HP CLOUDSYSTEM

An integrated platform for private, public, and hybrid clouds

The industry's most complete cloud system for enterprises and service providers

Solution brief

It's a fact of life: cloud computing is hot. And when it comes to the use of cloud services, business today is actually outpacing IT. Business users have been quick to recognize the cloud's advantages in speeding innovation, accelerating business processes, and reducing time to revenue. They're clamoring for greater cloud access, and in some cases even bypassing IT and signing up for public cloud services like those from Amazon and Microsoft®.

But enterprises and service providers have been slower to adopt cloud solutions because of well-founded concerns about security, management, and efficiency. They're uneasy about trying to manage private and public clouds with traditional in-house IT environments. They worry about application choice, security, and agility. They agonize over the potential for fragmentation and inefficiency stemming from piecemeal and ad hoc adoption of cloud "puzzle pieces." And in particular, they lament the lack of a comprehensive, integrated cloud solution.

Yet even while CIOs need to ensure security and maintain service levels, they face mounting pressure to accelerate service delivery, enhance business agility, and improve financial flexibility. They're also eager to shift the budget away from capital expense and toward operating expense. They know cloud solutions can help them accomplish these goals, to be sure. But it will have to be the right cloud solution.

Like other businesses, service providers are eager to accelerate innovation and slash time to revenue. And like other businesses, service providers face many of the same challenges. They want to deliver cloud solutions, but they need a cloud platform that can grow as their business increases.

So what kind of cloud will it take to win over CIOs, service providers, and IT professionals? Cloud adoption—and exploitation—will accelerate only when a vendor can deliver an integrated system that offers

• Support for private, public, and hybrid cloud environments

• The ability to include a broad ecosystem of applications, all leading hypervisors, and multiple operating systems

• Unified delivery and control of services across both cloud and traditional IT environments

• Automated management of applications and infrastructure over the complete lifecycle

• End-to-end security

• And scalability to meet unpredictable business demands

The solution: HP CloudSystem

HP is the one vendor able—today—to deliver a comprehensive, integrated cloud solution on a single platform, with all the attributes so prized by CIOs, service providers, and IT professionals. That solution is HP CloudSystem.

Based on proven, market-leading HP Cloud Service Automation and Converged Infrastructure, HP CloudSystem combines servers, storage, networking, and security together with an integrated approach to automate the application to infrastructure lifecycle. The result is a complete cloud solution that's prepared to fulfill the promise of "cloud driven" services and revenue for enterprises and service providers alike.
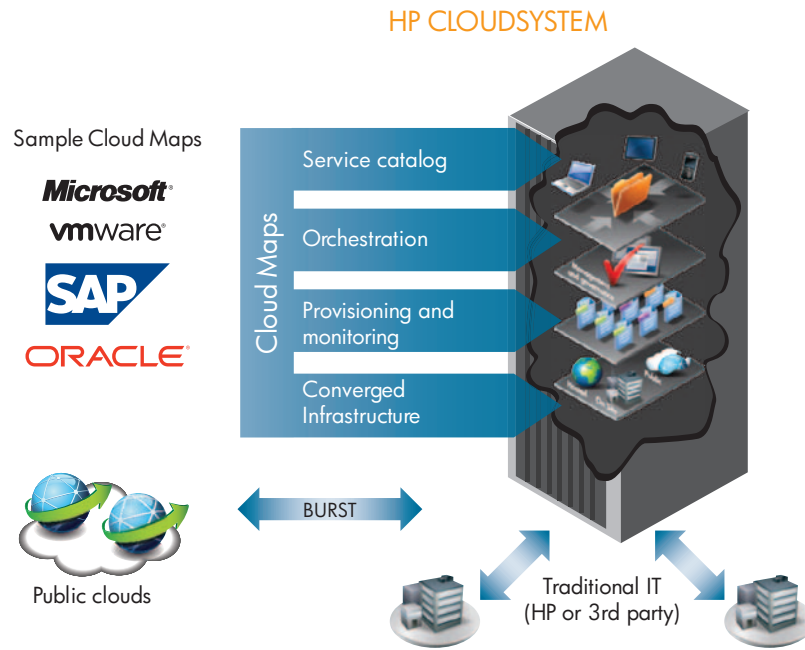
HP CloudSystem is the product of HP's experience in delivering industry-leading automation, application management, and Converged Infrastructure capabilities. It enables organizations to build and manage cloud services across private clouds, public clouds, and traditional IT environments—without having to know, or care, whether those services come from HP CloudSystem's own "on-premises" resources or from the public domain.

