Hybrid Clouds: Deriving the Biggest Business Impact

ENTERPRISES ARE INCREASINGLY RELYING ON CLOUD COMPUTING FOR FLEXIBILITY, AND HYBRID CLOUDS HAVE THE POTENTIAL TO MOVE THEM EVEN FURTHER DOWN THE PATH TO AGILITY

Cloud computing has taken technology by storm — no pun intended. According to a global base of respondents to a 2014 Gigaom research study,[1] 35 percent cited innovation or competitive advantage as a driver for adopting cloud computing, and 45 percent either want to or already run some applications for their companies in the cloud.

Not surprisingly, hybrid clouds — the ability to share resources between private, on-site computing and off site resources — are following the same trajectory. While 42 percent of respondents to the same survey currently use a hybrid cloud, that percentage will increase to 55 percent within two years. Jay Lyman, senior analyst at 451 Research[2] covering enterprise computing, says, "The growth of hybrid cloud in particular indicates more organizations are seeking to formalize and standardize early, public cloud use that has not fully addressed security, compliance, and regulatory integration and other concerns of these enterprise organizations."

Still, IT executives harbor lingering concerns. In a 2013 *CIO* survey, more than three-quarters (78 percent) of respondents said they considered it highly important to be able to manage data seamlessly across multiple cloud environments. But only about half of those respondents (40 percent) rate their organization's current ability to do so as "excellent" or "very good."

The benefits companies can derive from all phases of cloud computing — and hybrid clouds especially — make it imperative that enterprises understand how to bridge the gap between desire and reality.

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[1] www.slideshare.net/mjskok/2014-future-of-cloud-computing-4th-annual-survey-results
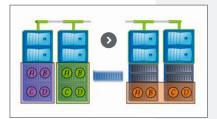[2] www.slideshare.net/mjskok/2014-future-of-cloud-computing-4th-annual-survey-results

Business Considerations for Hybrid Clouds

What are the specific benefits of hybrid clouds? Topping the list: more responsive and more economic delivery of IT solutions. Enterprises want the best of both worlds. They want to virtualize their own data centers and deploy higher levels of automation in that private cloud, but they also want the option to take advantage of off site capabilities. The goal may be to accommodate other geographical regions with applications at closer proximity for better performance, or provide access to and control of archived data, or ensure reliable disaster recovery.

SCALABILITY. Enterprises may also want to deploy hybrid cloud solutions in order to respond quickly to changing business conditions. Without having to procure hardware and configure networks, enterprises can launch projects faster and improve time-to-market for new products and services. They can also use hybrid clouds to scale capacity and serve customers more quickly. For instance, Norfolk, Va.-based Dominion Enterprises, a marketing services company targeting a variety of industries, provides its customers with a flexible, low-cost platform-as-a-service (PaaS) platform on which they can run complex Web queries. But in order to accommodate spikes when multiple customers are accessing the system, Dominion can shift processing power to a public cloud service.

EFFICIENCY. Hybrid clouds also contribute to employee efficiency. By deploying high-performance public cloud systems close to regional employees, enterprises can reduce latency and increase productivity, while still maintaining integrated data sources. In addition, as companies become increasingly dependent upon data to conduct business, the ability to access it quickly grows more crucial. To best serve its customers, Hymans Robertson, a Glasgow-based benefits and actuarial consulting firm, determined it required a much faster response time for its number crunching and financial modeling. By moving from a tape-based system to a storage-area network, in just three months it not only created a platform for future growth, and also reduced backup times from hours to minutes and bolstered its disaster recovery (DR) capabilities.

HOW NetApp HELPS

Perhaps given the simplicity with which IT can deploy, configure, and manage hybrid clouds, it's possible that the industry will drop the hybrid nomenclature altogether and simply refer to infrastructure. No matter what it's called, however, IT will still need to manage it.

