Is Multi-Cloud the Best Option for Enterprises?

Assessing the Challenges and Benefits behind the Hype

Strecast Analysis by

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Introduction[1]

Consumers love choice. Whether it is based on price, features, or experience, they want to be able to choose from best-of-breed products and/or services. This trend is clearly represented in consumers' current choice of cable TV versus an over-the-top video services platform, for example. What might once have been an "either/or" decision is now about having a mix of both, or giving up cable TV altogether for a blend of Amazon Prime Video and Netflix.

However, that is not the process most IT decision-makers currently go through when buying cloud Infrastructure as a Service (IaaS). Enterprises may use multiple clouds, but they don't necessarily choose a mix that offers best-of-breed benefits. While "multi-cloud" is the buzzword of the hour—from technology vendors, media, and enterprise buyers—there is still a lot of confusion in the marketplace caused by different definitions from different providers, and some providers pushing back on the idea of multi-cloud altogether.

Enterprises today are adopting a multi-cloud environment, either as a conscious decision or as a default. However, most of them either don't have the knowledge or the technology tools to implement an effective multi-cloud strategy; or they have an inadequate environment, comprising multiple siloed clouds, which was not consciously planned and articulated. As a result, enterprises end up with an unoptimized IT environment, hindering digital transformation inside their businesses.

In this report, we look at the definition of multi-cloud. We consider why enterprises should contemplate a multi-cloud strategy—the challenges, benefits and impacts—and provide a view of how leading IaaS vendors may fit into the multi-cloud strategy.

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[1] In preparing this report, Stratecast conducted interviews with representatives of the following companies:

- Rackspace – Prashanth Chandrasekar, Senior Vice President & General Manager, Public Cloud, Global; Scott Crenshaw, Executive Vice President & General Manager, Private Cloud
- Cisco – Carlos Campos, Worldwide Data Center Switching Technical Lead; Marcelo Moreira, Senior Systems Engineer Manager
- AWS – Jaime Valles, Managing Director Latin America; Cleber Morais, Country Director, Brazil
- CenturyLink – Gabriel del Campo, Vice President of Data Center and Security, Latin America

Please note that the insights and opinions expressed in this assessment are those of Stratecast, and have been developed through the Stratecast research and analysis process. These expressed insights and opinions do not necessarily reflect the views of the company executives interviewed.

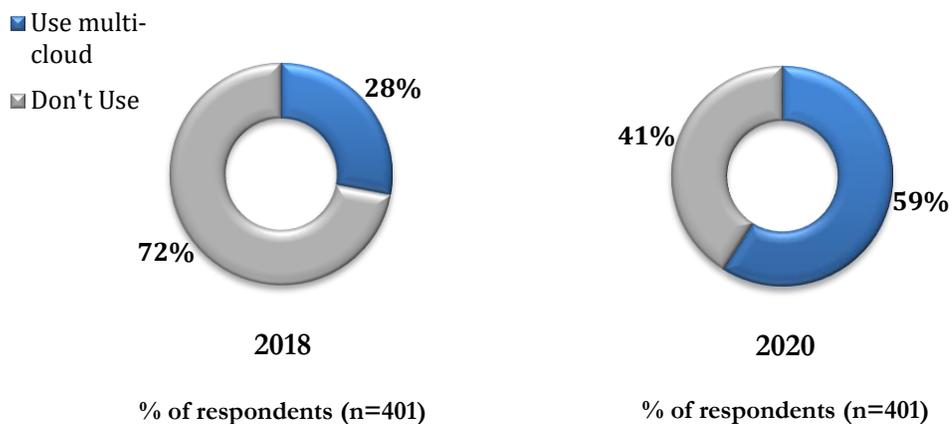## What Comprises a Multi-Cloud Environment—and Why do Companies Choose it?

As with other terminologies in the cloud industry—such as digital transformation and artificial intelligence—multi-cloud is defined differently by different providers, which leads to misunderstandings. **Stratecast defines multi-cloud as having applications and workloads deployed in more than one cloud IaaS provider—ideally, with common management and orchestration tools.** Multi-cloud may include public and private cloud IaaS providers, as well as providers of platform-as-a-service (PaaS) and software-as-a-service (SaaS).

In Stratecast's view, multi-cloud is a subset of the more broadly defined hybrid cloud. **Stratecast defines the hybrid cloud as integrating different infrastructure options**—including on-premises physical servers, co-location services, public cloud, hosted private cloud, SaaS and PaaS—**via a single management and orchestration platform.** The deployments can be from one vendor alone, or a mix from different vendors.

Therefore, **multi-cloud refers to integrating platforms from multiple cloud IaaS vendors, while the hybrid cloud refers to integrating premises and cloud deployment environments**—whether hosted cloud, enterprise managed or third-party managed.

