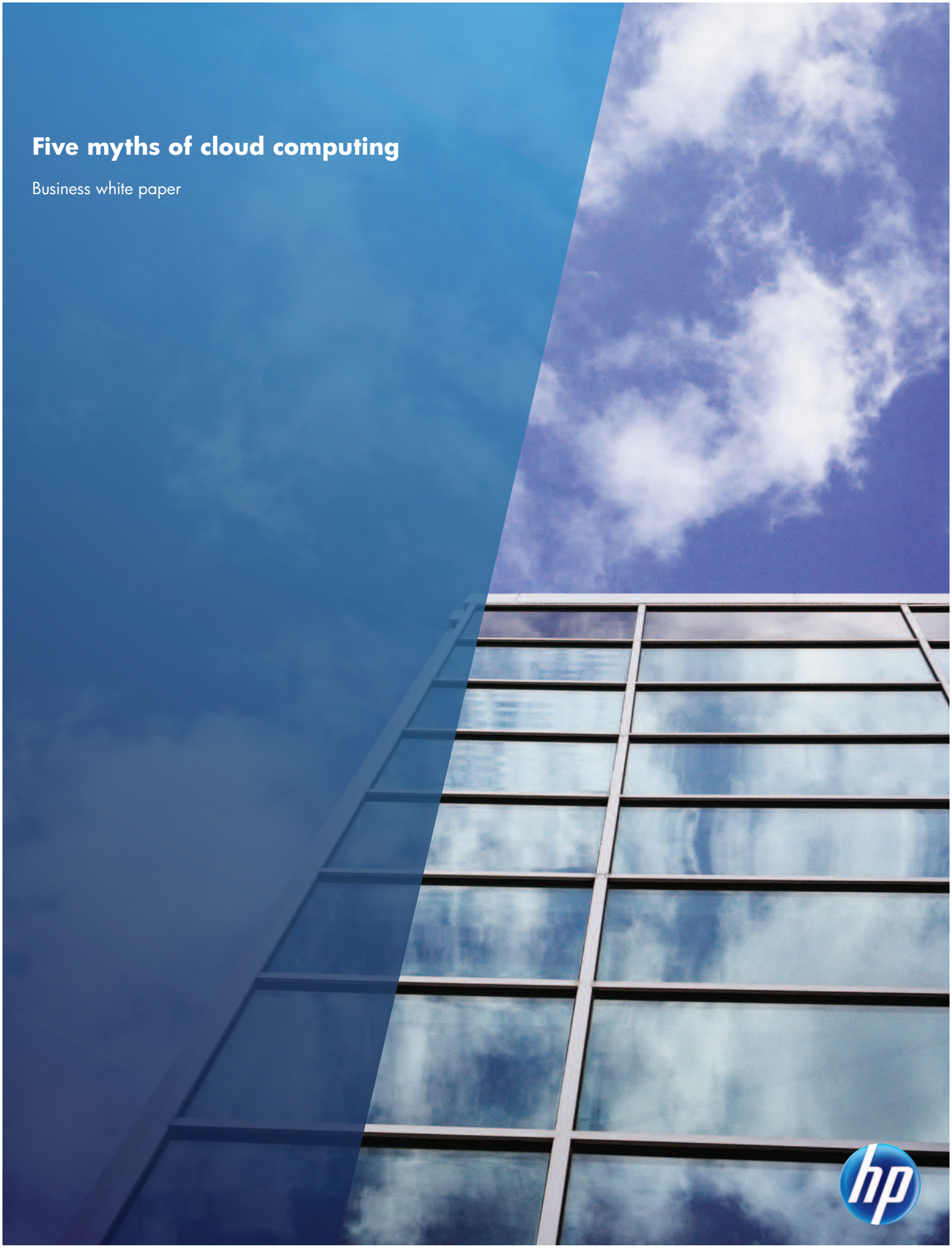
Five myths of cloud computing

Business white paper



Executive summary

In recent years, cloud computing has been as visible as any topic in IT. Its front-page news status has been accelerated by Amazon, Salesforce.com, Yahoo, and Microsoft®, among other firms aggressively vying for leadership in providing cloud infrastructure or services. However, this race for mindshare has obscured cloud computing facts. Many admit to the haze surrounding cloud computing.

This white paper separates fact from fiction, reality from myth, and, in doing so, will aide senior IT executives as they make decisions around cloud computing. While dispelling cloud computing myths, we will answer tough questions: How hard is it to adopt a private or hybrid cloud? How difficult is it to maintain and secure a cloud? How will the cloud transform my business? Do I have the right skill sets in place? What are some of my cost considerations? HP is committing extensive resources to helping customers with all of their questions and concerns around 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."

