Microsoft

Market Dynamics in the Public Cloud

Toulouse

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Cloud Computing
Factor of Production

The delivery of computing services – including servers, storage, databases, networking, software, analytics, and intelligence – over the Internet (“the cloud”) to offer **faster innovation, flexible resources, and economies of scale**. You typically pay only for cloud services you use, helping you **lower your operating costs, run your infrastructure more efficiently, and scale** as your business needs change.

Public cloud

Public clouds are **owned and operated by a third-party cloud service providers**, which deliver their computing resources, like servers and storage, over the Internet. Microsoft Azure is an example of a public cloud. With a public cloud, all hardware, software, and other supporting infrastructure is owned and managed by the cloud provider. You access these services and manage your account using a web browser.

Private cloud

A private cloud refers to cloud computing **resources used exclusively by a single business or organization**. A private cloud can be physically located on the company's on-site datacenter. Some companies also pay third-party service providers to host their private cloud. A private cloud is one in which the services and infrastructure are maintained on a private network.

Hybrid cloud

Hybrid clouds **combine public and private clouds, bound together by technology** that allows data and applications to be shared between them. By allowing data and applications to move between private and public clouds, a hybrid cloud gives your business greater flexibility, more deployment options, and helps optimize your existing infrastructure, security, and compliance.

Dedicated

A cloud service architecture that provides access to physical servers - able to host one or more virtual machines - dedicated entirely to use by a single customer. Dedicated hosts are the same physical servers used in data centers, provided as a resource.

Examples:

- Traditional outsourcers
- Most cloud hosters

vs.

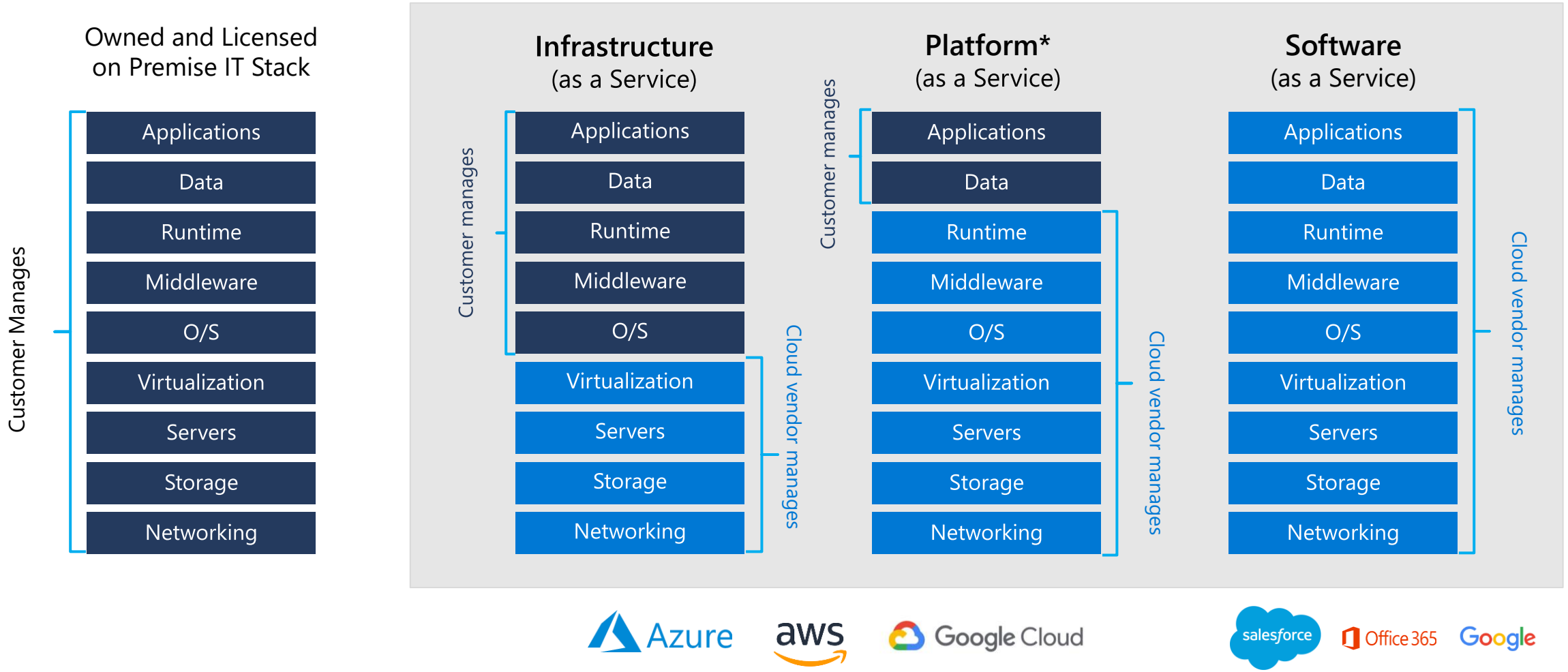
Multitenant

A cloud service architecture where multiple tenants share the same physical computing resources. Although tenants share physical resources, each tenant gets its own logical instance of the relevant service.

