Business white paper

Five myths of cloud computing

So, where did cloud computing come from?

The IT industry has a habit of latching onto buzzwords and applying them everywhere. "Cloud" is no exception. So, to understand cloud computing, let's ground the conversation in some definitions. As a practical baseline for our discussion, we cite the National Institute of Standards and Technology (NIST) definition of cloud computing published October 7, 2009:

"Cloud computing is a model for enabling convenient, on-demand network access to a shared pool of configurable computing resources (e.g., networks, servers, storage, applications, and services) that can be rapidly provisioned and released with minimal management effort or service provider interaction."

In 2008, Amy Schurr, in an article in *Network World*, cited Gartner research outlining the opportunity for cloud computing "to shape the relationship among consumers of IT services, those who use IT services, and those who sell them." Ms. Schurr observed that "organizations are switching from company-owned hardware and software assets to per-use service models" and proposed that "[the] projected shift to cloud computing...will result in dramatic growth in IT products in some areas and significant reductions in other areas."[1]

As seen with other major evolutionary transformations of IT over the last four decades, new technologies can be disruptive initially, with hype moving faster than reality. But when technology is understood, the benefits begin to outweigh the negatives. Cloud concepts can mean different things to different people, so let's look at five cloud computing myths and separate fact from fiction.

Myth one: the public cloud is the most inexpensive way to procure IT services

A characteristic of the public cloud is a relatively inexpensive "pay-as-you-use" model. For example, the starting price for standard on-demand instances with the Amazon EC2 Web service is less than a dime per hour based on system size, operating system, and locale. It's easy to see why people think all delivery from the public cloud is cheaper than that delivered by internal IT. However, if you look under the covers, the picture changes.

Here's a surprising fact: for resources that are needed constantly, enterprises can actually reduce costs by leveraging other cloud models, such as shared resources delivered via a private cloud. In cases like this, the private cloud actually is more cost-efficient than even the pay-as-you-use public cloud model.[2] An analogy is the decision to rent or buy a car. For short-term use, a car rental is cost-effective because you pay based on what you consume. However, if you drive frequently and for a longer term, then owning a vehicle makes better financial sense. And beyond price, there are other important issues to consider such as performance, security, compliance, service-level agreements, and availability.

Cloud strategy is essential

At the core of cloud computing—whether you're using a public cloud service, building your own private cloud, or taking a hybrid cloud approach—is the need to have your specific requirements incorporated into a well-developed cloud strategy. It's not a simple exercise, as your cloud roadmap must address all aspects of your performance, security, control, and availability requirements.

In her article "Public Cloud vs. Private Cloud: Why Not Both?" Beth Schultz observes that many organizations today are gravitating toward a private cloud first in order to understand it within the confines of their own firewalls. She asserts that experts now believe it's a viable option to base your cloud delivery decisions on an analysis of your applications. She advises organizations to "evaluate specific applications, factor in security and compliance considerations, and then decide what apps are appropriate for a private cloud, as well as what apps can immediately be shifted to the public cloud."[3]

To help you develop your own strategy and roadmap, the HP Converged Cloud Workshop focuses on the key success factors and components required to develop a cloud solution, building consensus among stakeholders, and helping them understand the implications for the business and IT. During the one-day workshop, using highly visual displays, senior HP consultants cover topics such as cloud concepts, architecture, and key technologies including CloudSystem. Other topics include the service portfolio, management, financials, governance, and more.

Myth two: baby steps in virtualization are the only way to reach the cloud

There are many good reasons for businesses to turn to virtualization technology—more efficient utilization of existing computing resources and improved flexibility, to name just two. And virtualization is a powerful step in transforming IT. But it's just that—a step.

The real transformation comes when organizations fully embrace cloud computing. Building even a private cloud brings tremendous benefits such as reducing IT complexity, significantly lowering IT costs, and enabling a more flexible and agile service delivery. Not that virtualization and cloud computing are mutually exclusive; in fact, many technologists now believe a virtualized infrastructure is a strong catalyst for the next step, the adoption of cloud computing. But even the private cloud is so much more; it automates the underlying provisioning of infrastructure and applications and adds a convenient way for end users to request IT services.

