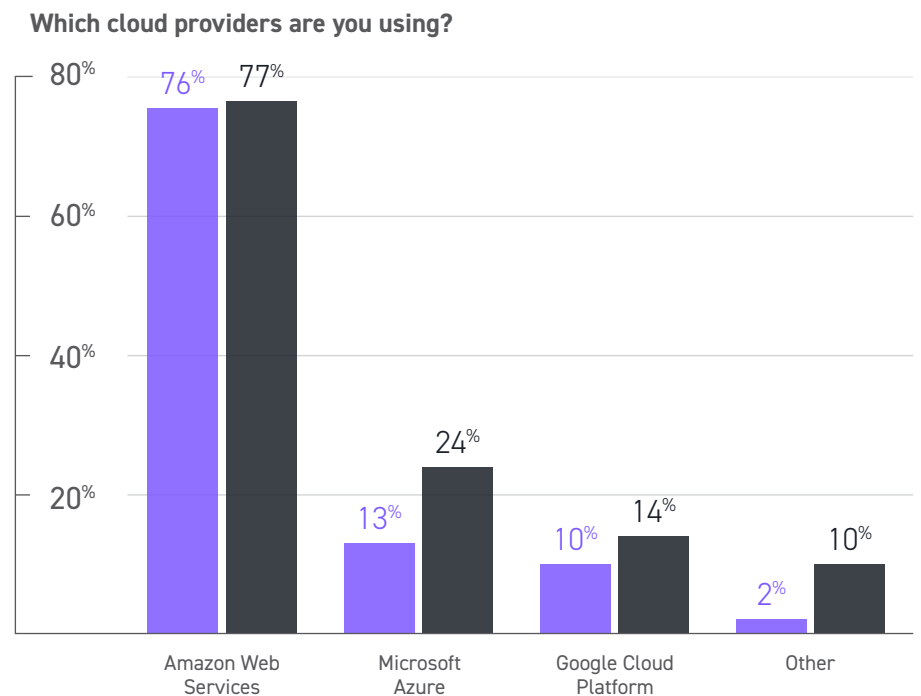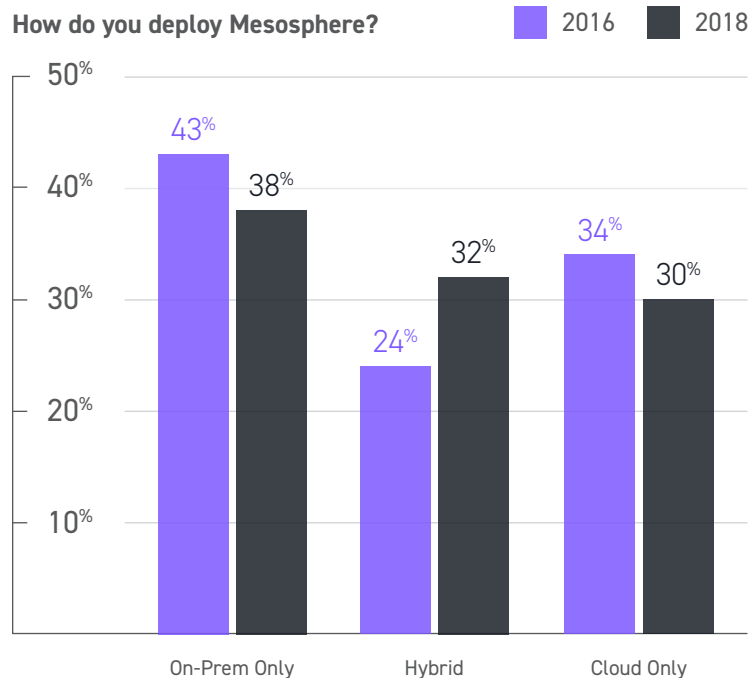
Multi-cloud adoption has experienced a 2x growth.
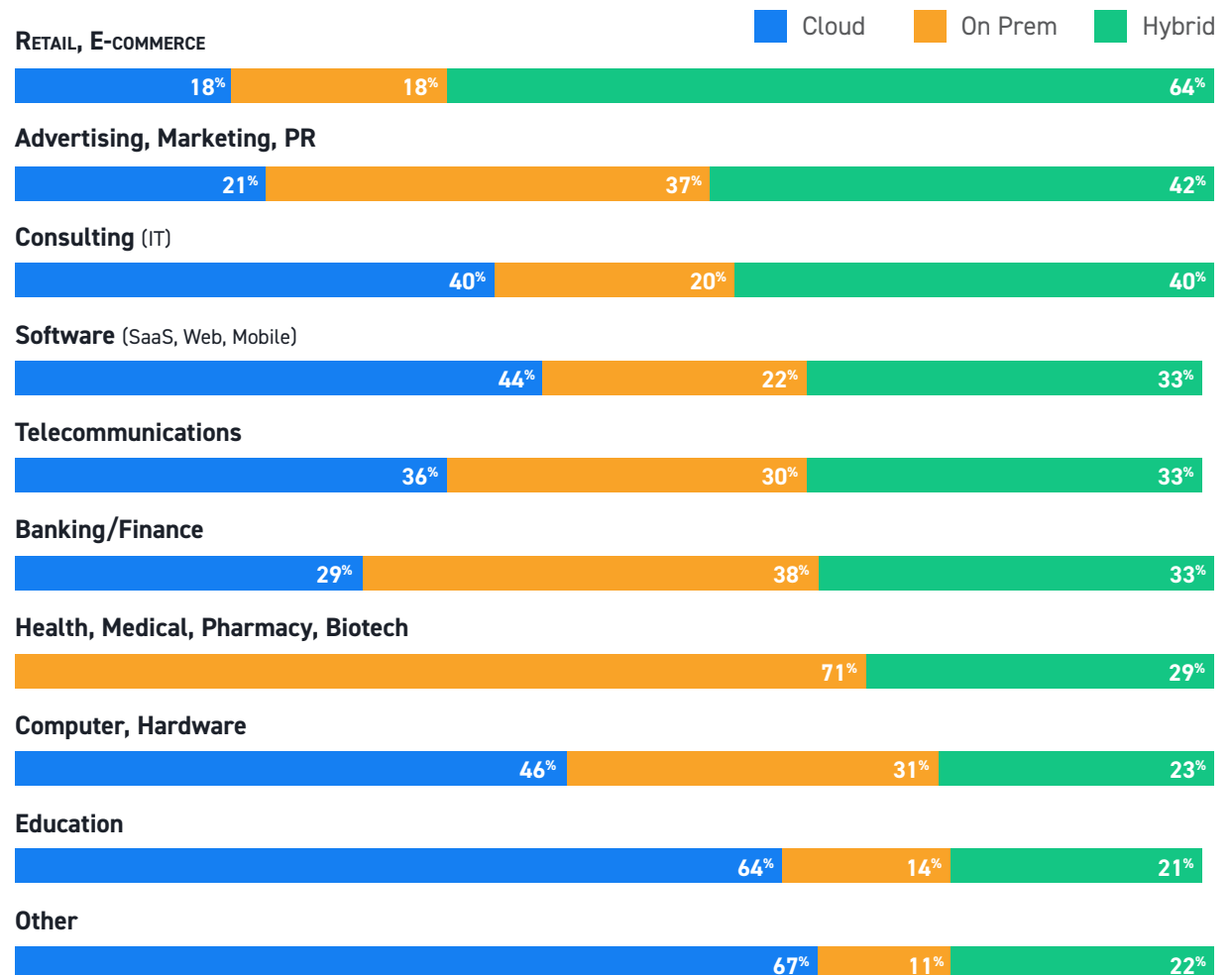
Related to the growth in hybrid deployments over the past year, there has also been a surge in multi-cloud deployments. In fact, one in every four organizations surveyed now has more than one cloud provider. Compare that to two years ago when we reported that one in every eight organizations had more than one cloud provider. Since 2016, multi-cloud deployments have experienced a 2x growth.

