# White
# Paper

## NetApp Multi-cloud Private Storage: Take Charge of Your Cloud Data

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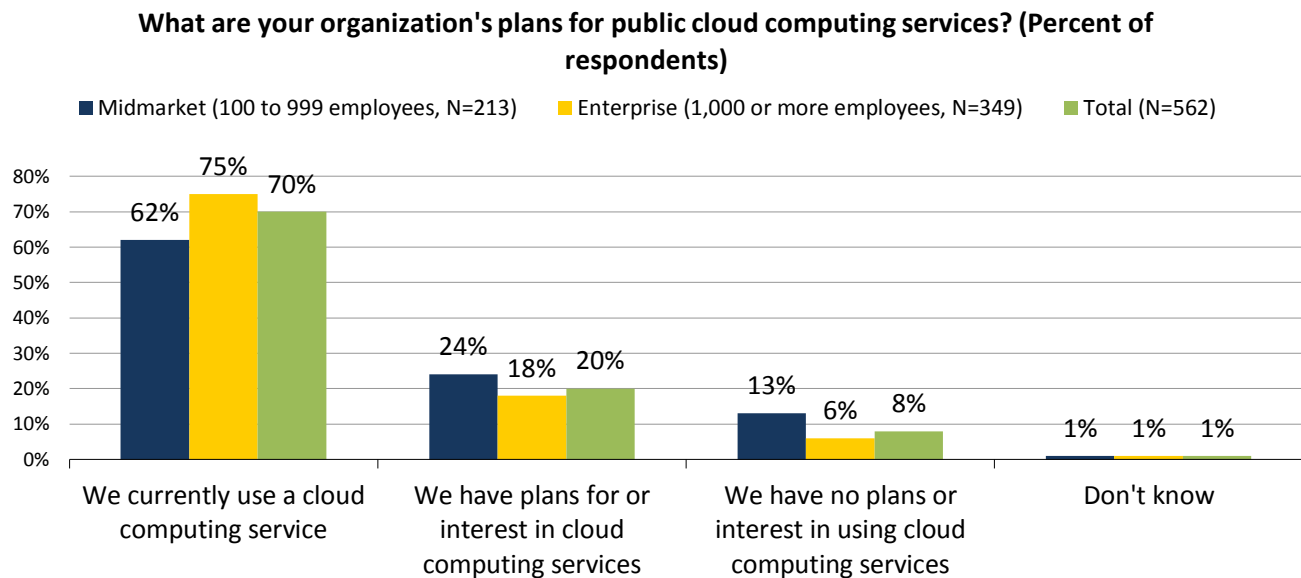This ESG White Paper was commissioned by NetApp and is distributed under license from ESG.

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# Introduction: The Appeal (and Challenge) of Moving an Enterprise to a Public Cloud

Despite years of talk and lots of hype, the level of public cloud usage by organizations has remained somewhat difficult to describe and accurately quantify. However, following a recent in-depth research survey[1] of more than 500 IT professionals representing midmarket and enterprise-class organizations in North America and Western Europe, ESG has been able to reach a number of conclusions:

- Organizations in the retail, communications & media, and manufacturing industries are currently the most prevalent users of public cloud services.

- Seventy-two percent of the organizations surveyed say they intend to increase their spending on cloud computing in 2014—on average, allocating 8% of their 2014 IT budgets to cloud services.

- Adoption of SaaS continues to increase, as does the range/breadth of SaaS usage.

- One-third of organizations surveyed are using cloud infrastructure services currently.

- Most of the surveyed organizations report currently using at least one type of public cloud computing service, and the vast majority are using more than one.

Well over two-thirds of respondents (70%) say their organizations currently leverage at least one public cloud computing model, with another 20% having plans for or an interest in using the services. Larger organizations remain the most likely to use cloud computing. Specifically, 75% of enterprise-scale organizations currently use some type of cloud service, compared with 62% of their midmarket counterparts (see Figure 1).[2]

*Figure 1. Usage Trends for Public Cloud Computing Services, by Company Size*

**What are your organization's plans for public cloud computing services? (Percent of respondents)**

■ Midmarket (100 to 999 employees, N=213)  ■ Enterprise (1,000 or more employees, N=349)  ■ Total (N=562)