According to the 2018 Frost & Sullivan survey, 28% of IT decision-makers have already adopted a multi-cloud IT environment (more than one cloud IaaS provider); while 59% expect to do so by 2020 (see Figure 1). **The same survey showed that 44% of multi-cloud adopters currently use two IaaS providers; 29% use three or four; and 7% use five or more.**

Figure 1: Adoption of Multi-Cloud Environment

■ Use multi-cloud
■ Don't Use

28%
72%
2018
% of respondents (n=401)

41%
59%
2020
% of respondents (n=401)

Source: Frost & Sullivan 2018 Cloud User Survey

Why Multi-Cloud?

Enterprises currently have a multi-cloud environment for a variety of reasons. In some cases, the business may have consciously and strategically implemented a multi-cloud; more often, they find themselves managing multiple cloud providers by default. Scenarios that drive multi-cloud adoption include:

- **Ease of purchase:** The low purchase barriers to public cloud (no contract, no purchase order required) mean that enterprise employees can subscribe to cloud services without necessarily going through formal purchasing processes. That can result in different cloud decision-makers inside a company—for example, developers, application managers, IT managers, CIOs, CFOs, even line-of-business managers—choosing different cloud IaaS providers. Without clear communication between decision-makers, or governance over these initiatives, the enterprise ends up with a multi-cloud environment without necessarily having given much thought to it.

- **Service variety:** Companies may subscribe to third-party software or services that are already hosted in different clouds, since so many workloads today tend to integrate components from multiple sources (including multiple clouds). For example, an airport may have most of its applications deployed on AWS, but decide to subscribe to public data from weather.com, which is hosted in the IBM Cloud; and use IBM's Watson artificial intelligence platform to do some analysis based on the weather data.

- **Avoidance of vendor lock-in:** Over fifty percent of IT decision-makers surveyed by Frost & Sullivan claimed that being locked-in with a cloud provider can be a restraint in their decision to implement cloud solutions. Their concern about lock-in most likely stems from a desire to maintain their options and keep their costs low.

- **Cloud diversity:** While cloud services are highly reliable, they are not immune to outages. To protect data and applications, some enterprises back-up cloud workloads into another provider's cloud. As a result, an enterprise may have data in one cloud, but choose to replicate it—on its own, or via a Backup and Recovery service—into another cloud, to protect the data in case there is a major disruption in the production cloud.

- **Mergers and acquisitions** may also lead to a multi-cloud environment. As the cloud era continues, mergers and acquisitions will contribute to combined companies having a mix of IaaS providers, due to the selections made when the companies were separate entities.

None of these scenarios represent a multi-cloud environment that is the result of a conscious and comprehensive strategy, ensuring that workloads are deployed in the optimal cloud IaaS provider. That is precisely because, today, those scenarios are the less frequent ones. As a result, many enterprises end up with a less-than-optimal multi-cloud environment.

Multi-Cloud Environment vs. Multi-Cloud Strategy

While enterprises might have a multi-cloud environment, it doesn't necessarily mean that they have an effective multi-cloud strategy. In fact, most of them don't have one. That happens due to two key challenges businesses currently face:

- **Technology challenges:** Cloud vendors have different, often proprietary, platforms, which make it difficult to integrate workloads from different clouds without doing custom work. Even third-party cloud management providers often can't work around that challenge, since they need to use a "least common denominator" approach to be able to manage across platforms.[2] According to the 2018 Frost & Sullivan survey, managing multiple clouds is a top

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[2] See Strecast report CC 7-3, Cloud Management Platform Buyers Guide, 2017 (Aug 2017).

challenge for businesses today. Thirty percent of IT decision-makers cited orchestration and integration of applications across infrastructure environments to be a top challenge—up from 13% in 2012. Stratecast attributes the increase to the maturing cloud market: in 2012, when businesses were still exploring the cloud, few were using more than one provider, or attempting to integrate applications.

Figure 2: Evolution in Managing Multi-Cloud Environments

30%

21%

13%

2012   2015   2018

**% of respondents citing "managing multiple clouds" as
top challenge (n=401)**
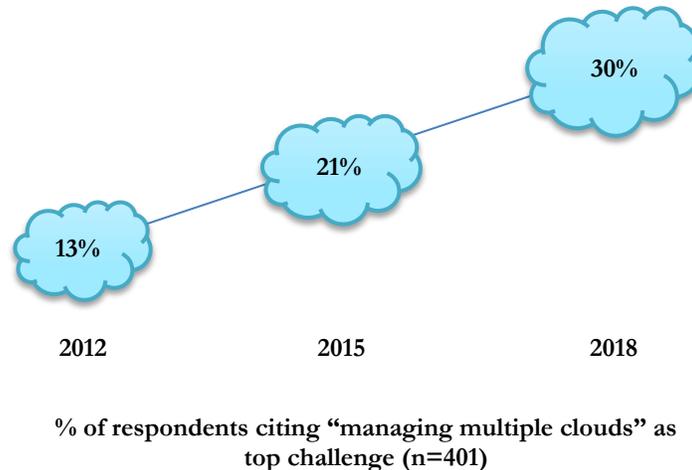
Source: Frost & Sullivan 2018 Cloud User Survey

- **Process/Skills challenges:** Currently, many IT decision-makers struggle to determine which cloud is best for each workload. In fact, 25% of IT decision-makers cited assessing the optimal deployment model for workloads as a top challenge in 2018.