Historically, the concepts behind cloud computing can be attributed to John McCarthy who in 1961 said, "If computers of the kind I have advocated become the computers of the future, then computing may someday be organized as a public utility just as the telephone system is a public utility.…The computer utility could become the basis of a new and important industry."[1]

In 2008, Amy Schurr, in an article in *Network World*,[2] 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."

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.

[1] John McCarthy, speaking at the MIT Centennial in 1961, "Architects of the Information Society, Thirty-Five Years of the Laboratory for Computer Science at MIT," Edited by Hal Abelson

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

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.[3] 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 road map must address all aspects of your performance, security, control, and availability requirements.

Beth Schultz in her article "Public Cloud vs. Private Cloud: Why Not Both?" 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."[4]

To help you develop your own strategy and road map, the HP Cloud Discovery Workshop was created to lead your key IT and business decision makers in a two-day workshop. This HP service demystifies cloud computing through the use of structured interactive discussions around the transformation of existing applications: setting appropriate service levels, planning for security vulnerability management, and weighing cloud economic models. In this workshop, HP experts explain the possibilities, risks, and business implications of the cloud.

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

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

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

There are lots of 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.

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

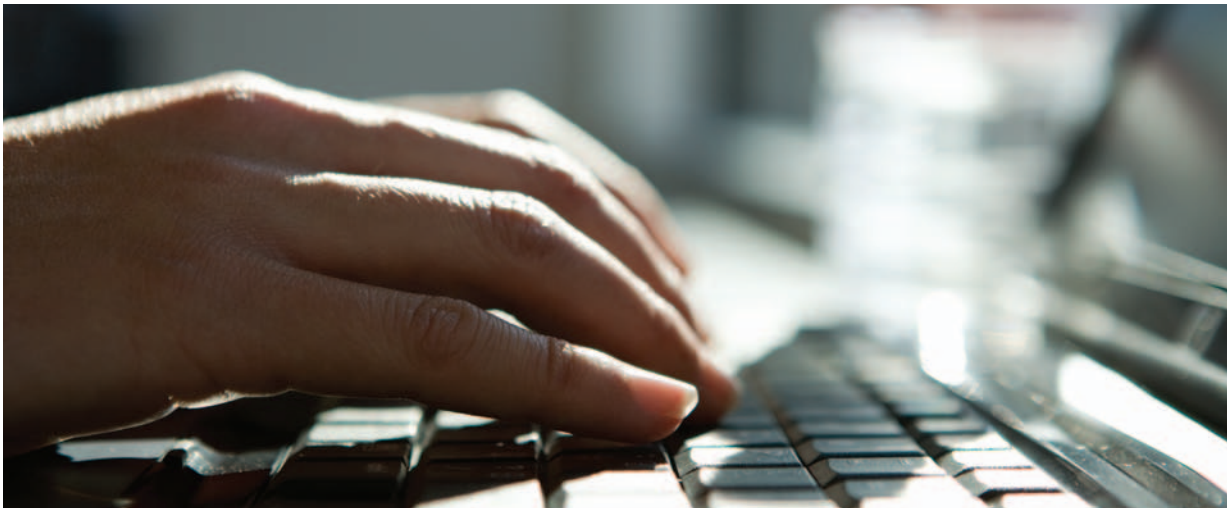
So why do businesses delay the adoption of a private cloud? Change can be difficult for any organization, but some executives may have concerns that the work needed to automate their environment might eclipse any gains made by automation. Or they may believe they need to further standardize their current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

But the truth is that today, the effort needed to get the cloud is much, 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. You get all the hardware, software, and services you need to launch HP CloudSystem Matrix, a complete, integrated private cloud that provides infrastructure as a service, as well as basic application deployment and monitoring. This is a complete cloud solution that can provide "cloud driven" services. You can deliver those services reliably and securely from a common portal, with the scalability needed to deploy new services quickly.

For anyone hoping to create a private cloud, HP CloudStart has several key benefits, including:

- **Best practice guidance**: HP Services provides expertise in deploying, customizing, and executing on the long-term vision for creating a private cloud that is tuned to your environment.
- **Workshops and services for private cloud success**: To help your organization fully realize the business promise of private cloud computing, HP offers a series of targeted workshops that focus on key areas of concern such as change management, process re-engineering, and virtualization technologies.



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 shows that IT executives are under extreme pressure to:

1) Cut infrastructure costs

2) Adjust their service levels to meet changing needs

3) 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 a lot of time and effort on the part of the IT department? In short, is cloud computing appropriate for the critical applications that are so important to the success of the business?

