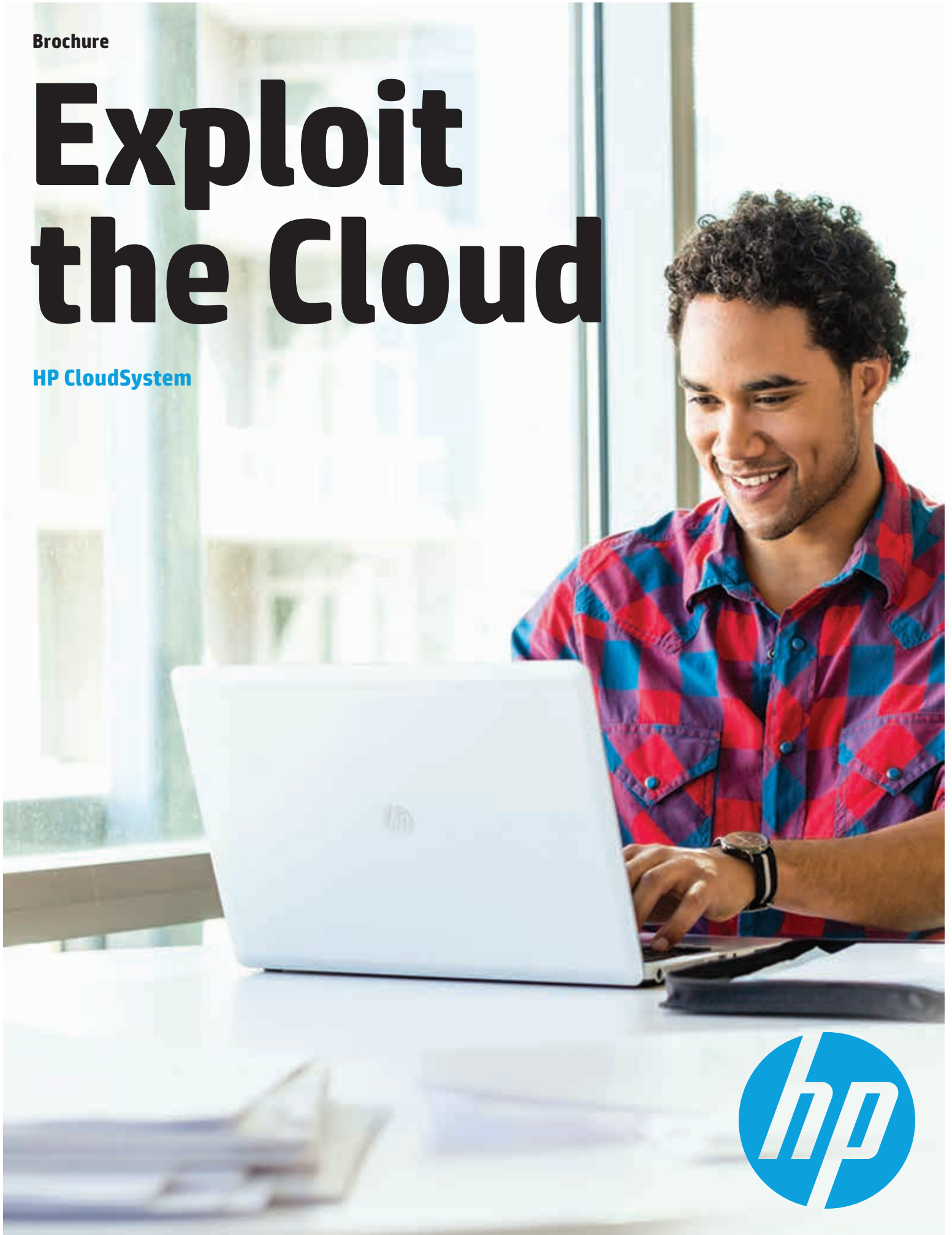# Exploit the Cloud

HP CloudSystem

About HP Converged Cloud

HP Converged Cloud is the industry's only hybrid delivery approach and portfolio based on a common architecture that enables you to build, manage, secure, and use cloud services that span private, managed, and public clouds, as well as traditional IT.

HP Converged Cloud is based on open standards and supports multivendor heterogeneous software and hardware. It is built on the industry-leading HP Converged Infrastructure, HP Converged Management and Security, HP Information Management software, and OpenStack technologies.

HP CloudSystem is built on proven HP Cloud Service Automation software and the HP Converged Infrastructure, and manages private or hybrid clouds with an open, heterogeneous architecture.