Percent of respondents using one or more among cloud providers: Google, Azure, AWS, and "Other"

Legend: 2016, 2018

	One Provider	Two Provider	Three or More Providers
2016	86.7%	11.2%	2.1%
2018	76%	20%	4%
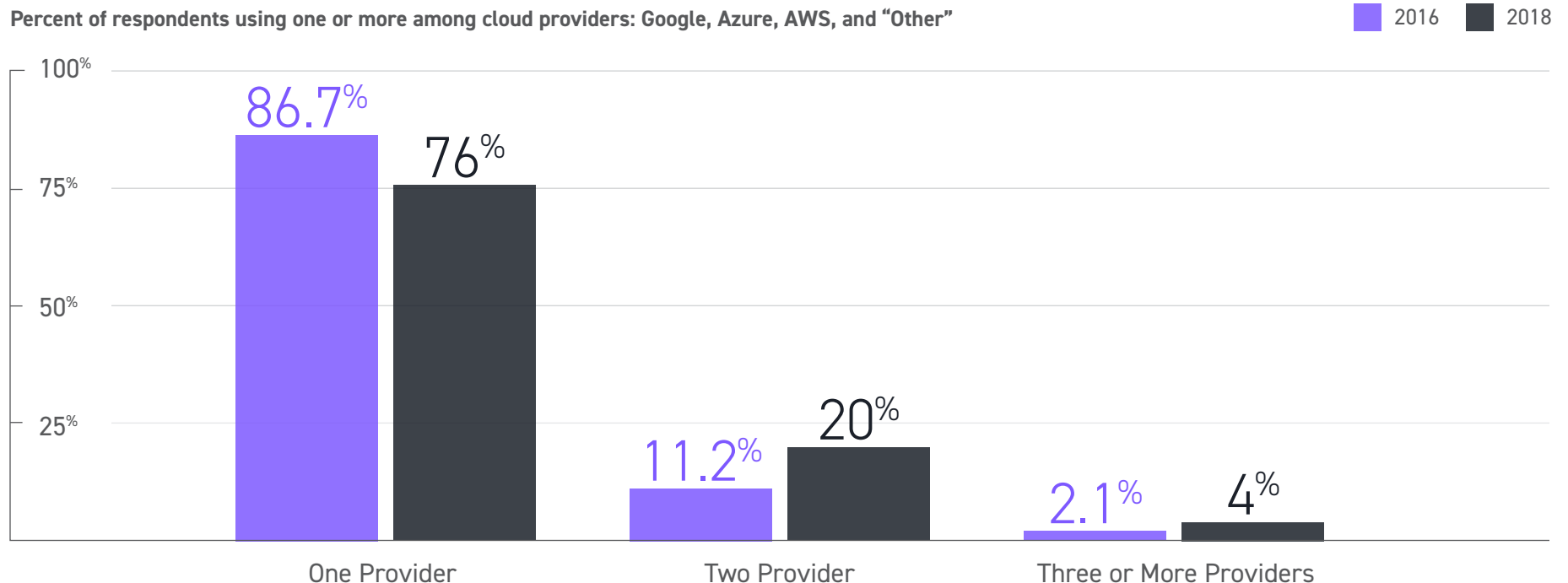
While many industries are still predominantly on-premises, many are heading towards a hybrid cloud world.

