

Understanding Enterprise Cloud Adoption in 2019

Research Report



Introduction

In 2019, enterprises have developed two distinct but complementary pathways to the cloud; one via the hybrid cloud, and the other by public cloud adoption. Most enterprises have embraced both approaches as parallel components of a complete cloud strategy.

Both paths emerged from different enterprise needs, driven by different teams. Led by centralized infrastructure and operations teams, the hybrid cloud approach aims to extend on-premises environments to the cloud to achieve cloud interoperability based on seamless infrastructure. Public cloud adoption, on the other hand, can also be led by Line of Business (LoB) app development and DevOps teams looking to leverage the cloud to develop next gen, cloud-ready apps.

This second path has led to the emergence of a multi-cloud network, not by design, but by default. DevOps teams have adopted a variety of clouds for their apps, unconsciously creating a complex and operationally disconnected multi-cloud environment.

At the same time, DevOps activities on public clouds have reached a state of maturity where businesses are placing a premium on having their development teams focus as much as possible on features that drive revenue growth and increase customer retention and acquisition.

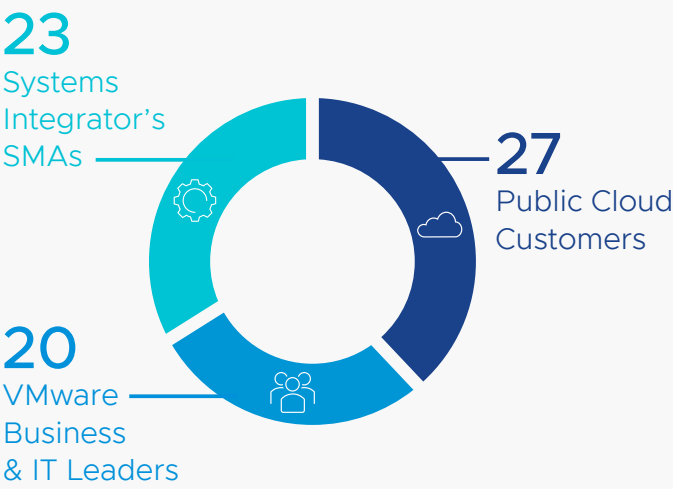
With more interest in having DevOps teams focus on features that differentiate, many DevOps teams are looking to offload non-development, operationally oriented tasks associated with public clouds to newly formed Cloud Operations teams.

These new Cloud Operations teams function as Centers of Excellence, addressing non-development operations tasks across all of the organization's public clouds.

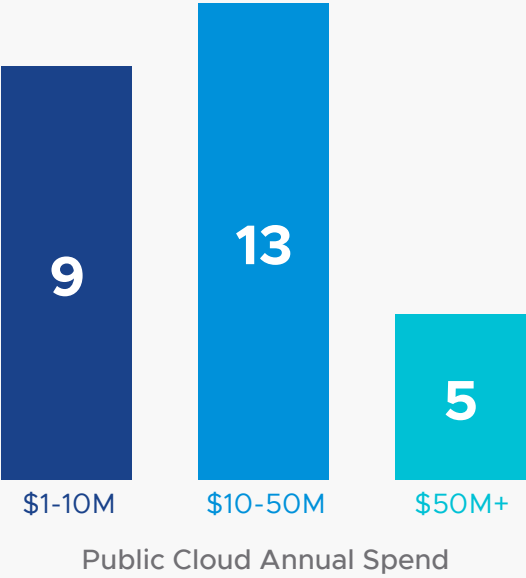
We worked with Deloitte Consulting LLP to explore this evolution of cloud adoption, interviewing experts from a range of disciplines and industry verticals to uncover the trends, challenges and opportunities enterprises are currently faced with. Read on to discover why the two pathways to cloud adoption have emerged, what needs they're motivated by and what challenges enterprises are facing in managing the new multi-cloud reality.