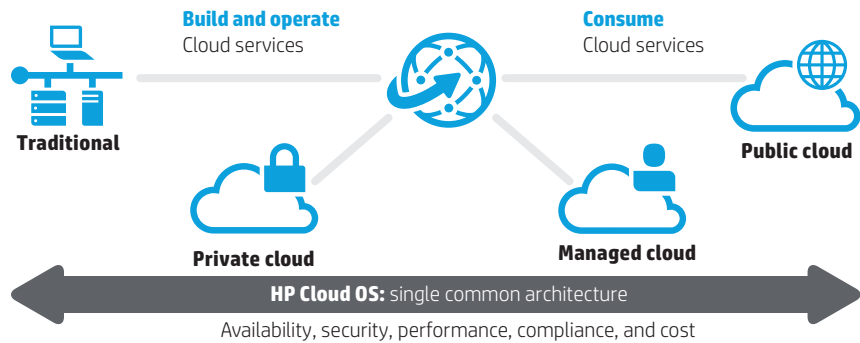# The industry's most complete cloud system for enterprises and service providers

Approximately every decade, technology delivery undergoes a tectonic shift that changes the consumption of technology and the value that it can bring. Today, mobility, Big Data, and the advent of cloud computing offer new ways for IT to help organizations accelerate progress in solving their most pressing challenges—speeding innovation, enhancing agility, and improving financial management.

Cloud computing is a key component of an organization's ability to gain unencumbered access to information technology—to access "Infrastructure Anywhere, Applications Anywhere, Information Anywhere," or better said: "Services Anywhere." In order to deliver on the "Services Anywhere" promise, organizations will need to think differently about IT. No longer will IT be solely a builder of internal infrastructure and services. IT will also need to obtain or use third-party and external services. The key will be understanding the unique requirements of each service, such as availability, cost, performance, and regulatory needs, and then addressing them in the most efficient and cost-effective way. This will be done by creating the right mix of on-premise and off-premise services that leverage the best of traditional IT, and private, managed, and public clouds—a hybrid delivery environment.

Organizations building on-premise environments are being constrained by the lack of a comprehensive, integrated solution that creates confidence and builds a sense of trust in the cloud. Current approaches to cloud computing create fragmentation and can address only a portion of the capabilities required for a complete cloud solution. The right cloud solution must alleviate concerns, including the difficulty of managing private and public clouds, with traditional in-house IT environments, application robustness, security, and agility.

You can accelerate your move to, and fully exploit, the cloud when vendors deliver cloud fundamentals such as a simplified, integrated architecture that's easy to manage and which provides flexibility and portability between private, public, and managed clouds.

It will be a hybrid world.

Build and operate
Cloud services

Consume
Cloud services

Traditional

Private cloud

Managed cloud

Public cloud

HP Cloud OS: single common architecture

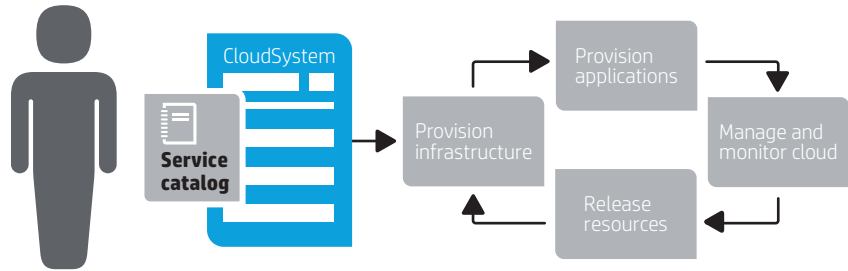Availability, security, performance, compliance, and cost

The solution: HP CloudSystem

HP CloudSystem is the most complete, integrated, and open platform that enables enterprises and service providers to build and manage cloud services.

Based on the proven, market-leading HP Converged Infrastructure and Cloud Service Automation software, HP CloudSystem integrates servers, storage, networking, security, and management to automate the infrastructure-to-application lifecycle of 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.

As a part of the HP Converged Cloud architecture, HP CloudSystem provides you with a simplified, integrated platform that is easier to manage and which provides flexibility and portability between private, public, and managed clouds.

HP CloudSystem is built on proven HP Cloud Service Automation software and the HP Converged Infrastructure, and manages private or hybrid clouds with an open, heterogeneous architecture.