In terms of hybrid cloud adoption among Mesosphere users, retail and commerce lead the charge towards hybrid cloud. Marketing and advertising came in second, and not always just by choice. Many marketing and advertising agencies are moving away from cloud-only deployments due to pressure from new privacy and consumer legislations such as European Union's General Data Protection Regulation (GDPR).
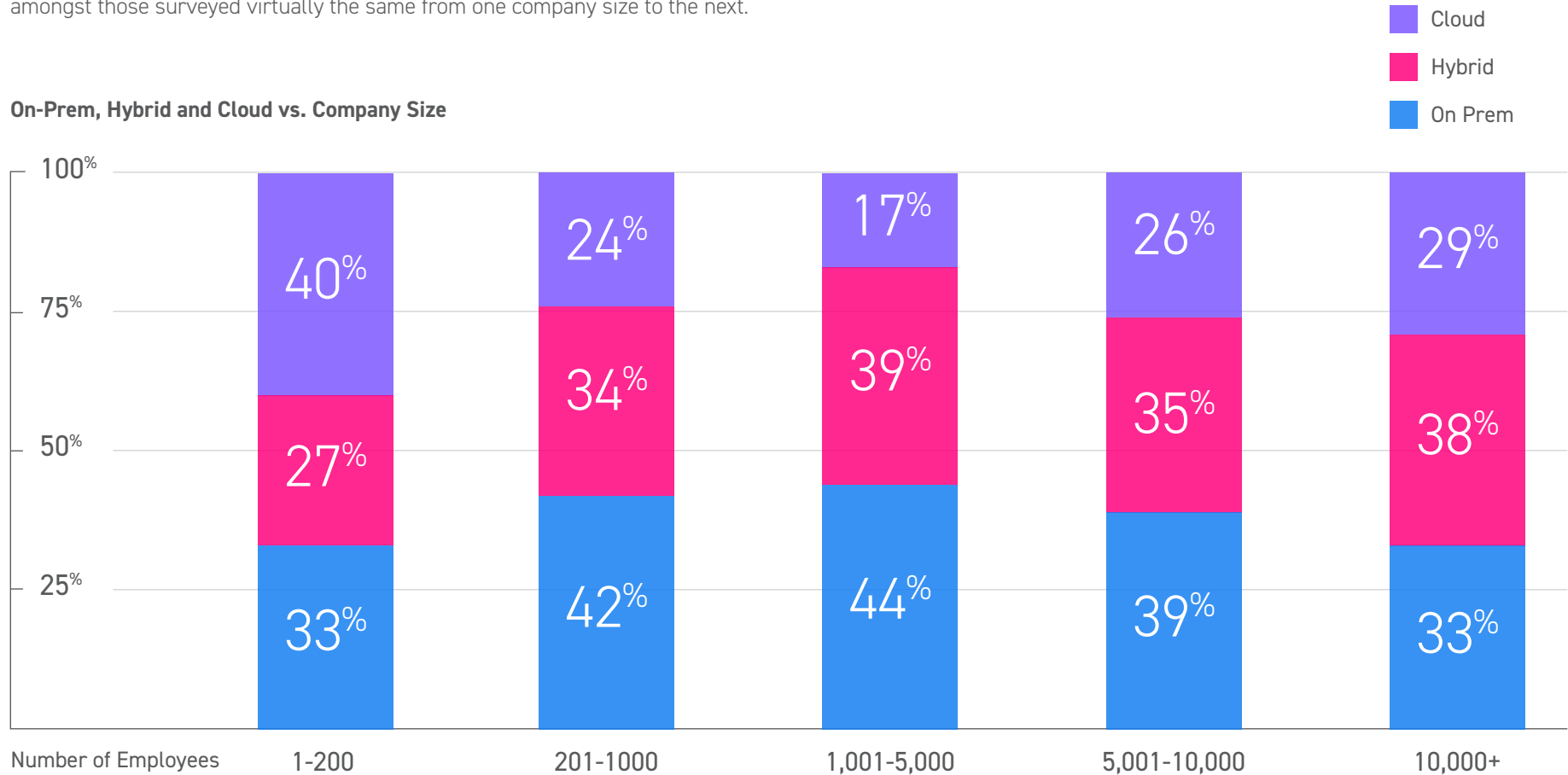
Interestingly, Healthcare is going straight from on-prem to hybrid and skipping cloud-only altogether. This is likely due to the size of the data and confidentiality requirements. Lastly, education still trails, possibly due to a large footprint in high performance computing infrastructure.

Legend: Cloud | On Prem | Hybrid

RETAIL, E-COMMERCE
- Cloud: 18%
- On Prem: 18%
- Hybrid: 64%

Advertising, Marketing, PR
- Cloud: 21%
- On Prem: 37%
- Hybrid: 42%

Consulting (IT)
- Cloud: 40%
- On Prem: 20%
- Hybrid: 40%

Software (SaaS, Web, Mobile)
- Cloud: 44%
- On Prem: 22%
- Hybrid: 33%

Telecommunications
- Cloud: 36%
- On Prem: 30%
- Hybrid: 33%

Banking/Finance
- Cloud: 29%
- On Prem: 38%
- Hybrid: 33%

Health, Medical, Pharmacy, Biotech
- On Prem: 71%
- Hybrid: 29%

Computer, Hardware
- Cloud: 46%
- On Prem: 31%
- Hybrid: 23%

Education
- Cloud: 64%
- On Prem: 14%
- Hybrid: 21%

Other
- Cloud: 67%
- On Prem: 11%
- Hybrid: 22%

A hybrid cloud strategy is independent of company size.

The survey also highlights that, with the exception of companies with less than 200 users, hybrid cloud adoption (not just strategy) is almost independent of company size. We are seeing hybrid cloud adoption across a wide variety of company sizes and industries, with the percentage of hybrid cloud adoption amongst those surveyed virtually the same from one company size to the next.