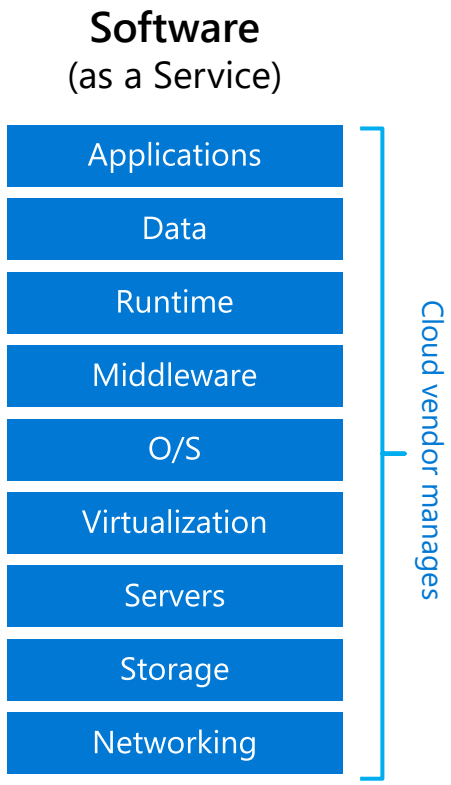
Examples:

- Hyperscale public cloud services, e.g., AWS, Azure
- Many SaaS offerings

Simplified Models for Cloud Computing Services



Software-as-a-Service



- Examples: Office 365, Salesforce, Workday, Google Workspaces
- Value extends beyond application functionality, *e.g.*, security, availability, reliability, and maintenance
  - Constantly updated and managed by provider
- Designed for a specific data center configuration and to take advantage of functionality available in that data center.
- **Not** designed for "installation" on customer hardware or to work separate from underlying infrastructure.
  - Contrast with software products

Consumer online platforms

vs.

Public cloud computing platforms

Multi-Sided

Aggregation Business Model – Provide free services to **consumers** to aggregate consumer attention (demand) and data, then monetize it.

Data Controller

One-Sided

Usage Business Model – Provide high scale services to **developers, IT professionals and enterprises** and charge based on usage (e.g., users, cycles)

Data Processor

Ad-funded		Transaction fees	
	Network	Uber	**Matchmaker**
Google	**Intermediary**		**App Store**
		amazon.com	**Marketplace**

Usage fees	
aws	**Infrastructure (IaaS)**
Azure	**Platform (PaaS)**
salesforce	**Software App (SaaS)**

Why Public Cloud?

1. Cost
2. Security
3. Scalability & Agility
4. Technology & Performance
5. Compliance
6. Sustainability

Customers and Workloads

Individual Developers & IT Professionals

Small and Medium Businesses

Enterprises (> 1,000)

Examples of Uses of Cloud Computing

Create cloud-native applications

Quickly build, deploy, and scale applications—web, mobile, and API. Take advantage of cloud-native technologies and approaches, such as containers, Kubernetes, microservices architecture, API-driven communication, and DevOps.

Test and build applications

Reduce application development cost and time by using cloud infrastructures that can easily be scaled up or down.

Store, back up, and recover data

Protect your data more cost-efficiently—and at massive scale—by transferring your data over the Internet to an offsite cloud storage system that's accessible from any location and any device.

Analyze data

Unify your data across teams, divisions, and locations in the cloud. Then use cloud services, such as machine learning and artificial intelligence, to uncover insights for more informed decisions.

Stream audio and video

Connect with your audience anywhere, anytime, on any device with high-definition video and audio with global distribution.