It starts with a map

To answer these questions, HP developed the Cloud Maps. HP Cloud Maps fast-track the automation of business application such as those from Oracle, SAP, and Microsoft. They save days or weeks of time while ensuring accurate deployment, configuration, and sizing of cloud services for specific applications and services. Each Cloud Map includes tools to build a service catalog that meets your requirements for fast and consistent delivery of high-quality services. A typical Cloud Map consists of tested engineering components such as:

- Templates for hardware and software configuration that can be imported directly into your cloud solution, saving days or weeks of solution design time
- Sizers to help guide capacity and performance planning
- Workflows and scripts designed to automate installation more quickly and in a repeatable fashion
- Reference white papers to help customize the Cloud Map for your specific information

HP Cloud Maps help organizations set up critical business applications to use both the physical and virtual aspects of a cloud infrastructure.

Myth four: Public cloud security and management concerns apply to all clouds

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 are:[5]

- 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 profile

Fearful of the constant growth in attack methodologies, IT executives believe that the private cloud is the answer, as 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 connection to the Internet. There is also the threat of insider attacks and data theft.

Securing the cloud requires real specialists

So how can your organization safely and confidently take advantage of the speed, flexibility, scalability, and cost-effectiveness of cloud services? HP CloudAssure can help. HP CloudAssure is a comprehensive turnkey solution consisting of HP software, services, and expertise. It leverages nearly a decade of HP's software as a service (SaaS) expertise and advanced service-level performance.

With HP CloudAssure, HP experts provide ongoing visibility into your cloud services. They help diagnose and report on potential performance and security issues before those issues can impact your business. HP CloudAssure helps you validate and assess:

- **Security** by scanning networks, operating systems, and Web applications and performing automated penetration testing
- **Performance** by testing for bandwidth, connectivity, scalability, and quality of the end-user experience
- **Availability** by testing and monitoring Web-based application business processes and identifying and analyzing performance issues and trends
- **Cost optimization** by providing resource, code, and end-user performance metrics that allow you to right-size your footprint

Whether you utilize cloud services for infrastructure (IaaS), platforms (PaaS), or software (SaaS), this solution can help you take full advantage of a public, private, or hybrid cloud.

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

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. Based on proven, market-leading HP Converged Infrastructure and HP Cloud Service Automation, the HP CloudSystem combines servers, storage, networking, and security together with automated systems and hybrid service delivery management.

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-gen 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 a comprehensive, integrated solution for all clouds

For a complete, integrated platform that provides private, hybrid, and even public clouds, look no further than HP CloudSystem. HP CloudSystem is the industry's most complete cloud system, with offerings for both enterprise organizations and service providers. And HP is the only vendor able to deliver such a comprehensive cloud platform with the attributes needed by CIOs, service providers, and IT professionals.

With support for the broadest set of applications, CloudSystem provides IT with a unified way to offer, provision, and manage services across private clouds, public cloud providers, and traditional IT. It enables the flexibility to scale capacity within and outside the data center, it is extensible to existing IT infrastructure, and it can support heterogeneous environments.

HP CloudSystem consists of three integrated offerings. These offerings provide a range of services for all organizations as well as an avenue for growth and expansion:

- The **HP CloudSystem Matrix** offering is focused on private clouds and infrastructure as a service. This entry-level offering allows you to provision infrastructure and applications in minutes, not months.
- **HP CloudSystem Enterprise** is for those looking to deploy private and hybrid cloud environments and the full range of service models (IaaS, PaaS, and SaaS). It provides a single services view of your environments, from private cloud to public clouds to traditional IT with advanced application to infrastructure lifecycle management.
- Finally, **HP CloudSystem Service Provider** is tuned for service providers looking to deploy public and hosted private clouds, and to deliver owned and third-party cloud services.

HP CloudSystem offerings can be extended with HP's market-leading software and hardware such as HP 3PAR Utility Storage, HP TippingPoint and ArcSight security, HP networking, HP mission-critical computing, and HP software. CloudSystem is optimized for HP infrastructure but it supports non-HP infrastructure as well.

HP CloudSystem enables you to build and manage cloud services across private, public, and hybrid clouds without having to know, or care, whether those services come from HP CloudSystem's own "on-premises" resources, from your existing infrastructure, or from the public domain.

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 lifecyle, 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 Cloud technologies, go to:

- HP Cloud Computing Solutions at **Cloud Computing | HP Enterprise Solutions**
- HP CloudSystem at **Build Cloud Services with HP CloudSystem**
- HP Cloud Maps at **HP Cloud Maps for CloudSystem Matrix**

4AA3-4550ENW, Created May 2011