An effective multi-cloud strategy requires understanding the full picture of an enterprise IT environment; and having visibility and control of resources, costs, and usage across business units through one single management platform. It also requires understanding enterprise services and resources' needs, and proactively assessing which cloud IaaS provider is best equipped to meet them—similar to the Netflix versus Amazon Prime Video example.

Additionally, a multi-cloud strategy should also cover access management (controlling user permissions), service management (e.g. infrastructure software versioning and service performance monitoring and alerts), security, compliance, disaster recovery, and data migration.

Choosing Cloud Providers for your Multi-Cloud Strategy

IT decision-makers use a range of criteria in choosing a cloud service or provider for their workloads. Some decisions are based on the suitability of a specific cloud providers' offer to a specific workload or application. But other criteria have to do with the company's ability to support a hybrid or multi-cloud environment. In Frost & Sullivan's survey, decision-makers cited **ease of migration to cloud environment (67.5%); integrated management platform to support hybrid and multi-cloud (61.5%); integrated intelligence/analytics functionality (61.5%); and private cloud (single-tenant) option (60.3%)** as top factors considered when choosing a hybrid or multi-cloud provider.

All Cloud Service Providers Are Not Alike

Why should enterprises avoid vendor lock-in? Just as consumers choose a mix of best-in-breed over-the-top video services, why should enterprises choose a mix of best-in-breed cloud IaaS vendors for their workloads? Is there a compelling reason to deploy a comprehensive multi-cloud strategy, comprising not only existing cloud workloads, but also cloud-based applications yet to be written?

The answer, in the hypercompetitive digital economy, is that "good enough" IT is no longer good enough. Businesses must be faster, more innovative, more cost-conscious than competitors in order to survive. As such, every application must be optimally deployed, whether on premises or in a provider's cloud, to deliver the greatest business value. Because each cloud provider offers a slightly different service mix, instance sizes, and pricing, it makes sense for businesses to continually assess and reassess their options.

Going back to the Netflix and Amazon Prime Video example, a part of their content is similar, but only Netflix offers *Stranger Things* and *The House of Cards*, while Amazon Prime Video uniquely offers *The Man in the High Castle* and *Jack Ryan*. As a result, many users have started to opt for a mix of both platforms, taking advantage of different proprietary content at a reasonable cost.

Similarly, each cloud vendor has a unique platform with unique capabilities, functionalities, and services. Some cloud providers' capabilities—like basic compute and storage—might be similar in quality and price, but there are other functionalities and value-added-services that might make the difference for a particular workload. Choosing the right mix of providers requires due-diligence into costs, performance, and the services array offered by each provider, as well as continual assessment to maintain the optimal environment.

The following section offers a quick summary of leading IaaS providers, with some differentiators that may compel buyers to choose their services for a particular workload. For each of the vendors, we note how the IaaS services can be supported as part of a multi-cloud environment.[3]

Amazon Web Services

The global leader of the public cloud, with a 54.1% market share, AWS has long advocated for the migration of enterprise workloads to this deployment model. Even though its initiatives in the last two years—such as its partnership with VMware and its AWS Outposts announcement—reveal the company's acknowledgement of the need for a private cloud, these announcements seem to always direct companies to eventually migrate to AWS' public cloud.[4] That is, there is a significant amount of lock-in involved in deploying workloads on the AWS cloud.

As such, it is clear that the company is not an advocate of enterprises having multiple public cloud providers. AWS frequently touts its "all-in" customers: those that have eliminated the private data center, and placed all their applications on the AWS platform. During re:Invent 2018, AWS stated that it believes enterprises will either have only one public cloud provider, or choose between two of them in a 80/20% or a 90/10% split. Since multi-cloud ultimately means choosing two or more cloud IaaS providers, public or private, it can be assumed that this is not on AWS' agenda. Unlike its

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[3] See Stratecast report SPIE 2018-20, Beyond the Big Three: Cloud Service Providers that Should Be Part of Your Multi-Cloud Strategy (Jun 2018) for information on other cloud IaaS providers.

[4] See Stratecast reports SPIE 2018-32, AWS Seeks to Change the Hybrid Cloud Landscape with AWS Outposts (Dec 2018); and SPIE 2018-34, More Industry Disruption by the Amazon Empire - AWS Outposts Plays Host to SD-WAN (Dec 2018).

closest competitors, AWS does not offer a cloud management platform that supports, manages and orchestrates multiple clouds.