HP CloudSystem features meet your business needs

Benefits of HP CloudSystem	Delivered by these features
Complete, to accelerate time to cloud	• Intelligent automation allows you to provision complex services in just minutes—from infrastructure to application • Provides complete service lifecycle management—from provisioning to monitoring to retirement • Enables you to unify and orchestrate resources in real time across physical, virtual, heterogeneous, and hybrid environments • Supports all service models—infrastructure as a service, platform as a service, and software as a service • Is built on the proven, market-leading HP Converged Infrastructure and automation, management, and security software
Open, to avoid vendor lock-in	• Supports multiple virtualization technologies, including VMware, Microsoft®, Kernel-based Virtual Machine (KVM), and HP Integrity Virtual Machine (VM), as well as physical servers • Supports multiple operating systems, including Windows®, Linux, and UNIX® • Supports servers, storage and networking components from third parties • Incorporates hardened OpenStack technologies to enable extensibility • Enables you to leverage existing investments
Integrated, to reduce complexity	• Provides a complete solution integrated and supported by a by single vendor • Includes over 200 HP Cloud Maps—prepackaged service design templates for popular applications to help you personalize and rapidly automate your cloud services • Out-of-the-box bursting provides access to external resources on a pay-as-you-go basis • Provides optional pre-integration with VMware- and Microsoft-supported environments for partner-optimized solutions

HP CloudSystem differentiation

HP CloudSystem is an integrated system that unifies the control and delivery of cloud services, whether they originate from your data center or an external source such as HP Cloud Services or Amazon Web Services. With HP CloudSystem, you get a secure, scalable cloud solution that includes:

• The industry's most complete, integrated system for building and managing cloud services

• A single view of services across private, public, and hybrid cloud environments

• A multi-hypervisor, multi-OS, and heterogeneous infrastructure

• Intelligent automation and lifecycle management from infrastructure to application

• Broker service delivery across multiple clouds from a single, integrated point of control

• Scalability and elasticity

• Prepackaged service design tools

Respond to new application requests in minutes

With HP Cloud Maps, you can quickly build a comprehensive catalog of applications for simple push-button deployments with HP CloudSystem, reducing the time needed 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, key ISVs, systems integrators (SIs), and customers.

One platform, three integrated offerings

Based on the proven, market-leading HP Converged Infrastructure and Cloud Service Automation software, HP CloudSystem is tailored for the requirements of enterprises and service providers at various stages of cloud maturity with three offerings:

- HP CloudSystem Matrix delivers infrastructure as a service (IaaS) for private and hybrid cloud environments, allowing users to provision physical and virtual infrastructure in minutes.

- The full-scale deployment of private and hybrid cloud environments is a reality with HP CloudSystem Enterprise, which lets you deliver self-service applications and adds enterprise-grade infrastructure-to-application lifecycle management.

- HP CloudSystem Service Provider delivers advanced capabilities for service providers by facilitating the deployment of public and hosted private clouds that deliver complete service aggregation and management.

To take the first step to delivering more advanced platform and application services, start with the *HP CloudSystem Enterprise Starter Suite.* This suite brings together a cloud management platform, infrastructure and application lifecycle management, and orchestration into an open, extensible, enterprise-grade management platform for cloud infrastructure and applications.
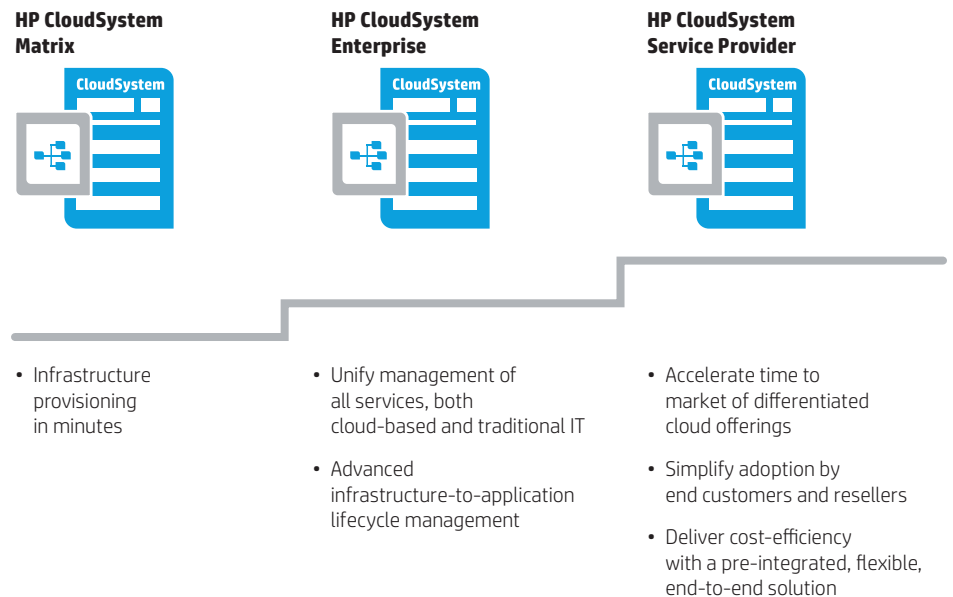
An associated *starter service* lets you have your private cloud framework installed and ready for solution implementation within just two weeks—up to three times faster than before.