Cloud
Hybrid
On Prem

On-Prem, Hybrid and Cloud vs. Company Size

| Number of Employees | 1-200 | 201-1000 | 1,001-5,000 | 5,001-10,000 | 10,000+ |

Part 3:
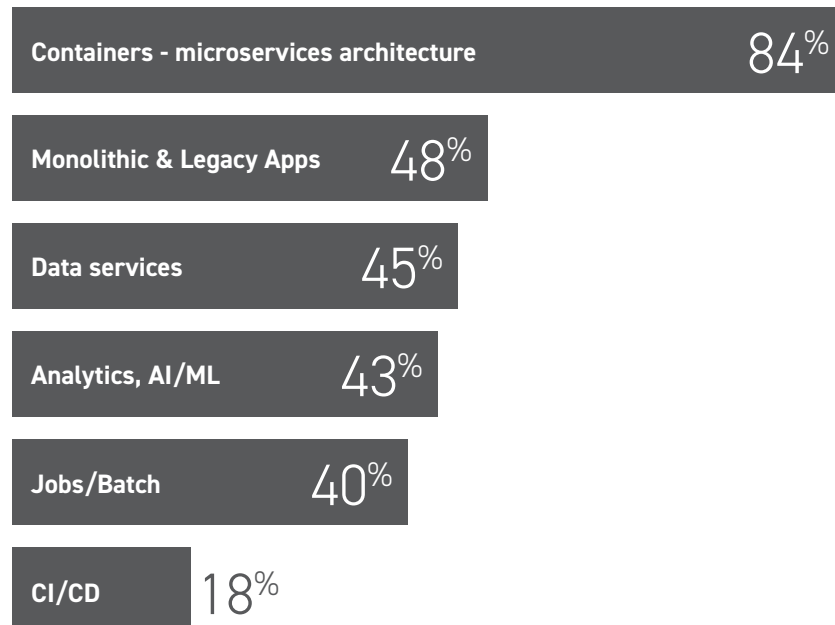# Popular Workloads and the Growth of Kubernetes

Containers and microservices are the most popular workload, followed by legacy apps, data services, and analytics.
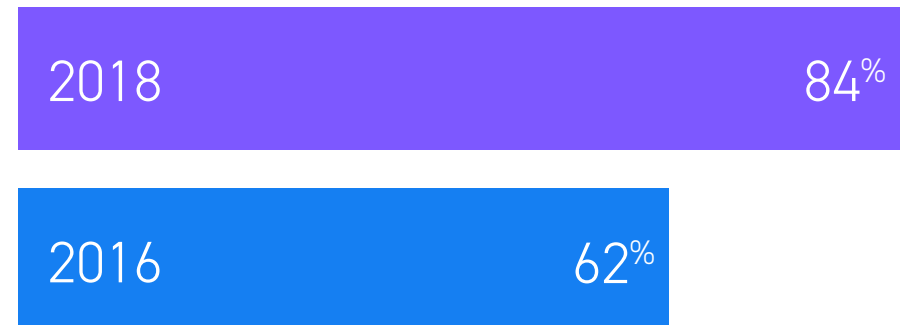
While containers and microservices share the top spot in terms of workloads run on Mesosphere, monolithic apps (non-containerized), data services, and analytics share the second spot.

We are seeing a pretty significant rise in users running containers in production on Mesosphere, growing to 84%, up from 62% in 2016.

What workloads are you running on Mesosphere?

Workload	%
Containers - microservices architecture	84%
Monolithic & Legacy Apps	48%
Data services	45%
Analytics, AI/ML	43%
Jobs/Batch	40%
CI/CD	18%

Are you running containers in production?

Year	%
2018	84%
2016	62%

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Kubernetes is the most popular ecosystem workload, followed by Kafka.

The average user runs **three or more** services (frameworks) on Mesosphere, with some users running 11 different services on the same cluster. The fastest growing and most popular framework run by Mesosphere users is Kubernetes, which has shot to the top spot over the past year. The growth of Kubernetes usage on Mesosphere clearly echoes its popularity in the market, and customers are adopting Kubernetes and leveraging the Mesosphere platform for automation and management.

Big data services, such as Kafka, Cassadra, and Elastic are also very popular, in addition to analytics in machine learning (which includes Spark, TensorFlow) —with over **68%** of respondents using at least one of these services.

Apache Kafka continues to be the most widely downloaded data service from Mesosphere Service Catalog.