About cloud computing

Cloud computing is a way to build, operate, and consume IT that makes resources (such as services, applications, servers, storage, and networks) flexible, dynamic, and available on-demand.

• In a *private cloud,* the cloud assets are typically operated solely for a single entity and may be located on or off the premises. They may be owned and managed by that entity or a third party.

• With a *public cloud,* the cloud assets are shared and service is provided to multiple entities on a pay-per-usage basis. All assets are owned and operated by the provider.

• A *hybrid cloud* is the best of both worlds, combining the security of the private cloud with the convenience and cost-effectiveness of the public version.

The single-platform, fully extensible HP CloudSystem is built on proven HP Cloud Service Automation and HP Converged Infrastructure, and can take advantage of traditional IT and public cloud resources as well.

HP CLOUDSYSTEM

Sample Cloud Maps

Microsoft®

vmware®

SAP

ORACLE®

Cloud Maps

Service catalog

Orchestration

Provisioning and monitoring

Converged Infrastructure

BURST

Public clouds

Traditional IT
(HP or 3rd party)

HP CloudSystem features meet your business needs

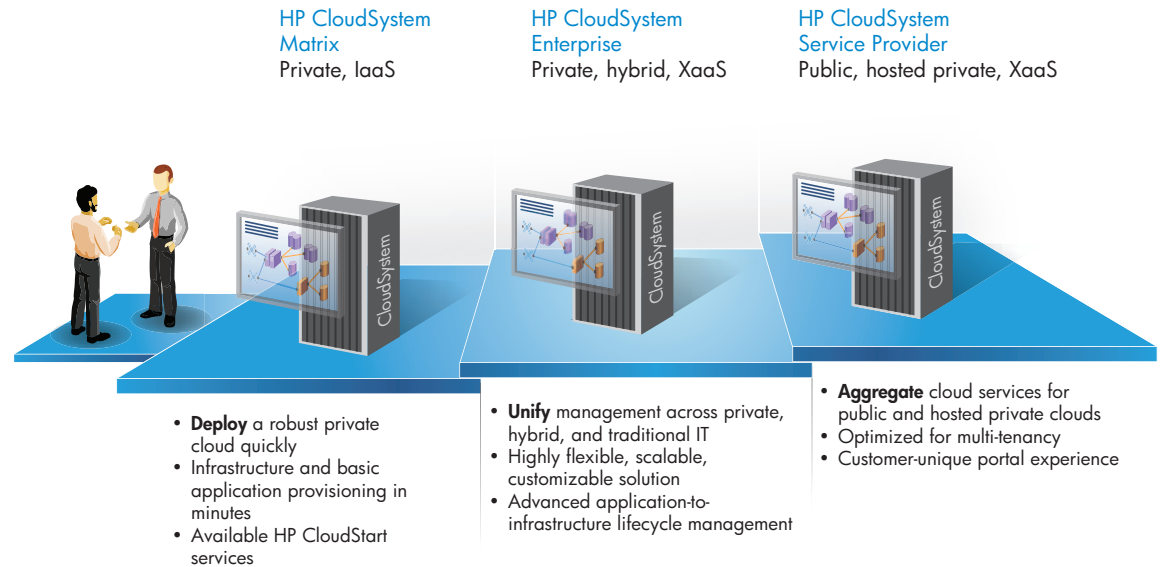| HP CloudSystem features like these:	Give you a cloud solution that offers your business:
• End-to-end automated application delivery and management • Self-service portal with a built-in service catalog to unify all applications under IT control • Complete lifecycle management of all operations • Fast-tracking the development of a cloud service catalog with Cloud Maps, pre-defined templates for popular business applications • Support for multiple departments and clients from a single environment • Converged Infrastructure that maximizes the use of resources and lowers operating costs	*Accelerated business performance and reduced time to application revenue*
• Instant scalability and one-click, just-in-time provisioning • Open standards that support multiple types of applications, hypervisors, operating systems, and heterogeneous infrastructure • Burst and flex capacity to meet unpredictable demand across internal and external sources • World's leading automation software suite	*Greater agility and faster innovation*
• Cloud service portal that provides a unified view of services and monitors service quality across all sources • Industry's most comprehensive security and intrusion prevention across applications and the virtual and physical infrastructures • Multi-tenant protection and common management of applications and infrastructure operations	*Dependable quality of service, security, and compliance*

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HP CloudSystem has a full range of scalable, extensible offerings to fit any level of cloud maturity.