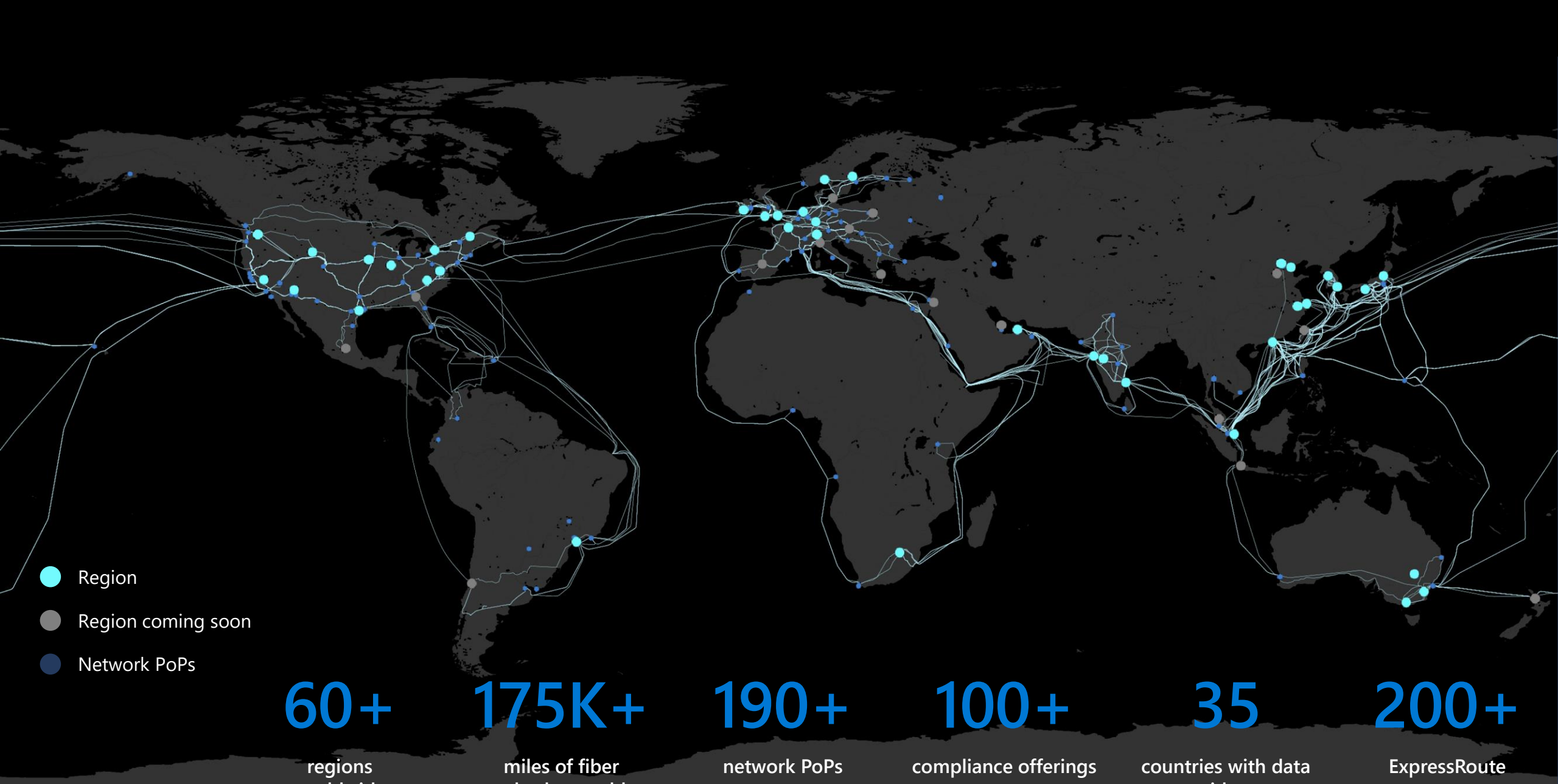
Embed intelligence

Use intelligent models to help engage customers and provide valuable insights from the data captured.

Deliver software on demand

Also known as software as a service (SaaS), on-demand software lets you offer the latest software versions and updates around to customers—anytime they need, anywhere they are.