Volume of ecosystem workloads launched on Mesosphere. Indexed to Kafka, July 2017

Kubernetes
3.42

Kafka
1.00
3.11

Jenkins
0.78
2.66

Spark
0.68
2.52

Cassandra
1.07
2.40

Elastic
0.25
1.05

Flink
0.12
0.48

■ 2017 ■ 2018

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Running Kubernetes on Mesosphere is mainly driven by the need to simplify automation and management.

To dig further into what is driving interest in running Kubernetes on Mesosphere--97% of respondents chose simplifying deployment, followed by ease of upgrade, scaling out, and administrative support.

The main drivers for implementing Kubernetes on Mesosphere are automating daily operations, ease of upgrades, and co-location with other data services and analytics workloads. This is especially critical for companies who need to operate multiple Kubernetes clusters.

What would attract you to run Kubernetes on Mesosphere?

Simplify Deployment	97%
Ease of Upgrade, Scale Out, Admin	88%
Kubernetes with Data Services	68%
Multiple Kubernetes Clusters	56%
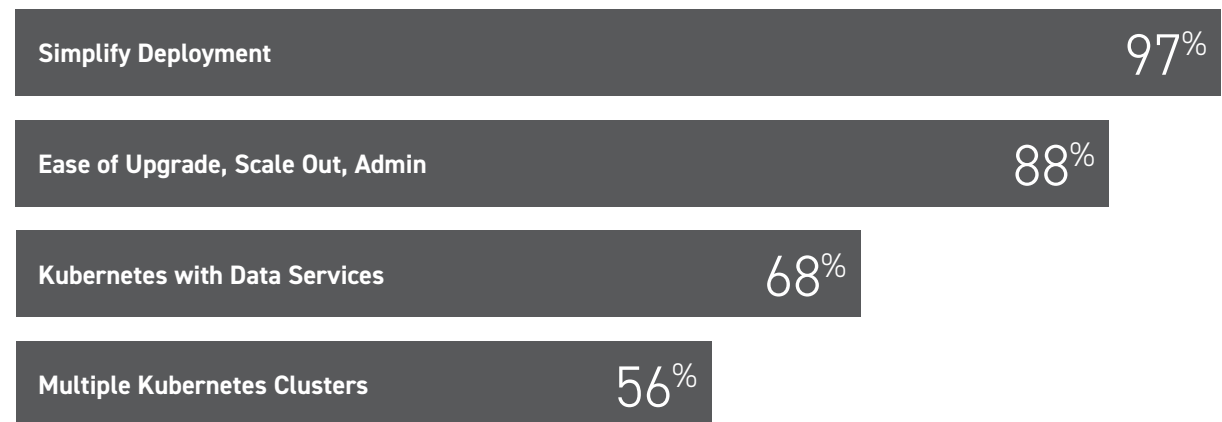
# Mesosphere automates many container orchestrators.

Stable & Experienced
Marathon is used for running both monolithic legacy apps and modern microservices, and has been running mission critical workloads since 2013.
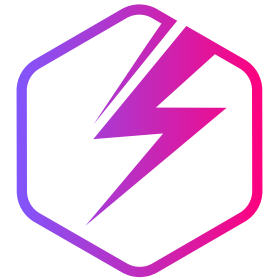
Most Popular & Fastest Evolving
Kubernetes was first introduced on Mesosphere in 2015. Updated in 2017, the Mesosphere Kubernetes service is now the most popular ecosystem workload surpassing even data services.
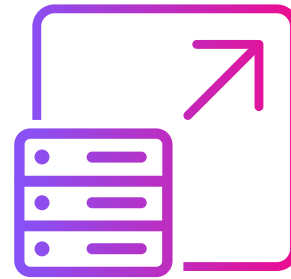
Gigantic Scale
Aurora users (like Twitter) run very large scale systems (+10,000) servers and multiple clusters (more than 5+).

Lightning Fast
Titus powers Netflix's container infrastructure, and launches 500K containers/day.

Conclusion

Usage of Mesosphere continues to grow, and users of the platform are leveraging its flexibility to enable their organizations to innovate, grow, and reduce cost. This year, usage trends show companies moving towards hybrid and multi-cloud, with continued growth of data services, and Kubernetes being the most popular workload.

For more information on how Mesosphere can help your organization with initiatives such as real-time personalization, IoT, machine learning, and more, contact us today for a demo.

www.mesosphere.com