HP CloudSystem
Matrix
Private, IaaS

HP CloudSystem
Enterprise
Private, hybrid, XaaS

HP CloudSystem
Service Provider
Public, hosted private, XaaS

- **Deploy** a robust private cloud quickly
- Infrastructure and basic application provisioning in minutes
- Available HP CloudStart services

- **Unify** management across private, hybrid, and traditional IT
- Highly flexible, scalable, customizable solution
- Advanced application-to-infrastructure lifecycle management

- **Aggregate** cloud services for public and hosted private clouds
- Optimized for multi-tenancy
- Customer-unique portal experience

The most complete integrated system for private, public, and hybrid clouds

HP CloudSystem is an integrated system that unifies the control and delivery of cloud assets, whether their provenance is your data center, an HP hosted cloud, or an external source such as Amazon EC2 services. With HP CloudSystem, you get a secure, scalable cloud solution that includes

- A single service view across public, private, and hybrid cloud resources
- The broadest support for applications, hypervisors, operating systems, and heterogeneous infrastructure
- Unified services management across the cloud and traditional IT
- Intelligent automation and orchestration, along with rapid application and infrastructure deployment and lifecycle management
- Scalability and elasticity

Note:
IaaS = infrastructure as a service
PaaS = platform as a service
SaaS = software as a service
XaaS = anything/everything as a service

One platform, three integrated offerings

HP CloudSystem includes three integrated offerings that provide a range of services for all businesses, as well as an avenue for growth and expansion. The offerings are

- **HP CloudSystem Matrix:** the private cloud solution that provides infrastructure as a service, as well as basic application deployment and monitoring. This entry-level offering allows you to provision infrastructure and applications in minutes, not months.

- **HP CloudSystem Enterprise:** for those looking to deploy private and hybrid cloud environments and the full range of service models (IaaS, PaaS, and SaaS). This offering provides a single services view of the client's environments, from private cloud to public clouds to traditional IT, with advanced application-to-infrastructure lifecycle management.

- **HP CloudSystem Service Provider:** public or hosted private cloud designed for service providers to provide a public cloud infrastructure as a service and software as a service, including aggregation and management of those services.

Each of these offerings is available as a small, medium, or large configuration, and each can be expanded with additional hardware and software from HP, as well as third parties, making HP CloudSystem suitable for virtually any desired variety or scale of cloud services.

The technology behind the cloud

The core HP CloudSystem platform is built on our renowned, field-proven HP BladeSystem, Matrix Operating Environment, and HP Cloud Service Automation products. That core platform is fully extensible via the HP Converged Infrastructure portfolio, including HP 3PAR Utility Storage, HP TippingPoint security, and core-to-edge HP Networking products. CloudSystem is optimized for HP infrastructure but it supports non-HP infrastructure as well.

You can add mission-critical computing with HP-UX, and heterogeneous management of your existing environment with HP Software. In addition, an array of HP services is available to help design your cloud solution, develop a roadmap to get you there, and implement and support your hybrid cloud.

HP CloudSystem core

The HP CloudSystem core is built on the modular **HP BladeSystem architecture** and includes the highly automated **Matrix Operating Environment** that enables rapid provisioning of complex infrastructure services and adjustment of those services to meet changing business demands. It also includes **HP Cloud Service Automation software** to manage the entire cloud lifecycle. Cloud Service Automation provisions applications, manages and monitors the cloud, and provides a single service view across the cloud and traditional IT.