How we Conducted our Research

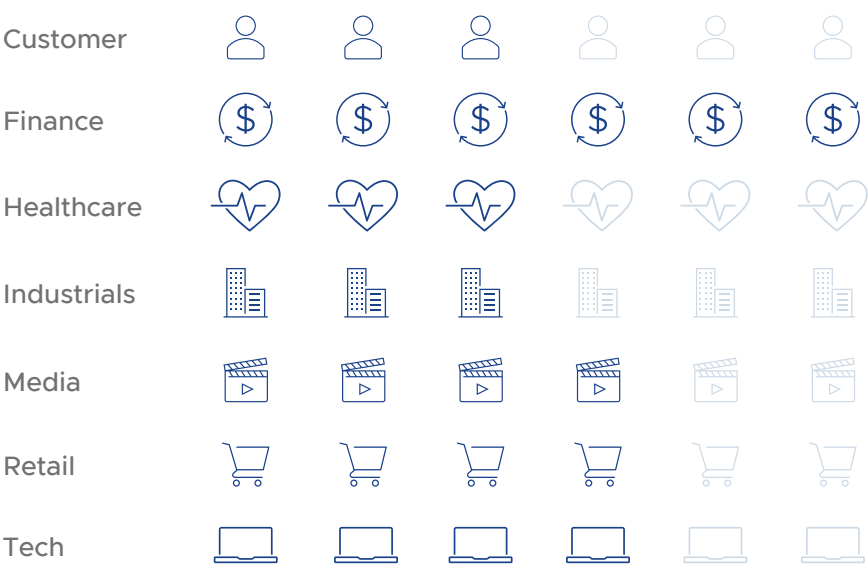
Interviewee Breakdown



Customers by Spend



Customers by Industry



Who's Who in the New World of Cloud

In our research, we uncovered three distinct groups leading enterprise cloud adoption. These groups will shape the future of hybrid cloud, public cloud, and multi-cloud adoption.

IT Infrastructure and Operations Teams

Typically responsible for design and infrastructure, maintenance and management of data centers, IT has led the push to achieve a seamless hybrid cloud infrastructure for a number of years. For them, the benefits of consistent infrastructure between on-premises and public cloud environments are clear:

- Ability to scale data center usage to meet temporary, seasonal or unplanned demand
- Easy migration of workloads to the public cloud without the need to make changes to applications
- Simplified public cloud backup and disaster recovery services

All of these in turn support strategies of freezing or even reducing the footprints and related costs of on-premises data centers.

In recent years IT teams have faced a number of challenges as they embrace the new hybrid cloud mindset, including determining cost-optimal environments for varied workloads, adapting security processes to consider public cloud requirements and managing private data center tools for cloud use.

LoB AppDev/DevOps Teams

DevOps and LoB pioneered the use of public clouds. These teams are motivated by the enterprise need to quickly develop new cloud-native apps, in order to stay ahead of the competition by delivering features that drive revenue growth and increase customer retention and acquisition.

The complexity of managing public cloud environments has increased as the scale of operations in the public cloud has increased. Today, many DevOps teams are looking to offload operationally oriented tasks so they can exclusively focus on delivering features and functionality that drive business differentiation and competitive advantage.

Cloud Operations Teams

Cloud operations are specialist teams focused on developing and maintaining a system of common operations across an organization's public cloud environments. These teams aim to centralize public cloud operations to improve visibility and efficiency and reduce cloud cost.

Specifically, these teams are focused on managing user access, ensuring security and compliance, establishing guardrails and policies for cloud usage and overseeing enterprise-wide public cloud management capabilities.

Cloud Operations Roles

We identified nine key cloud operations roles and their associated responsibilities.

1 Cloud Architect

- Design, develop, and maintain the cloud architecture and cloud usage strategy in line with the IT strategy and business objectives.

2 Cloud Infrastructure Engineer

- Apply engineering practices to build, enhance, integrate, aggregate, or tailor services to required specific needs in a way that best leverages cloud resources.
- Build and configure new cloud platforms and application stacks with automated tooling.

3 Cloud Application Engineer

- Develop and deliver products that support the cloud services portal, APIs, and shared and common products.
- Provide technical expertise for API integrations and engineering.

4 Cloud Security Specialist

- Design, develop, and maintain the cloud security architecture and cloud usage strategy in line with the Information Security policies, IT strategy and business objectives.