On the other hand, AWS' dominance of the global IaaS market has provided it with the scale to support frequent price reductions. This results in services that have competitive pricing for both small businesses and large enterprises with expansive IT structures, which is an important differentiator of this infrastructure. In addition, the company has an impressive track record of continually rolling out new and enhanced services—as of March 31, 2018, AWS had launched 5,089 new features or services since its inception in 2006.

AWS infrastructure is supported by, but not limited to, cloud management platforms from CenturyLink, Rackspace, Cisco, Google Cloud Platform, IBM, Microsoft Azure, and VMware.

Microsoft Azure

Microsoft is the second largest provider in the global IaaS market, with a 19.3% share in 2018. The company has a suite of service orchestration and delivery services to manage customers' cloud workloads, as well as insight and analytics services. Microsoft itself does not offer management of competing clouds such as AWS, Google Cloud Platform, or IBM Cloud, but multi-cloud management is offered by select Microsoft partners.

Among Microsoft's strong points is its dominance in the enterprise data center. The company has integrated its Azure cloud platform into the Windows Server operating system, enabling users to deploy private and hybrid cloud workloads on premises, as well as in the Azure public cloud. Enterprises that already have these solutions deployed internally are more inclined to migrate workloads and applications to Microsoft public or private cloud, since integration and orchestration can be achieved more seamlessly this way. This can explain, at least in great part, the company's cloud penetration across the globe.

Microsoft infrastructure is supported by, but not limited to, cloud management platforms from CenturyLink, Rackspace, Cisco, Red Hat, and VMware.

IBM Cloud

Like Microsoft, IBM is well-entrenched in the enterprise data center. The company's integrated portfolio of enterprise-grade infrastructure, software and services enables businesses to easily build and support workloads on-premises or in the public cloud. IBM is the leading provider of bare metal (non-virtualized) cloud; according to Frost & Sullivan research, adoption of bare metal cloud will double in the next two years. IBM's announced acquisition of Red Hat in 2018 gives the company a strong edge in open source architectures, management platforms, and hybrid cloud solutions.

In October 2018, IBM launched IBM Multicloud Manager, an open technology solution for managing Kubernetes clusters across a variety of infrastructures, both public and private. IBM Multicloud Manager enables visibility, governance and security, and consistent application management via a single platform. The platform is optimized on IBM Cloud, but also manages workloads from AWS, Red Hat, and Microsoft.

IBM Cloud is supported by, but not limited to, cloud management platforms from CenturyLink, Cisco, Microsoft Azure, and VMware.

Google Cloud Platform

Google is a leading provider of hyperscale cloud infrastructure, and the first to support containers. The company created Kubernetes, the open source container management and orchestration system

that dominates container tools. Google's hybrid cloud enables development and management of line-of-business applications on-premises and in the public cloud. The infrastructure is open-source and includes Kubernetes, which gives businesses access to a seamless multi-cloud environment that they can manage centrally.

Google Cloud Platform is supported by, but not limited to, cloud management platforms from CenturyLink, Rackspace, Cisco, Red Hat, Microsoft Azure, and VMware.

Stratecast
The Last Word

As with consumers, digital transformation is also changing the way enterprises operate: the way they buy, consume, and integrate technologies in their business processes, and the speed at which they innovate. Cloud infrastructure has become one of the key components in helping companies leverage new technologies to meet their escalating needs. And, similar to what happens with Netflix and Amazon Prime Video, competition among IaaS providers means enterprises have a choice of different cloud computing services available in the market, each with their own unique, compelling features.

Although many businesses **currently use multiple cloud providers, the true "multi-cloud" remains elusive**. **Most businesses end up with multiple providers as a default, rather than a strategic decision.** That happens mostly due to technology and process challenges—difficulties integrating infrastructure environments, and the lack of skills and available time to thoroughly assess the best cloud for each workload.

A multi-cloud strategy can support companies not only in having visibility into their current multi-cloud environment, costs, usage across business units, and in reducing administrative burden, but also in **assisting them in future workload migration to the cloud or for new cloud-based applications**.

Companies now have the opportunity to **choose different cloud IaaS vendors**, depending on the use case, the type of workload, or the services they need: easier migration to the cloud, lower costs, having a private cloud (single-tenant) option, and so on. Enterprises also have much more support than they ever did from managed service providers and (some) cloud vendors, for deploying an effective multi-cloud strategy.

Instead of being locked in to one cloud vendor, or just having a random multi-cloud environment, enterprises should proactively look to deploy a multi-cloud strategy that will help them organize their current multi-cloud environment, and manage it optimally; as well as choose a mix of best-in-breed functionalities from multiple vendors for future workloads that will be migrated or developed in the cloud.

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