[1] Amy Schurr, "Keep an eye on Cloud Computing," *Network World*, July 8, 2008, citing a Gartner Group report "Cloud Computing Confusion Leads to Opportunity"

[2] Joe Weinman, "10 Laws of Cloudonomics," Cloudonomics.com blog, www.cloudonomics.com

[3] Beth Schultz, "Public Cloud vs. Private Cloud: Why Not Both?" PC World, April 4, 2011

Data center sprawl, rigidity, complexity, and costs are reasons why traditional IT silos are not meeting the increased pace of business demands. A private cloud based on shared pools of resources—resources that can be automatically tapped to meet business needs—can help IT keep up. The private cloud allows IT managers to have complete control over available assets, while adhering to the security standards required both within the cloud and in the data center. The cloud provides the agility needed to automate workflows and reduce human involvement in time-consuming but necessary tasks such as the provisioning of applications. Whereas most companies take anywhere from three to six months or longer to provision new applications, with the cloud, the applications can be provisioned in a few hours. With cloud patching and upgrading the OS, applications or databases can be automated to dramatically reduce the time IT administrators spend maintaining applications.

The all-in-one approach can achieve the private cloud

So why do businesses delay the adoption of a private cloud? Change can be difficult for any organization, but some executives may have concerns that the work needed to automate their environment might eclipse any gains made by automation. Or they may believe they need to further standardize their current environment to truly take advantage of automation.

But the truth is that, today, the effort needed to get the cloud is much less. Great strides have been made by such firms as HP to build the automation and integration tools needed for fast development of private clouds. True, if an organization has already adopted virtualization technology, that's a major step toward internal cloud computing. But, in fact, it's no longer necessary to take the stairs to the cloud by first adopting virtualization, then building on that technology, and finally moving tentatively to an embryonic cloud environment. Today you can take the elevator.

A case in point is HP CloudStart, a fast-track on-ramp to the cloud. CloudStart is a turnkey HP Services solution that allows you to deploy an open and flexible private cloud solution in 30 days at a fixed-price and fixed-scope. Based on HP CloudSystem, HP CloudStart services establish a private cloud service catalog with up to four services integrated into your backup and security environments.

Myth three: critical applications do not belong in the cloud

It's one thing to relegate a few servers running test and development jobs to a cloud-based infrastructure. But delivering business applications quickly and efficiently continues to be the most important charter for IT organizations. Studies such as a recent one by Forbes show that IT executives are under extreme pressure to:

- Cut infrastructure costs
- Adjust their service levels to meet changing needs
- Deliver applications with greater speed

IT professionals are interested in cloud computing to help them address all three of these requirements. But when CIOs and administrators look at major, business-critical applications like SAP, Oracle, and Microsoft®, they start to have doubts. How can IT possibly deploy these often complex and traditionally hardware-bound suites on something as seemingly transitory as a "cloud?" And how can the cloud possibly be configured to run these applications speedily, safely, and securely—without much time and effort on the part of the IT department? In short, is cloud computing appropriate for the applications that are critical to the success of the business?

It starts with a map

To answer these questions, HP developed Cloud Maps. With HP Cloud Maps, you can quickly build a comprehensive catalog of applications for push-button simple deployment with HP CloudSystem, reducing the time to deliver a new application from weeks or months to often less than one hour. HP Cloud Maps are templates and additional content based on industry-leading intellectual property resulting from thousands of hours of development and testing, and decades of close partnerships between HP, our key ISVs, systems integrators (SIs), and customers.

Myth four: all cloud security requirements are created equally

The use of a public cloud service can provide relief from investments in hardware and software, as you pay for service delivery instead. Cloud services are now often obtained by various areas of the business, which means IT must manage at the service level. But many IT executives are unwilling to create a system where their data resides outside of their control. Many enterprises, due to governance, risk, and compliance regulations, have strict rules about the handling and archiving of sensitive data. The most prevalent security concerns as cited by the Cloud Security Alliance[4] are:

- Abuse and nefarious use of cloud computing
- Insecure application programming interfaces
- Malicious insiders
- Shared technology vulnerabilities
- Data loss/leakage
- Account, service, and traffic hijacking
- Unknown risk profiles

Fearful of the constant growth in attack methodologies, IT executives believe that the private cloud is the answer because it keeps the cloud infrastructure on the premises, inside company firewalls, and under the direct control of the IT group. These executives feel that if they trust the security on their traditional networks, then their private cloud models, at least, should possess that same level of assurance.