5 Cloud Operations Manager

- Conduct infrastructure capacity forecasts and day-to-day capacity and resource management.

6 Cloud Governance Manager

- Manage cloud accounts and enable adoption of approved cloud service providers. Also ensure appropriate governance reviews, assessments, and approvals for workloads and services in a timely manner.

7 Cloud Business Ops. Manager

- Manage financial affairs and ensure appropriate budget management, pricing of services, and billing and chargeback of costs.
- Manage contractual and commercial relationships with cloud service providers.

8 DevOps Engineer / SRE

- Manage cloud infrastructure, as well as capacity, availability and integration of management and monitoring tools.

9 Cloud Platform Engineer

- Develop new services (databases, integrations with partners and third parties), and apply industry/business-specific logic to the cloud platform.

The Six Use Cases for Enterprise Cloud Adoption

Successful public cloud adoption typically starts with a use case driven approach and a careful consideration of why the enterprise is moving to the cloud. They typically make the move for one or more of the following six reasons:



Single Public Cloud



1 Infrastructure Refresh or Exit

Common drivers for migration to a single public cloud are the completion of hardware refresh cycles, data center closure or contract expiration. These migrations typically take the form of a [lift and shift](#) approach to non-critical apps.



2 Scale on Demand

Many enterprises adopt a hybrid cloud approach to take advantage of on-demand scalability. This allows them to use additional capacity during temporary or seasonal spikes in demand. Being able to scale usage up and down as they need enables cost savings and reduces downtime.



3 Innovation and Agile Development (single cloud)

Competitiveness in the modern marketplace is determined by the ability to innovate and ship products, services and features at speed. LoB developers are adopting single public clouds to develop cloud-native apps to meet this need.

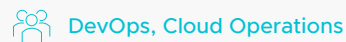


Multi-Cloud Adoption



4 Innovation and Agile Development (multi-cloud)

Different apps have different requirements, and LoB developers are often driven to adopt multiple public cloud providers for differentiated capabilities. For example, many enterprises work with Google Cloud for their machine learning and AI capabilities.



5 Cloud Risk Reduction

Enterprises choose to adopt multiple clouds to manage risk in a number of ways. Avoiding vendor lock-in provides benefits to disaster recovery and an enterprise's purchasing power.