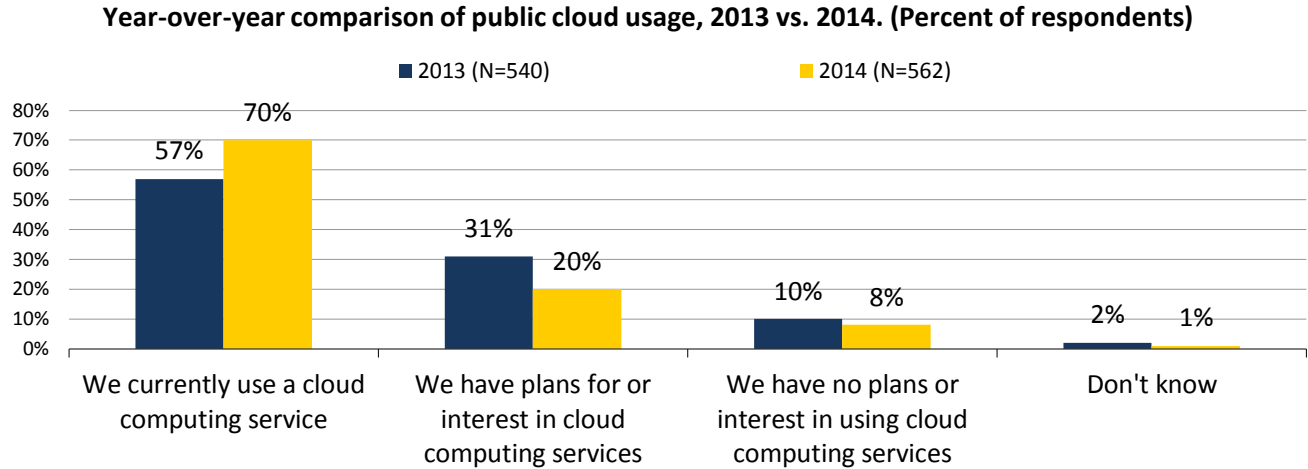*Source: Enterprise Strategy Group, 2014.*

There also has been a noticeable increase in the use of public cloud services between 2013 and 2014, an indication that momentum in this direction is continuing to build year over year (see Figure 2).[3]

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[1] Source: ESG Research Report, *2014 Public Cloud Computing Trends*, March 2014.
[2] Source: Ibid.
[3] Source: Ibid.

Figure 2. Usage Trends for Public Cloud Computing Services, 2013 versus 2014

**Year-over-year comparison of public cloud usage, 2013 vs. 2014. (Percent of respondents)**
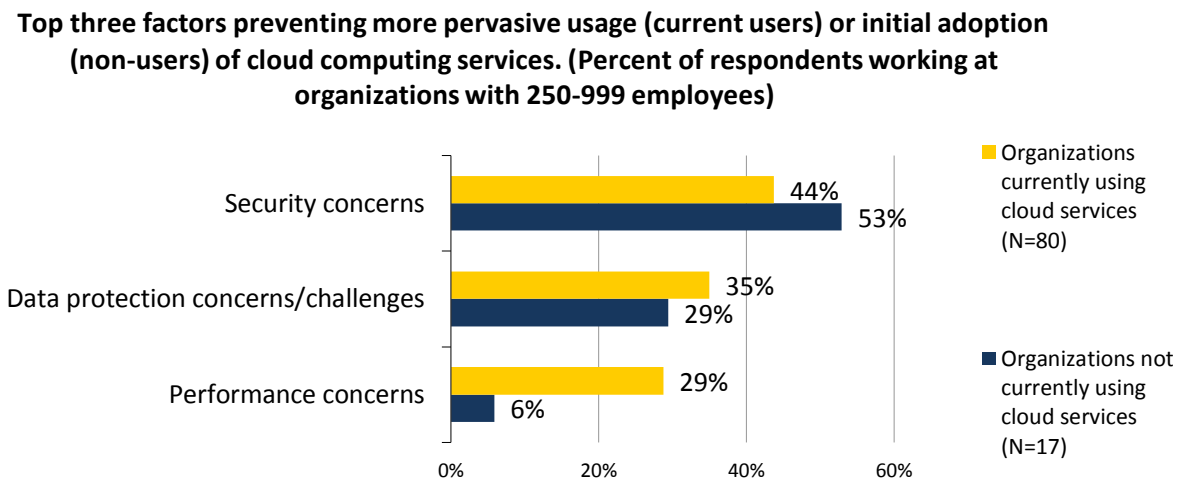


Source: Enterprise Strategy Group, 2014.

