Market Pulse

Data Fabric: Realize the Full Potential of the Hybrid Cloud

ACHIEVING BUSINESS BENEFITS IN THE HYBRID CLOUD REQUIRES THE ABILITY TO WEAVE A UNIFYING DATA FABRIC ACROSS DISPARATE ENVIRONMENTS

Gone are the days when IT organizations were responsible solely for managing and running IT services. Today, businesses have a variety of options when it comes to where and how they procure services. They don't have to standardize on one delivery method or even one provider across the organization. At any given time, businesses can leverage a combination of internal and public computing resources to take advantage of new options and competing price points for different workloads. The result is a rapidly changing IT landscape characterized by a mix of private and public cloud services — known as hybrid cloud.

As hybrid clouds become more prevalent, the IT organization increasingly is taking on the role of broker — serving as intermediary between cloud service providers and the rest of the business. IT organizations are facing a handful of challenges in their quest to connect and manage data across hybrid environments. A study conducted by IDG Research Services for NetApp found that IT organizations continue to struggle with moving and managing data in a hybrid cloud environment. To optimize the business benefits of the cloud, they need to find ways to address the challenges of weaving together data across disparate environments.

Percentage of IT Services Delivered Via Each Model

	Percent (%) today		Percent (%) in three years
Traditional on premises (non-cloud)	62%	-27%	35%
Private cloud	21%	+6%	27%
Public cloud	11%	+7%	18%
Hybrid cloud	6%	+14%	20%

Over three-fifths of IT services are currently delivered via on-premise platforms, a figure that is expected to plummet to just over one-third (35%) in three years; delivery of services via hybrid cloud infrastructure is expected to more than triple.

Source: IDG Research Services

IT infrastructures are evolving

IT infrastructures are no longer fairly static entities marked by predictable growth. With the advent of the cloud, IT infrastructures are evolving — and doing so rapidly. The IDG study found that IT services delivered via the cloud are expected to increase from 38% to 65% in the next three years as organizations shift more of their IT architectures services to public, private and hybrid clouds.

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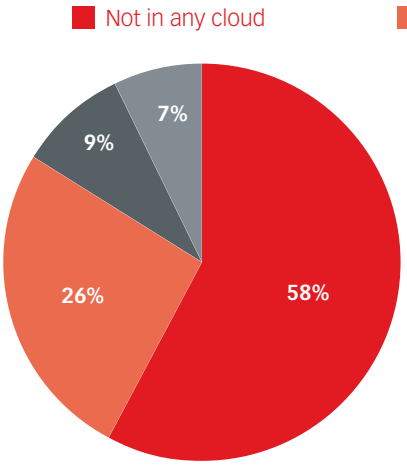
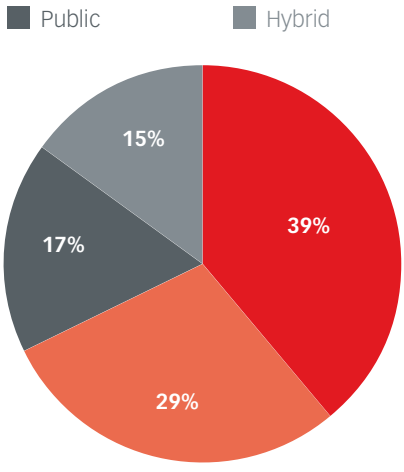
Distribution of Data Today

As a percentage of total data



Distribution of Data in 18 Months

As a percentage of total data



Source: IDG Research Services

The study looked at three types of public cloud services: Software-as-a-Service (SaaS), Infrastructure-as-a-Service (IaaS) and Platform-as-a-Service (PaaS). While 71% of enterprises have currently deployed SaaS, another 17% plan to deploy SaaS within the next 18 months. Forty-two percent of enterprises have deployed IaaS, and another 27% plan to deploy IaaS within the next 18 months. PaaS stands to grow the most, with 19% of enterprises reporting current deployments and 38% of enterprises planning deployments within the next 18 months.

As cloud deployments increase, IT organizations are looking to capitalize on a number of benefits. The number one advantage, cited by 62% of survey respondents, is the ability to scale up or down to accommodate business needs. This "elasticity" allows organizations to use only the resources they need at any given time. It eliminates the need to build out infrastructure that is only needed to accommodate, for example, a seasonal spike in resource consumption.

