

# HP CloudSystem with Intel Security Technologies

Discover the HP Cloud Computing solution



## Cloud computing: an emerging market with tremendous potential

Cloud computing allows service providers to deliver global, highly scalable, and flexible services over the Internet on an as-needed, pay per-use basis. Such services help customers to:

- **Drive down costs** by only paying for the resources they actually use
- **Gain flexibility** by benefiting from the latest technologies with no infrastructure costs
- **Reduce time to market** by minimizing the prototyping and testing needed for new services
- **Perform at the optimum level** by dynamically adjusting service capacity to match demand

Although still in its infancy, cloud computing is growing rapidly. In-Stat forecasts that cloud computing and managed services spending by US businesses will surpass \$13 billion in 2014, up from less than \$3 billion in 2010<sup>1</sup>.

Cloud computing and managed services spending by US businesses will grow from \$3 billion in 2010 to \$13 billion in 2014

Cloud computing is an important and growing platform for Instant-On Enterprises, where everything and everyone is connected. Instant-On Enterprises need IT environments that are automated, secure, and easy to adapt to changes in demand.

Small and Medium Enterprises (SME) migrating to the cloud are concerned about the confidentiality of their information and their liability for infrastructure-related incidents<sup>2</sup>.

These concerns are driving cloud providers to improve security practices by providing security audits and better protecting data—both within the cloud data center and between customer sites and the cloud.

## What is HP CloudSystem?

HP CloudSystem is today the most complete, integrated and open system allowing services to be built and managed across private, public, and hybrid cloud environments.

HP CloudSystem is based on a single unified architecture that combines hardware, software and services. This architecture addresses all deployment models (private, public, hybrid) and cloud service models (IaaS, PaaS, SaaS). CloudSystem lets enterprises gain agility, and allows service providers to drive top line growth.

The core elements of HP CloudSystem are:

- HP Converged Infrastructure
- HP Cloud Service Automation (CSA) software
- HP Cloud Services

As shown in Figure 1, HP CloudSystem is made up of three functional layers—**Demand, Delivery, and Supply**—and an underlying **Governance, Business, Management & Security** layer.

<sup>1</sup> In-Stat, January 2011, "Cloud Computing and Managed Services Spending Forecasts", <http://www.instat.com/press.asp?ID=2993&sku=IN1004792VSMSE>

<sup>2</sup> European Network and Information Security Agency, November 2009, "Cloud Computing: Benefits, risks and recommendation for information security", <http://www.enisa.europa.eu/act/rm/files/deliverables/cloud-computing-risk-assessment>



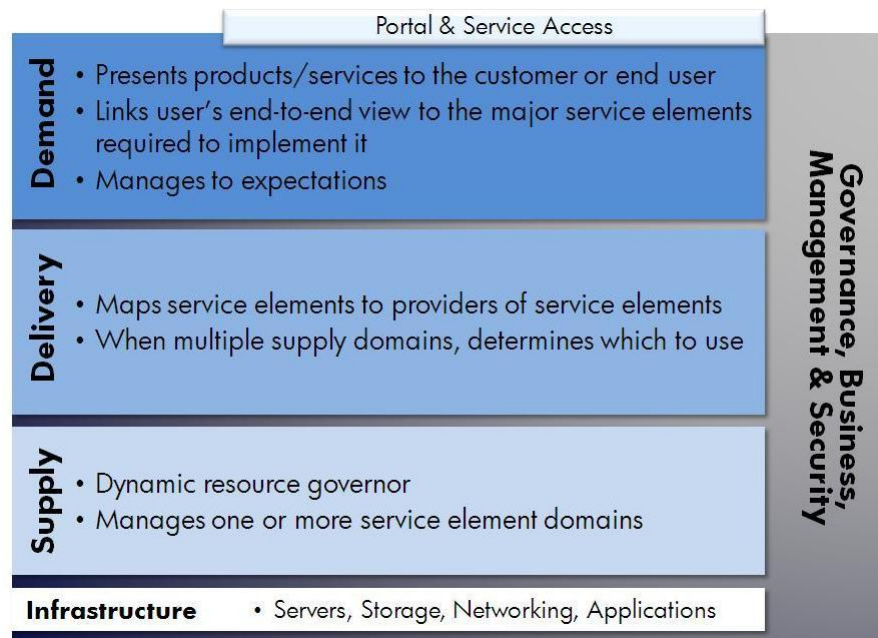


Figure 1: The HP CloudSystem

The **Demand** layer exposes services and products to the consumer through a user portal. It maintains a catalog of all internal (provided by the Delivery layer) and external (aggregated) services available to end users. The Demand layer authenticates end users to determine their authority to create or modify services, generates service billing and settlement information, and provides visual feedback on customers' Quality of Experience and Service Level Agreement compliance.