CIOs, cloud architects, and IT operational leaders have an opportunity to leverage these trends.  Once, internal IT teams built all the compute, network, and storage services for their organizations. That model is clearly changing. The IT-as-a-service (ITaaS) model has emerged, and it is propelling IT organizations to evolve toward functioning—in some respects—as service providers and brokers. The world is increasingly cloud centric, particularly public cloud centric.  By extending beyond an approach centered on physical/onsite allocations to a variable/demand-based model with metering and billing built in, companies will have a simple way to monitor usage, allocate costs, and improve agility.

## A Few Inhibitors

While public cloud adoption continues to grow, evolutions never progress entirely smoothly. There are numerous challenges that have inhibited even faster adoption  of the public cloud in the enterprise. Figure 3 shows other major barriers to public cloud usage reported by respondents.[4]

Figure 3. Top Three Factors Preventing More Pervasive Usage or Initial Adoption of Public Cloud Computing Services

**Top three factors preventing more pervasive usage (current users) or initial adoption (non-users) of cloud computing services. (Percent of respondents working at organizations with 250-999 employees)**



Source: Enterprise Strategy Group, 2014.

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[4] Source: ESG Research Report, *2013 Public Cloud Computing Trends*, March 2013.

## The Rise of Hybrid Architectures

New hybrid architectures are emerging that can address the most important public cloud inhibitors. They can give IT organizations the same enterprise-class security, data protection, and performance they have built on-premises combined with the flexibility and cost efficiencies of the public cloud.

An example is the type of hybrid architecture fielded by NetApp that combines Amazon Web Services Elastic Compute Cloud (EC2), or the Microsoft Azure compute tier, with private NetApp storage and data management deployed in select co-location facilities.  In this architectural model, the compute tier resides in the public cloud and is directly connected with a private network link to IT-owned and -managed storage resources in an adjacent data center. With this combination, IT achieves the benefits of compute scale, elasticity and favorable economics while maintaining access to data on private storage systems that match the current set of IT policy and operational functions within their core data center.

This architecture has advantages that directly map to, and address, the top inhibitors to more extensive public cloud use.  First, because the data resides on private storage "next to" rather than "in" the public cloud and because the data on that storage is accessed over a private, dedicated network, it is easier for an enterprise to consider using public cloud compute with sensitive data where security and compliance is top priority.  Second, features for high availability, backup, and disaster recovery are integrated with NetApp storage, providing the same enterprise grade data protection service levels customers count on for their on-premises environments.  Third, the fact that the storage is located within a few miles of the compute tier and connected with single or multiple high bandwidth private links ensures that applications function with high performance and extremely low latency.   The performance and latency challenges of operating remotely over the Internet disappear.

This architecture, generically referred to as NetApp Private Storage for Cloud, has tremendous potential to break down barriers and enable even wider use of public cloud in the enterprise.  It can be a great fit for compute-variable workloads where more performance, availability, and data control are needed than can be currently provided by pure public cloud solutions.  Some workloads to consider deploying in this model include:

- Peak-workload management
- Disaster recovery
- Development and test
- Big data analytics
- Multi-region application continuity
- Data center migration/consolidation
- Business applications

Although NetApp has been in the vanguard in testing and promoting this type of hybrid architecture, it is no longer alone.  Others are beginning to recognize the approach's potential. NetApp competitor EMC is promoting a similar solution with Microsoft Azure and co-location provider Equinix.  This style of IT delivery will likely attract even more players going forward.

## The Network Effect of Multiple Clouds Connected to Private Storage

While NetApp storage privately connected to a single public cloud offers benefits as described above, *further* benefits accrue when the same storage device and data sets can be quickly connected to multiple clouds without having to provision and de-provision network links or move data.  In a network effect reminiscent of Metcalfe's Law (in which a network's value is proportional to the square of the number of connected users), more cloud connection options result in a better IT value proposition.