As a single storage and data management platform, NetApp® Data ONTAP® software provides the important capabilities that enterprises need to achieve the maximum in agility. It offers a unified cluster architecture that scales and adapts to enterprises' changing needs, reducing risk and cost. With its ability to accommodate hybrid cloud infrastructures, the solution can help enterprises reduce downtime, even allowing service to the infrastructure during regular business hours without disrupting user access.

For vendors that offer cloud services to their clients, Data ONTAP helps deliver nondisruptive operations and scalability to accommodate a large number of mixed workloads and multiple SLAs on a shared infrastructure, with support for high-speed applications as well as large content repositories.

Data ONTAP enables unrestricted, secure movement of data across public and private clouds, no matter what hypervisors are being used, giving enterprises the ability to move and control data easily between hybrid cloud architectures. At the same time, because this solution works with multiple vendors, enterprises can avoid vendor lock-in with seamless data management across a wide choice of service providers.

Organizations have multiple choices for deploying Data ONTAP: with fabric-attached storage in their own data center, on-site at service providers, or within a SaaS configuration using service provider hardware. With those deployment options, organizations can choose whether they want to buy, rent, or lease on-demand services. This flexibility allows organizations to choose — and easily adapt to changing business needs yet control their data.

COST CONTROL. One of the biggest advantages enterprises derive from cloud computing is the ability to shift the cost of infrastructure from capital expenses to operating expenses. This eliminates the need to configure infrastructure for peak usage, instead offloading incremental usage onto external cloud systems. Essentially, they pay only for what they use. That same cost-control argument also applies to disaster recovery. In many cases, enterprises create backup tapes and ship them to a disaster recovery service for archiving. But $1.1 billion beverage manufacturer Remy Cointreau set up a hybrid cloud computing infrastructure with its disaster recovery provider, SunGard. As a result, it takes less time to replicate data off site, and less time to restore data when that becomes necessary. Remy Cointreau was able to subsidize the cost of the new DR system by eliminating tape and shipping costs.

SECURITY. When data being shared must be highly secure, enterprises can use the same kind of infrastructure techniques to share data between private clouds and external colocation facilities. One private payroll management company deployed such a scenario, setting up its own equipment in an off site colocation facility. That environment provides the flexibility of lower costs because the company doesn't have to use its own IT resources to manage the off site equipment. In addition, it also allows the company to control and maintain high levels of security for the data.

> Hybrid clouds can help IT improve its service to its customers by allowing its users flexibility through fast provisioning.

IT Considerations for Hybrid Clouds

Hybrid clouds deliver benefits beyond the business side, of course. Any overworked IT department can also derive benefits. Even so, according to another *CIO* survey, CIOs have a lot of concerns about managing hybrid clouds. For instance, they worry about whether providers can meet service-level agreements (SLAs) and whether vendor lock-in will keep them trapped in agreements that are no longer viable. They also worry about managing data and controlling its growth, about being able to leverage legacy data while still moving it between clouds.

These are all legitimate concerns, but CIOs can also address them through hybrid cloud solutions. For instance, they can minimize downtime by offloading computing resources to hybrid cloud providers. In fact, with the right network infrastructure, IT can minimize user impact. That means IT can devote fewer staff and financial resources to uptime.

IT also derives a high level of flexibility when it comes to buying, consuming, and managing compute resources through hybrid clouds. IT can use its budget to deploy a base amount of computing power, and then scale, rather than buying (and managing) for the highest possible consumption.

Further, hybrid clouds can also help IT improve its service to its customers by allowing its users flexibility through fast provisioning. IT avoids "procurement lag" and gets users' projects up and running more quickly. That provides an ancillary benefit as well: Serving the business better reduces the chances that IT will have to deal with "shadow IT" — business users setting up their own systems.

Best Practices for Hybrid Clouds

The fear of vendor lock-in continues to beset IT departments, but it need not be a consideration. The key is deploying a common data management system that lets enterprises choose resources based on need and the ability to shift data within a consistent management scheme. Three elements exemplify such a scheme.