But is the private cloud model impenetrable? No. Vulnerabilities exist with a connection to the Internet. There also remains the threat of insider attacks and data theft.

[4] Cloud Security Alliance (CSA), "Top Threats to Cloud Computing," March 2010

Securing the cloud requires real specialists

To cope with these security challenges, you must start off with a comprehensive risk understanding and analysis, as well as the creation of a proper governance, risk, and compliance program that is tailored to the cloud. A high-level security architecture for your cloud-based services must also be laid out.

You should define additional security controls required to protect information assets in different types of cloud environments. Current investments in security need to be maintained while complying with industry regulations without impacting performance and availability. The HP Cloud Protection Program and Consulting Services can help you build the necessary security controls and principles into your enterprise hybrid cloud environment and provide risk mitigation strategies against threats defined by the Cloud Security Alliance.

Myth five: there is only one way to do cloud computing

As you have seen, there are a number of cloud delivery models available. We've discussed the role of public and private clouds in some detail in this paper.

The hybrid cloud is composed of two or more clouds (private, community, or public). These clouds remain unique entities, but they are bound together by standardized technology that enables data and application portability (e.g., cloud bursting for load-balancing between clouds).

In her article, "Cloud Computing for the Enterprise Steps Forward: Lessons Learned and Key Takeaways," IDC, June 25, 2010, author Jean Bozman states that next-generation cloud computing decisions will be designed to "scale up, and scale down, on-demand—and to allocate resources across a 'grid' or 'array' of pre-constructed building blocks developed by the service provider. It will also demand a careful evaluation of the customer's inventory of enterprise applications, to determine which ones could be moved to a cloud computing platform (to run on private, public or hybrid clouds)." Decisions based on the careful analysis of applications clearly highlights the range of cloud delivery options available to an organization. Bozman further illustrates the benefits with private and public clouds: "Private clouds leverage cloud technology, bringing many of the benefits—such as more standardization of infrastructure and business processes—that reduce overall operational costs (OPEX) and improve business agility. Public clouds offer the benefits of leveraging someone else's infrastructure to run IT workloads on a pay-as-you-go basis, reducing CAPEX costs."

HP CloudSystem is the most comprehensive, integrated solution to build and manage cloud services

HP CloudSystem is the most complete, integrated, open platform that enables enterprises and service providers to build and manage services across private, public, and hybrid cloud environments. Based on the proven, market-leading HP Cloud Service Automation and Converged Infrastructure, HP CloudSystem integrates servers, storage, networking, security, and management to automate the application-to-infrastructure lifecycle for hybrid service delivery management. The result is a complete cloud solution that lets enterprises gain agility and speed, and allows service providers to drive top-line growth.

HP CloudSystem delivers broad application support and helps businesses package, provision, and manage cloud services to users regardless of where those services are sourced, whether from CloudSystem's on-premises resources or from external clouds. As a part of the HP Converged Cloud architecture, clients have a simplified, integrated architecture that is easier to manage and provides flexibility and portability between private, public, and managed clouds.

Are you ready for the cloud?

While there is plenty of hype about cloud computing, it can bring you real benefits. Embracing cloud where it makes sense for your business can speed your time to revenue and reduce your costs. But embracing cloud means cutting through the hype to find real solutions.

No matter where you are in the cloud adoption lifecycle, HP has the people, processes, and proven track record to make a real difference and help you take a direct route to the cloud. With HP as your partner, you'll be on your way to reaping the benefits of cloud computing—without the hype—because HP offers the most extensive range of cloud computing expertise, products, and services. Contact us today and learn more about the solutions discussed in this paper and how HP can help make your journey to the cloud a smooth one.

To learn more about HP Converged Cloud solutions, go to

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4AA3-4550ENW, Created May 2011; Updated May 2012, Rev. 2