HP CloudSystem is optimized for HP Converged Infrastructure technology, including HP 3PAR StoreServ Storage—the high-performance HP FlexNetwork architecture, HP-UX Mission Critical, and comprehensive security capabilities.

HP CloudSystem also supports third-party servers, storage, and networking components to protect your investments. If you have already invested in the HP Converged Infrastructure and HP Software technology, you can easily expand your current architecture to achieve a private, public, or complete hybrid cloud environment.

For customers who have chosen to employ VMware or Microsoft solutions as part of their cloud strategy, HP offers an integrated CloudSystem solution optimized for partner cloud environments. HP CloudSystem also supports the option to integrate with the partner cloud management software through the CloudSystem Matrix autoflexing capability. With autoflexing, CloudSystem automatically allocates your physical infrastructure to VMware vCloud or Microsoft System Center clouds based on demand, reducing the complexity of building and managing cloud environments.

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

HP CloudSystem Matrix

HP CloudSystem Enterprise

HP CloudSystem Service Provider

- Infrastructure provisioning in minutes

- Unify management of all services, both cloud-based and traditional IT

- Advanced infrastructure-to-application lifecycle management

- Accelerate time to market of differentiated cloud offerings

- Simplify adoption by end customers and resellers

- Deliver cost-efficiency with a pre-integrated, flexible, end-to-end solution

Getting started quickly

For customers already taking advantage of virtualization and who are ready to continue on their journey to the cloud, *CloudSystem Matrix software* lets you build a cloud within a day. It provides a complete IaaS implementation for virtual environments with a service designer, a self-service catalog and portal for IT, and automated provisioning and capacity planning. This customer-installable software runs on any server supported by VMware and Microsoft Hyper-V, whether from HP or other vendors. A trial version of the software is available for download at **hp.com/go/trycloudsystem**.

For customers looking to move beyond IaaS and experience the first steps as a broker of cloud services, the *HP CloudSystem Enterprise Starter Suite* gets you started quickly. In one package that is easily added to your CloudSystem Matrix, you get the added functionality for delivering PaaS and SaaS, including enterprise-grade, comprehensive, and unified cloud management from a single end user portal.

The technology behind the cloud

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 it's from on-premise CloudSystem resources or from external clouds. Automated management capabilities help ensure that performance, compliance, and cost targets are met by allocating private and public cloud resources. As a result, you can create and deliver new services in minutes.

CloudSystem extensions

To meet a broad set of IT needs, you can extend the HP CloudSystem solution's core capabilities with a flexible array of proven HP software and hardware. Some of these extensions include:

- HP 3PAR StoreServ Storage—You can use HP 3PAR StoreServ Storage technology to build an advanced cloud infrastructure. Consider that HP 3PAR StoreServ Storage was named a leader in the Gartner Magic Quadrant.*

- HP TippingPoint security—Through the integration of HP TippingPoint technology with HP CloudSystem, you can now easily take advantage of the market's leading intrusion protection and threat management solution to automatically provision and enable security controls when users order cloud services.

- HP Networking solutions—Cloud computing reshapes the way applications are deployed and consumed, which influences data center network designs. HP CloudSystem—together with HP FlexNetwork solutions—can deliver a unified, open, and cloud-optimized data center network design, that reduces workload mobility transit time by 80 percent and doubles VM application performance.

- Mission-critical computing—These capabilities are provided by solutions such as the Matrix Operating Environment for HP-UX.

- HP Software—HP Software solutions help CloudSystem customers enhance their cloud environments, providing in-depth monitoring and management with the HP Business Service Management (BSM) suite, database provisioning and management with HP Database Middleware Automation (DMA) software, and chargeback with HP Asset Manager CloudSystem Chargeback.