Other benefits organizations are seeing from cloud deployments are less downtime and planned outages (51%), the ability to buy and use resources on a per-needed basis (50%), and increased IT efficiencies/ lower costs (50%). In other words, IT organizations are seeing more bang for the buck.

Unfortunately, while IT is bullish on deploying more cloud services, they're finding challenges in the execution. The majority of respondents' data — just under 60% — still resides in non-cloud environments, with just over one-quarter (26%) shifting to private clouds. Although respondents anticipate migrating a significant portion of this data to public and hybrid clouds over the next 18 months, their expectations may be optimistic: Respondents to a similar survey in 2013 had nearly identical distributions and projections as they do today, indicating little or no change year-over-year.

The challenge of connecting and managing data across environments

What is delaying these cloud deployments? The survey results point to the inability to manage data across on-premises and cloud environments. While 78% of respondents said managing data seamlessly across cloud environments was very important or critical, only 29% believe they're doing an above average job; 23% rated their organization's performance as poor.

"IT organizations have different combinations of infrastructure, compute and storage out in the cloud versus in the data center. Data storage and management across the blend of resources is challenging, and it's also very important," says Brad Nisbet, Senior Marketing Manager, Cloud Solutions at NetApp. "You can outsource the compute aspect or the applications, but once you generate data, you're on the hook to control it as long as it exists. It's one thing to control data in your own data center, but it's another thing altogether when data exists in various environments."

Respondents identified several areas of data management as being particularly difficult, including data protection, application performance and data governance. These barriers all point to a lack of control. Once data leaves the corporate data center, IT organizations have little control or visibility into how data is protected, how it is governed, and the service levels that are delivered to ensure availability.

To further complicate matters, each cloud service provider uses different platforms, protocols and other technologies that must be managed in respect to data. One service provider may have a particular way of storing data compared with another service provider, with both methods diverging from how the organization stores data in its own data center.

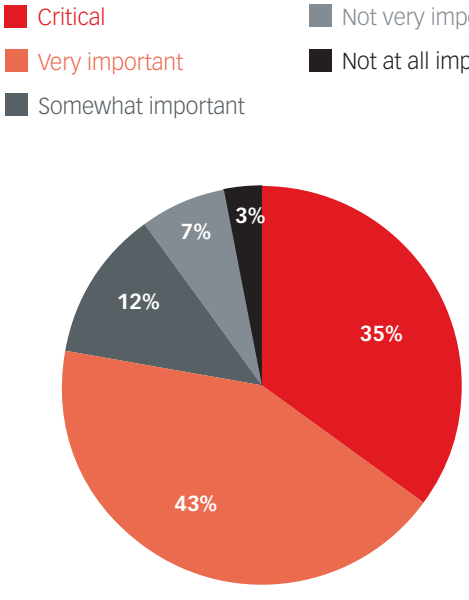
The difficulty extends beyond simply bringing data into the corporate data center from the public cloud. IT organizations must be able to move data between public clouds as well as in and out of their own private cloud to accommodate changing needs and optimize the cloud's elasticity and scalability benefits.

"Data is only valuable when it's in the right place at the right time," Nisbet says. "Being able to manage data across different cloud environments and move data in and out as needed is critical. Being able to create consistency to provide economies of scale, and apply elasticity to that is also critical."

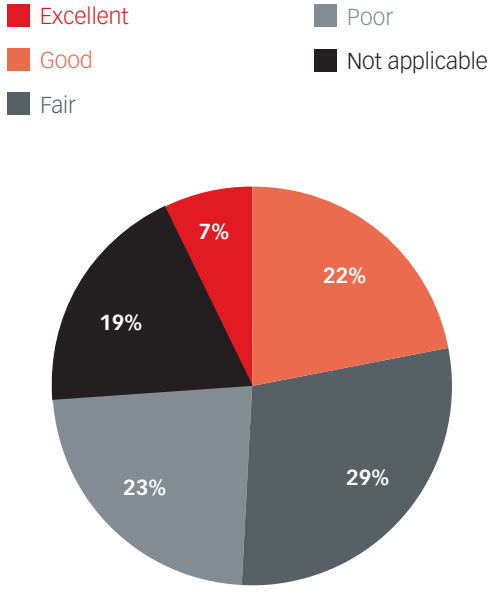
Organizations' reliance on their cloud providers to enable data movement may be contributing to the challenges they face in managing data across on-premise and cloud-based applications and platforms. The most important factors respondents consider when evaluating cloud solutions are: the ability to integrate technologies from multiple vendors; the ability to manage and control data among private and public clouds; and the ability to control data growth and associated costs.