CloudSystem extensions

To meet a broad set of IT needs, you can extend HP CloudSystem's core capabilities with a flexible array of HP's market-leading software and hardware. Some of these extensions include
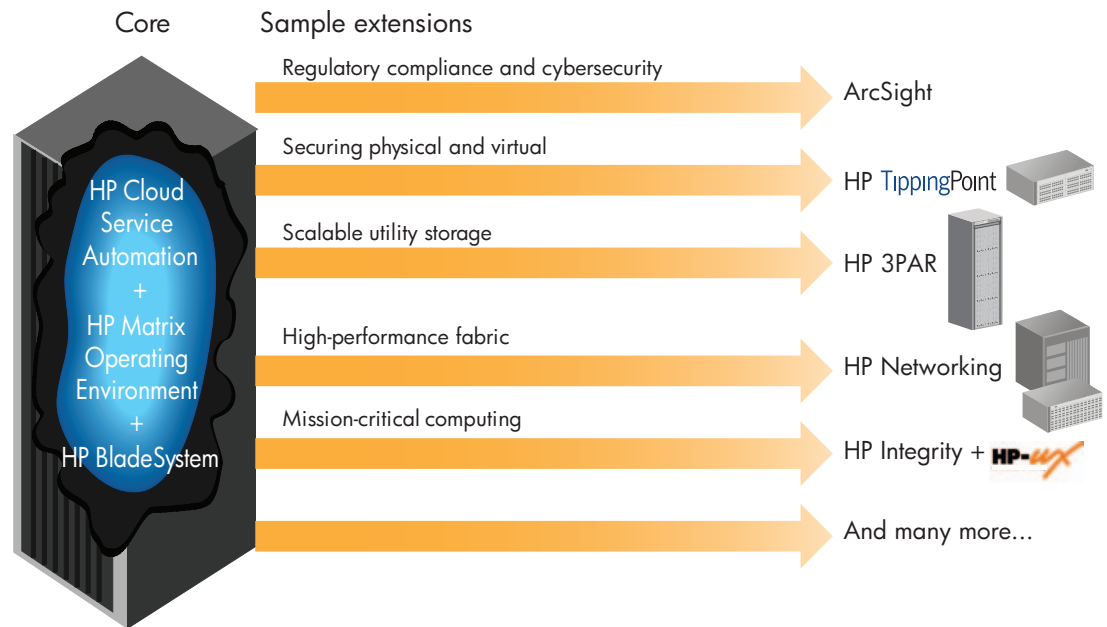
- **Cloud Maps:** tools and best practices that enable CloudSystem to quickly and easily provision various kinds of common application environments from major vendors such as VMware, Oracle, SAP, and Microsoft. Cloud Maps can substantially reduce the time and effort needed to deploy CloudSystem services.
- **HP storage:** including HP 3PAR Utility Storage technology that can deliver virtually unlimited tiered storage capacity.

- **HP TippingPoint and ArcSight security:** the industry's most comprehensive security detection and protection, spanning applications as well as cloud, virtual, and physical infrastructures.
- **HP networking:** high-performance, flexible networking from edge to core, data center to campus and branch office.
- **Mission-critical computing:** with solutions such as the Matrix Operating Environment for HP-UX.
- **HP Software:** a comprehensive portfolio including
  - Service Portfolio Governance to govern and manage your published catalog of hybrid services
  - Application readiness to help deliver modernized, cloud-ready, hybrid applications quickly and securely
  - Service Assurance to assure the availability and performance of dynamic hybrid services
  - Information Management to visualize your heterogeneous storage infrastructure and protect your data in a hybrid environment

HP helps get you to the cloud

No matter where you begin, HP provides you with a clear path to the cloud, a path that makes the most of your existing infrastructure while protecting your previous technology investment. HP CloudSystem is the best solution to bring your legacy system forward, transform virtual assets into fully automated hybrid cloud environments, and enable an agile set of service delivery capabilities across all IT domains. Here are some common paths:

- If you have already invested in HP Converged Infrastructure technology, such as HP BladeSystem, you can easily use HP CloudSystem Matrix Conversion Service to expand your current architecture into a private, public, or hybrid cloud environment.
- If your current infrastructure makes use of HP Server Automation, you can expand from there to a full-fledged HP CloudSystem Enterprise or an HP CloudSystem Service Provider system.

HP CloudSystem is easily expanded with extensions that add software and hardware capabilities.

Core   Sample extensions

HP Cloud Service Automation + HP Matrix Operating Environment + HP BladeSystem

Regulatory compliance and cybersecurity → ArcSight

Securing physical and virtual → HP TippingPoint

Scalable utility storage → HP 3PAR

High-performance fabric → HP Networking

Mission-critical computing → HP Integrity + HP-UX

And many more…

HP Technology Services make the road easier

With integrated support and service offerings, HP helps get you to the cloud and ensures you get the most from the cloud once you're there. Services from HP can help you transform your IT infrastructure and optimize your cloud. You can use service offerings to learn more about cloud technology, design your solution, migrate your current environment to the cloud, or upgrade from a public to a hybrid cloud. Among the key services are

• **HP Cloud Consulting Services for CloudSystem:** provide the roadmap, design, and implementation services—including HP CloudStart Services—that help your organization employ HP CloudSystem in a hybrid delivery model and as a fully operational cloud solution aligned to business needs. Drawing on years of virtualization, automation, service management, and shared services experience, HP experts help with people, process, and technology transformation that accelerates the transition and the integration of CloudSystem for your existing environment. One important service, the **HP Cloud Discovery 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.