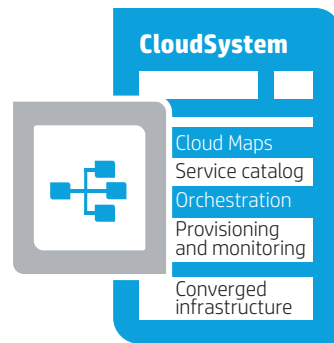# HP helps get you to the cloud

No matter where you begin your journey, 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 a powerful solution that brings your legacy system forward, transform virtual assets into fully automated hybrid cloud environments, and enables an agile set of service delivery capabilities across all IT domains.

If you have already invested in HP Converged Infrastructure technology, such as HP BladeSystem hardware, you can easily add CloudSystem Matrix software or use the HP CloudSystem Matrix Conversion Service to expand your current architecture into a private, public, or hybrid cloud environment.

* gartner.com/technology/reprints. do?id=1-181JXLD&ct=111118&st=sb

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

CloudSystem

Cloud Maps
Service catalog
Orchestration
Provisioning and monitoring
Converged infrastructure

Get your private cloud up and running in 30 days with HP CloudStart

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, HP CloudStart provides all the services you need to set up your first private cloud service catalog, with up to four services integrated into your enterprise environment, including backup and security. Besides having an HP 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.

Expertise behind the cloud with CloudSystem services

HP offers HP Cloud Consulting Services, HP Education Services, and HP Support Services for CloudSystem—including HP CloudStart to fast-track building a private cloud in 30 days. HP CloudSystem Matrix Conversion Service helps transition current BladeSystem environments to CloudSystem Matrix, while implementation services prepare CloudSystem for service creation. Among the key services are:

• HP Cloud Consulting and Implementation Services—Cloud planning, design, and implementation services—including HP CloudStart Services—help your organization employ HP CloudSystem in a hybrid delivery model and as a fully operational cloud solution that is aligned to your business needs. HP experts help with integrating your people, process, and technology needs, so that you can achieve a faster cloud adoption.

• HP Converged Cloud Workshop—This 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, which uses 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, and governance.

• HP CloudSystem Matrix Conversion Service—This conversion service helps upgrade your BladeSystem environment to the private cloud and make the most of your current investments. 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 multisourced HP CloudSystem infrastructure.

• HP CloudSystem Enablement Services—These services include a predefined, pre-scoped, standardized, and time-bound set of short-term consulting and integration services that help build your organization's first HP CloudSystem-based cloud solutions.

• HP Financial Services—A range of financial offers is available for customers building private cloud deployments, as well as for service providers building a public cloud infrastructure who want to reduce capital requirements. HP can combine its cloud offerings with financial offerings from HP Financial Services to help you realize your financial goals as you strive to expand the growth of your business.

About HP

Cloud computing is a key technology that allows IT to increase agility and speed, and allows service providers to drive top-line growth. The adoption of cloud computing will accelerate only when a complete, integrated system delivers a set of cloud fundamentals. As a part of the HP Converged Cloud architecture, HP CloudSystem provides you with a simplified, integrated architecture that is easier to manage and which provides flexibility and portability between private, public, and managed clouds. No matter where you begin your journey, HP provides you with a clear path to the cloud. With HP CloudSystem, HP provides a complete, integrated system that enables enterprises and service providers to build and manage services across private, public, and hybrid cloud environments.

Developing solutions for major social and
environmental challenges
hp.com/hpinfo/globalcitizenship

Q&A about HP CloudSystem

Q: What makes HP CloudSystem better?
HP CloudSystem is unmatched by the product offerings of any other vendor. Compared to other cloud solutions, HP CloudSystem offers you:

- True integration—HP CloudSystem is a truly integrated solution that builds and manages services across public, private, and hybrid clouds.

- Unmatched choice—HP CloudSystem is a proven offering that supports both your physical and virtual infrastructures, leading hypervisors, multiple operating systems, heterogeneous infrastructure, and a broad ecosystem of application partners.

- Unmatched management and automation—HP CloudSystem offers automated provisioning, monitoring, compliance, and governance across applications, services, and infrastructure.

- Unmatched technology—HP CloudSystem gives you the powerful HP Converged Infrastructure and automation software integrated into 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.

Q: How do I get started?
Start by contacting HP. Your HP representative can help illustrate the benefits of cloud computing and supply more details about HP CloudSystem. Chances are good that 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.

Learn more at
hp.com/go/cloudsystem

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hp.com/go/getupdated

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