The **Delivery** layer orchestrates and automates the process of combining service elements (from one or more supply layers) into customer-facing services. It also selects the most appropriate Supply layer to use, based on policies, the Demand layer requested, and Supply layer availability. The Delivery layer also monitors consumers' and customers' service usage.

The **Supply** layer isolates the Delivery layer from physical resources by providing customer-facing service abstractions. It performs all governance and orchestration necessary to ensure that the resources deliver the desired service. This layer also monitors resource utilization and generates usage data records.

These three layers rely on an underlying **Governance, Business, Management & Security** layer. Supported by the HP security framework, this layer defines security controls and methods to secure the enterprise environment (cloud and non-cloud). The layer provides:

- Governance, risk, and compliance management, secure operations, business continuity, and recovery
- Identity and access management
- Data and content security
- Application software security
- End-point, network, and data center security

The HP security framework can be complemented with proven Intel security technologies.



Figure 2: HP hardware powered by Intel® Xeon® processors

### Intel security technologies

Intel offers a number of innovative technologies to improve the reliability and trustworthiness of cloud architectures.

Focused on security, these technologies significantly enhance the protection of cloud solutions and cloud-resident data against software attacks and other threats.

**Intel® Advanced Encryption Standard-New Instructions (AES-NI)** is a set of new instructions for Intel Xeon processors designed to improve AES encryption performance. AES is already widely used to secure transactions in e-commerce, banking, and many other areas, and AES-NI will help meet the rapidly growing demand for data encryption in cloud computing environments.

**Intel® Trusted Execution Technology** is hardware-assisted protection against software-based attacks. It allows cloud services to run on a trusted pool of servers and virtual machines to be seamlessly migrated to other trusted platforms. This technology complements other runtime mechanisms such as anti-virus protection and intrusion detection. It improves security, reduces the risk of successful attack, and better satisfies compliance requirements.

Strong collaboration between HP and Intel on these technologies is addressing critical needs in virtualized and cloud-based use models.

### Powered by Intel Xeon processors

Together, HP and Intel offer a unique combination of powerful, reliable, and scalable hardware components, innovative software solutions, and unparalleled expertise in cloud infrastructure.

Intel Xeon processors offer industry-leading performance-per-watt efficiency and sophisticated built-in security features, making them the ideal choice for deployment in cloud-based data centers.



## HP Intel CME Solution Center as Cloud Center of Excellence

The HP Intel Communications, Media, and Entertainment (CME) Solution Centers located in France, China, and the United States are the reference laboratories for cloud services and innovations. They have now been recognized as the Cloud Center of Excellence and together host the HP Cloud Reference Architecture.

The Cloud Center of Excellence proposes cloud demonstrations highlighting a number of common cloud use cases. These demonstrations are available at customer sites, online, or on our premises, where technical experts and consultants from HP and Intel are always on hand to provide assistance and answer questions.

The Cloud Center of Excellence also offers a range of services specifically targeted at service providers and enterprises, including cloud technical workshops and customized proofs-of-concept.

## HP and Intel key hardware components

### HP Blade System c7000 enclosure

Provides all the power, cooling, and I/O infrastructure needed to support modular server, interconnect, and storage components today and throughout the next several years.

### Intel® Xeon® Processor 5600 Series

The Intel® Xeon® processor 5600 series—the next generation of intelligent server processors—automatically regulates power consumption to combine industry-leading energy efficiency with intelligent performance that adapts to your workload.

### Intel® Xeon® Processor 7500 Series

Exceptional scalable performance with advanced reliability for your most data-demanding applications and intelligent performance that automatically adapts to the diverse needs of a virtualized environment.

## For more information

To read more about the HP Intel CME Solution Centers, visit [www.hpintelco.net](http://www.hpintelco.net).



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The HP Intel Solution Centers provide complete telecom infrastructures for demonstrating the Communications, Media, and Entertainment Solution Portfolio to HP customers and partners. The centers are located in the three regions: Grenoble, France for EMEA; Plano, Texas, USA for Americas; and Shanghai, China for APJ. These unrivalled technical facilities offer our customers and partners the unique opportunity to evaluate new services in real-world environments, test new technologies, and select the solutions most likely to succeed.

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