Economic Dynamics in the Public Cloud



60+ regions worldwide

175K+ miles of fiber and subsea cable

190+ network PoPs

100+ compliance offerings

35 countries with data residency

200+ ExpressRoute partners

Azure global infrastructure | https://infrastructuremap.microsoft.com

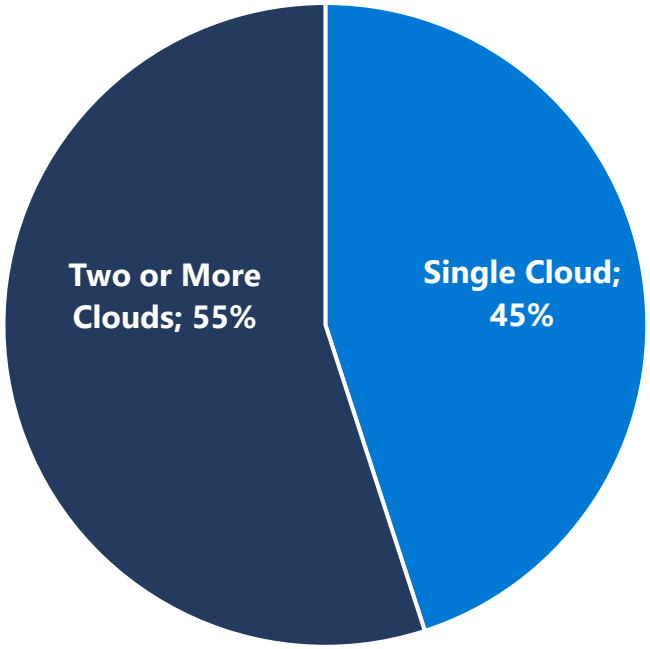
Multi-Cloud Is Predominate

Cloud Adoption Becoming Mainstream

- 81 percent of IDG survey respondents have at least a portion of their infrastructure in the cloud.
- 12 percent plan to use at least one cloud-based workload in the next 12 months.
- 6 percent plan such a move within 1 to 3 years.

Primary Concerns

- Cost
- Privacy, Security, and Compliance
- Lack of organization IT skills

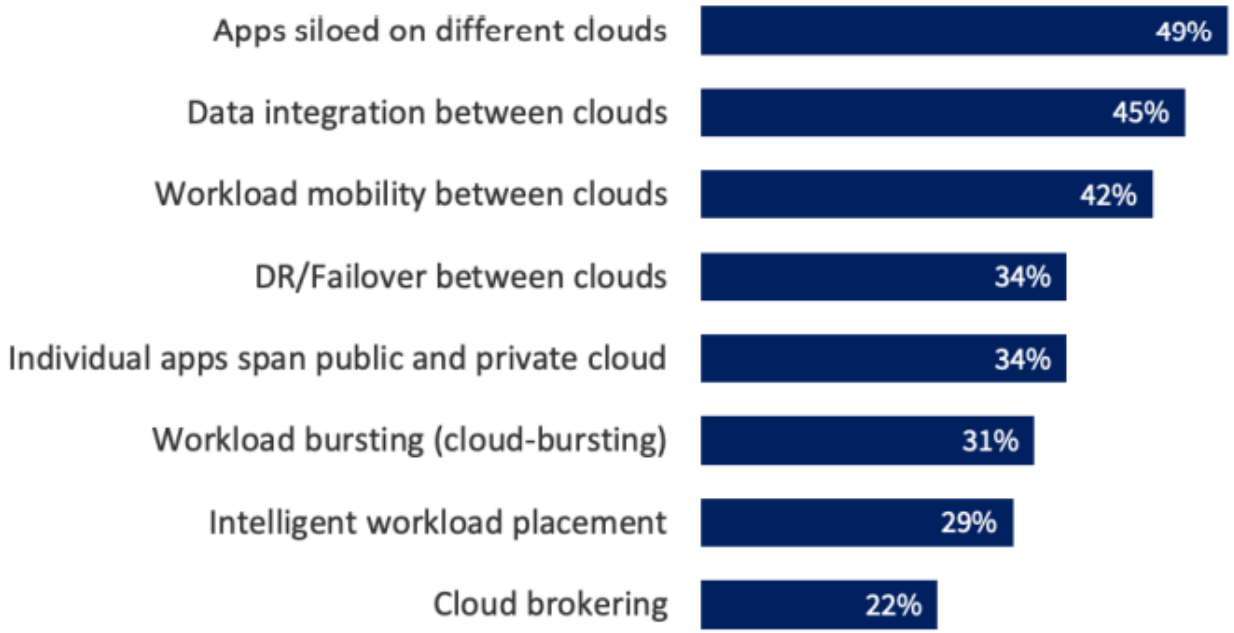


More than half of enterprises already use multiple clouds

Source: [IDG Cloud Computing Survey 2020]

Multi-Cloud Architectures Used

% of all respondents



Infrastructure & Platform Services Global Market Share

Gartner, Inc. 2021