FOUNDATION. First, maintaining control of the data is the hardest part of building and maintaining a hybrid cloud environment. It's important to have a strong underlying foundation for data. That means enterprises should take steps to analyze their current data management and storage structure to determine whether it provides the necessary level of oversight. This analysis involves considering both the maintenance and control of both data at rest and data in transit — that is, accommodating proper methods of deduplication and smooth exchange of data.

PORTABILITY. Second, enterprises should think about dynamic data portability. Given that most cloud systems, whether private or public, rely on virtualization, enterprises must think about how data moves between different vendors' hypervisors. They should also consider whether data can be easily shifted not only from private to public cloud, but also from cloud provider to cloud provider.

Hybrid clouds help IT organizations improve compute and storage data center asset utilization in their own facilities while also leveraging public assets to extend services and capabilities.

HYBRID CLOUD SUCCESS STORIES

Many enterprises worldwide have faced these questions about their hybrid cloud deployments, and have addressed them with NetApp data management and storage software:

- Despegar is a Miami Springs, Fla.-based online travel agency operating in multiple Spanish-speaking countries around the world. In order to thrive in a highly competitive market, its executives felt they needed to accelerate time-to-market for new services. To accomplish this, the company deployed a hybrid cloud with open-source OpenStack cloud computing technology, NetApp FAS3250 storage systems, and a NetApp Data ONTAP operating system. Because Despegar can deploy additional processing power through infrastructure as a service (IaaS), it can support its development team's needs, as well as its growing data needs, while still maintaining high availability for its internal private cloud. Hybrid cloud computing gives Despegar the flexibility to accommodate 100 percent growth in its data annually, and has helped to increase the company's deployment of new features and upgrades from two to three per week to 200 per day.

- Loughborough University in the UK needed to accelerate research in higher education. It deployed a hybrid cloud from NetApp and Cisco in two locations on campus, along with VMware virtualization solutions with vSphere and vCenter for virtualization. By enabling IT on demand, it was able to consolidate 80 percent of its IT infrastructure and create a foundation for future research. Researchers were able to access computing power faster, and the university saved $3.6 million in IT costs.

- Virtustream is a San Francisco-based managed cloud service provider that, in order to meet diverse enterprise customers' requirements, needed to create flexible, scalable private and public cloud environments. It deployed a hybrid cloud architecture in both its primary and secondary data centers and derived numerous business and technical benefits. For instance, it can now offer cost-effective, flex¬ible cloud IT to more than 500 businesses. The service provider's systems support consumption-based pricing and chargeback, which give its clients a clearer sense of what IT costs them. Analysis indicates that it has increased SAP application efficiencies by up to 40 percent and performance of other applications by up to 50 percent. By developing a reliable, standardized infrastructure, Virtustream can now rapidly accommodate and deploy new customers without rewriting code or other customization techniques.

OPTIONS. Third, enterprises should consider what type of data management storage delivers the kind of choice and flexibility that these needs entail. What other capabilities are most important, and who provides them? Are open-source tools an option? What will deliver the highest level of versatility?

For more information please visit **www.netapp.com/unboundcloud**

Potential Payoff of Hybrid Clouds

Few technologies deliver benefits for business and IT concurrently, but hybrid clouds are on the list. They give the business high levels of agility and the ability to move resources as necessary within a storage platform that works across multiple on-premises and cloud infrastructures. They reduce costs within both business and IT budgets by shifting them from capital expenses to operating expenses and by paying only for the processing power needed. Hybrid clouds help IT organizations improve compute and storage data center asset utilization in their own facilities while also leveraging public assets to extend services and capabilities. At the same time, with the right management solution, they reduce complexity though a single platform that spans multiple environments.

With this newfound efficiency, CIOs have the potential to move into the highly vaunted position of service broker. In this scenario, they can determine quickly and easily where compute processes can be run most inexpensively — on a private cloud, a public cloud, or a hybrid solution. The result is an IT department that can concentrate on strategic needs, with tactical needs outsourced to appropriate service providers. The result: IT budgets are focused on activities that are the most important to the business and that deliver a higher level of productivity overall.