• **HP CloudSystem Matrix Conversion Service:** a BladeSystem-to-private-cloud upgrade service that helps make the most of your current investment, this offering transforms your current BladeSystem infrastructure into an automated, private cloud environment. Additional HP cloud services can help build upon that foundation and expand your HP BladeSystem platform into a hybrid, multi-sourced HP CloudSystem infrastructure.

• **HP Solution Support for CloudSystem:** an integrated solution comprising hardware, software, and support, this offering is available through 35 global "solution" call centers and provides customers with a single point of contact across HP and multivendor solutions. Organizations can get support for their entire CloudSystem environment from their cloud portal down to their infrastructure, eliminating finger-pointing and providing faster time to resolution.

As part of HP Solution Support, organizations get proactive support services leveraging HP Remote Support Automation, innovative pricing options, ITIL change and service management processes, documentation for CloudSystem, and critical firmware and software patch updates.

- **HP Education Services for CloudSystem and Cloud Computing:** HP Cloud Computing Curriculum and HP CloudSystem courses from HP Education Services help you address your cloud needs. With award-winning online or face-to-face courses from HP Education Services, you can get your team up to speed with the hottest HP cloud and Converged Infrastructure technologies and cloud computing concepts.

- **HP Cloud Solutions Lab:** a full-time, dedicated lab with expertise in every aspect of cloud architecture, including applications, automation, Converged Infrastructure, security, and more. A factory for cloud solution and Cloud Map development, the HP Cloud Solutions Lab accelerates development, customization, and integration as HP designs, tests, builds, and delivers complete end-to-end solutions right-sized for your environment. Staffed by experts around the globe, the shared cloud development environment is housed in Houston, Texas, USA, and is accessible worldwide 24x7.

Q and A about HP CloudSystem

Q: What makes HP CloudSystem better?
HP CloudSystem is unmatched by any other vendor. Compared to other so-called cloud "solutions," HP CloudSystem offers you

- **True integration:** HP CloudSystem is a truly integrated solution to build and manage services across public, private, and hybrid clouds.

- **Unmatched choice:** HP CloudSystem is the only offering that supports both your physical and virtual infrastructures, leading hypervisors, multiple operating systems, heterogeneous infrastructure, and the broadest ecosystem of application partners.

- **Unmatched management and automation**: HP CloudSystem is the only offering that automates provisioning, monitoring, compliance, and governance across applications, services, and infrastructure.

- **Unmatched technology:** HP CloudSystem gives you HP's market-leading Converged Infrastructure and automation software integrated in one offering.

- **Unmatched customer experience:** With HP CloudSystem, you get one product that addresses your hybrid cloud requirements, plus the convenience and peace of mind provided by HP's legendary service and support.

Simply put, HP CloudSystem is the only cloud platform you'll ever need.

HP CloudStart—your private cloud up and running in 30 days

The fast-track on-ramp to the cloud, HP CloudStart is a fixed-price, fixed-scope HP Services solution that allows you to start delivering services from a private cloud within 30 days. Based on HP CloudSystem Matrix, CloudStart provides all the services to set up your first private cloud service catalog, with up to 4 services, integrated into your enterprise environment, including backup and security. Besides a CloudSystem tuned to your environment, you also get best practice guidance in deploying, customizing, and executing your long-term cloud vision as well as workshops and services to help your organization fully realize the business promise of private cloud computing. There's no faster or easier route to the cloud.

Q: OK, how do I get started?
Start by contacting HP. Your HP representative can help illustrate the very real benefits of cloud computing and supply more details about HP CloudSystem. Chances are good you already have much of the infrastructure needed to construct HP CloudSystem, and you'll discover a variety of paths to take you the rest of the way to a fully realized hybrid cloud solution.

About HP

HP CloudSystem is another example of HP's leadership in the Instant-On Enterprise, which focuses on providing customers, employees, partners, and citizens with access to information, applications, and services they want and need, instantly, at any point in time and through any channel. HP CloudSystem demonstrates HP's embrace of hybrid delivery that allows customers to take full advantage of different service delivery models; and all CloudSystem offerings are based on an HP Converged Infrastructure that radically simplifies the data center. As the world's largest technology company, HP has a unique ability to provide complete, integrated solution such as HP CloudSystem, which encompass a full ecosystem of servers, storage, networking, and software. And like other HP solutions, HP CloudSystem is bolstered by dedication to an enhanced service delivery experience, a full portfolio of consulting and support services, and proven and ongoing HP innovation and investment.

To learn more, visit: **www.hp.com/go/cloudsystem**

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