Cloud computing services are continually evolving and providers are offering new options, but it is not always in their best interests to enable data mobility. As IT organizations assume a greater role as service broker to the business, they must take ownership of ensuring that technologies from multiple vendors integrate seamlessly. They need, in effect, a "data fabric" that weaves together the disparate data elements of the hybrid cloud into a single, integrated architecture.

Importance of Managing Data Across Multiple Clouds

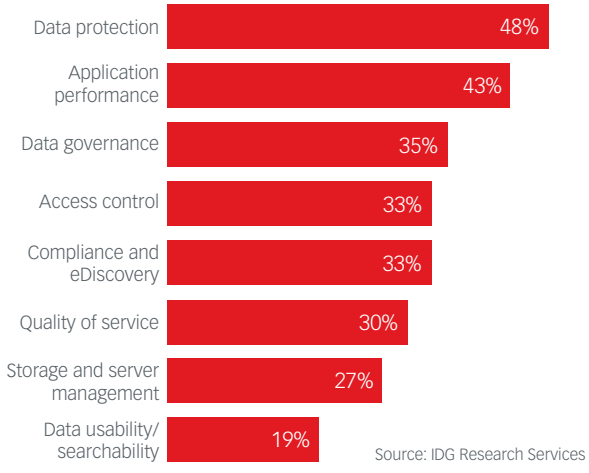


Ability to Move Data Across Multiple Clouds



Source: IDG Research Services

Aspects of Control Difficult to Maintain When Moving to Hybrid Cloud



Source: IDG Research Services

A data fabric for the hybrid cloud

At its core, a data fabric provides a cohesive and well-integrated way to manage enterprise data regardless of the infrastructure upon which it resides. It spans a variety of resources, in the data center and in the cloud. Without a common approach, IT will be constantly scrambling to reconcile data management practices across a series of isolated, incompatible data silos.

A data fabric enables IT to harness the power of new and innovative services that are being built for cloud architectures while maintaining control of the data. A data fabric must be capable of working with industry-leading cloud technologies from organizations such as Amazon, Microsoft, OpenStack, SoftLayer and VMware to provide IT teams with the freedom to choose among service providers and more quickly respond to business needs. A fully integrated solution must also be able to move data across multiple cloud platforms regardless of vendor or the underlying infrastructure.

NetApp envisions a data fabric that provides seamless enterprise data management across the hybrid cloud. To deliver on this vision, its data fabric must incorporate several key elements:

- **Common Data Management**
  This is a common operational model for data, providing consistency and improving IT efficiency and control. Organizations can maintain their existing business and operational practices at all points in the cloud, thus addressing data protection and governance concerns.

- **Common Data Transport**
  This enables movement of data from one cloud to another and ensures that the data is in the right place at the right time so it can be accessed by applications in the most cost-effective and efficient manner. This capability allows IT teams to create innovative cloud solutions and avoid service provider lock-in.

- **Common Data Format**
  This eliminates the effort required to re-write applications for the cloud. Data can be difficult to move at enterprise scale, and having to rewrite data formats is extremely cumbersome and expensive. A common data format allows IT organizations to bring applications to the cloud faster or take them from one cloud platform to another to improve business outcomes.

Conclusion

Moving forward, hybrid IT infrastructures will increasingly be the norm, putting IT organizations in the role of IT service broker. To take advantage of the cloud's elasticity, uptime and pay-as-you-go-model, IT organizations must be empowered to embrace hybrid cloud on their own terms, maintaining control of data across a range of private and public cloud resources.

A data fabric, enabled by NetApp, gives IT organizations control and choice by providing a platform by which IT can manage data and enforce policies across a range of cloud service providers.

To learn more about how a data fabric strategy can enable your hybrid cloud deployment, visit us at **www.netapp.com/datafabric.**

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