**Expanding Benefits**

NetApp partnership with co-location provider Equinix and integration with the Equinix Cloud Exchange enables dedicated, private connectivity to multiple clouds almost instantly and promises the following expanded set of benefits for enterprise users:

- **Allows users to connect to new clouds quickly and to switch clouds any time.** An organization can start with its favorite cloud and add/jump to new clouds in minutes. After the organization's NetApp storage is situated next to one cloud (i.e., when it is placed in select Equinix data centers), it is possible to establish a dedicated network connection to more clouds in minutes using the Equinix Cloud Exchange.

- **Eliminates lock-in and costly data migrations.** The major cloud service vendors are innovating continually in regard to price and feature sets. Should an organization want to switch cloud vendors for any reason, they have a way to do so without dealing with the time-consuming, costly obstacles of traditional data migration. They turn off connectivity to "cloud one" and spin up connectivity to "cloud two" in minutes—*without having to move data*.

- **Diversifies risk.** Customers can now easily run applications in more than one cloud to diversify risk. For example, if the first cloud does not respond or is slow due to some type of performance problem, an application can instead be run instantly and securely via the alternate, second cloud.

- **Enables an organization to expand its cloud choices.** By keeping its data close to multiple clouds, an organization is free to connect to an expanding portfolio of the clouds it wants. NetApp has been actively enlarging its network of cloud service provider partners, including industry leaders, which should provide NPS for Cloud customers with even more options going forward.

- **Maximizes an organization's cloud buying power and flexibility.** NetApp Private Storage for Cloud used with multiple clouds gives organizations more control and potentially even more "bargaining power" to get the cloud services and capabilities they need under favorable terms.

A vast majority of ITaaS users already leverage more than one cloud service provider today.  NPS for Cloud builds on that trend and provides IT users with even more flexibility to reap the benefits of a multi-cloud strategy in the enterprise.

**Expanding Cloud Choices**

NetApp has expanded its NPS for Cloud relationships with popular cloud service providers and today offers a family of solutions that includes the following clouds:

- Amazon Web Services

- Microsoft Azure

- SoftLayer, an IBM Company

Going forward, NetApp will connect with more clouds through the Equinix Cloud Exchange—and the more clouds that are connected, the more the value of the NPS solution will grow. It's the start of something significant for IT, something that could spawn new use cases, more efficient resource-consumption patterns, and greater use of the public cloud in the enterprise.

# Multi-cloud Private Storage Is a Reality Today

The actual and potential advantages of this type of multi-cloud strategy provide new opportunities to IT organizations. To date, NetApp has embraced the field as the market leading storage vendor to partner with cloud industry leaders Amazon Web Services, Microsoft Azure, and SoftLayer in this particular manner. And the story only becomes more interesting as other cloud provider partners are brought on board.

**Locate Your Data Strategically, and Get Started**

A well-worn real-estate adage states, "Just three things matter: location, location, location." Despite the overcoming of distance that the Internet and modern Telco technology have already accomplished, location still matters greatly to enterprise IT, especially when it comes to leveraging public cloud resources efficiently. Milliseconds add up. Bandwidth remains vitally important. NetApp has correctly identified a need to locate data strategically in support of its customers' larger efforts to leverage public clouds.

## The Bigger Truth

Cloud computing can support great technological and business improvements. That's especially true with the "best-of-both-worlds" multi-cloud approach NetApp and partners are pursuing. NetApp has been working hard for more than a year with cloud and co-location providers to enable close-proximity storage connections to the popular public clouds. This offering boils down to placing storage closer to public cloud compute to dramatically reduce latency, and most importantly, control corporate data on storage that is owned and operated by the experienced IT organization. That step then opens the door to new ways to consume the compute resources of these major cloud providers.

*This is a new hybrid model that provides unique advantages for enterprises to take advantage of multiple public cloud offerings while keeping them in the driver's seat in terms of data control.* By eliminating bottlenecks and delivering more choice and flexibility, the public cloud might become not just an "option" but practically a necessity. Organizations able to leverage the enormous flexibility and savings that come with a truly reliable, fast, and secure cloud option reap many benefits. The benefits are both operational—i.e., reduced costs across the spectrum of IT activities and investments—and strategic. Embracing a hybrid model that connects through a single exchange that has direct network access to multiple cloud services allows flexibility and ready reconfiguration with the public cloud. As a result, IT organizations can be more responsive, agile, and cost efficient while continuing to be good stewards of their corporate data.

It is a scenario that puts IT in a strategically desirable position, and it's a scenario that can empower a whole enterprise to do more, do it better, and do it faster.