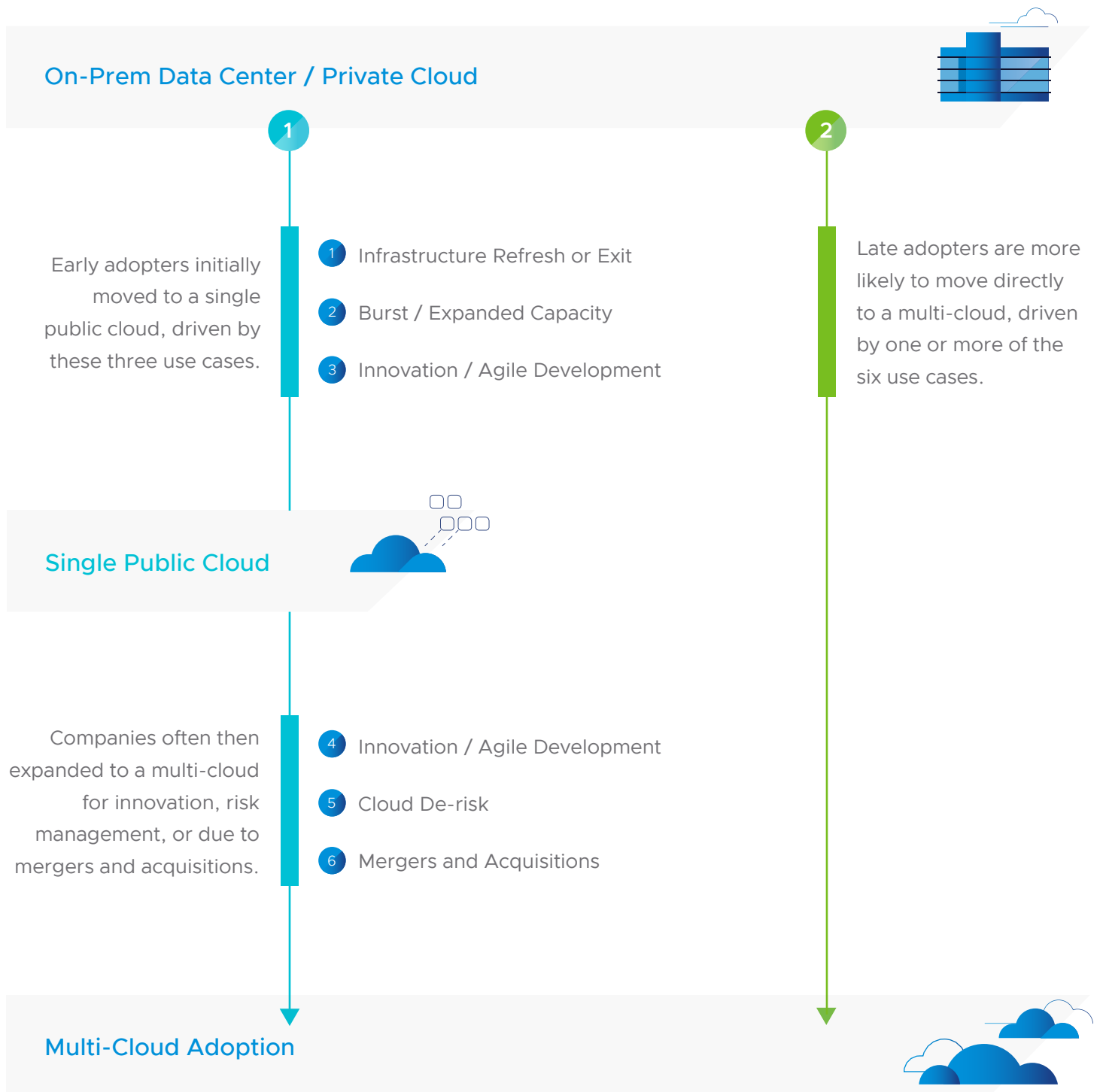


6 Mergers and Acquisitions

Many enterprises inherit cloud environments from mergers and acquisitions. Divestment can also prompt architecture changes, such as the need to shift workloads.



Two Paths to Multi-Cloud Adoption



The Four Challenges of Multi-Cloud Management

Enterprises face increasing challenges as they take on additional cloud environments:

Cost

- Lack of visibility and common systems for governance across clouds
- Variabilities in commercial models and usage terms
- Duplicate and redundant infrastructures
- Complexity of tracking cloud usage
- Right-scaling across multiple public cloud deployments

Operations

- Complexity of integrating, managing and tracking multiple cloud service providers.
- Difficulty of segregating workloads and optimizing costs for increased efficiency.
- Providing repeatable and continuous governance and automation around fundamental operational processes such as automated workflow approvals.

Security and Compliance

- Increased security risk in cases of cross-cloud sensitive data transfers (movement of data from one environment to another).
- Increased cost and complexity of data encryptions and ownership of encryption keys.
- Stringent data protection and localization regulations, especially for healthcare, financial services and government implementations.
- Inability to easily check for resource misconfigurations that drive security and compliance risk across applications.

Application Management

- Increased complexity around identity access management and provisioning permissions for application developer teams.
- Ensuring the performance and availability of newly delivered cloud-native SaaS applications, due to their scale and the number of objects that must be monitored and managed.
- Difficulty standardizing or replicating cloud-native application portability across public clouds.

Conclusion

As enterprises transform, they will move to the cloud to drive revenue, become more agile and maintain competitiveness. However, as they look to meet the needs of specific apps and objectives, many are adopting multiple, differentiated platforms, increasing operational complexity. To combat the challenges this complexity brings leading enterprises are realizing they need dedicated Cloud Operations teams and multi-cloud management capabilities to help them improve efficiency, lower cost and drive business forward.

Managing multi-cloud operations doesn't have to be difficult. Visit cloud.vmware.com to discover how you can take full advantage of the benefits of multiple public clouds, without operational complexity.