



Building a Cloud Computing Foundation

HP and Intel's blueprint for providing profitable cloud computing services

An emerging market with tremendous potential

For service providers, cloud computing allows global, highly scalable, and flexible services to be delivered over the Internet on an as-needed, pay-per-use basis. Cloud computing has the potential to:

- **Drive down costs**, because you only pay for the resources you actually use
- **Gain flexibility** by benefiting from the latest technologies without incurring infrastructure costs
- **Reduce time to market** by shortening the cycle of prototyping and testing new services
- **Always perform at the best level** by dynamically adjusting service capacity to match changes in demand

Although still in its infancy, cloud computing is growing rapidly. WinterGreen Research estimates that the cloud computing market will grow from \$36 billion in 2008 to \$160 billion by 2015¹.

The cloud computing market is expected to grow from \$36 billion today to \$160 billion by 2015

Service providers already offer cloud computing services to their enterprise and individual customers, and now want to offer them to the Small and Medium Business (SMB) market. For this, a top priority is choosing strategic partners they trust to deliver reliable, effective, and innovative solutions on which to build these services.

HP and Intel's cloud infrastructure expertise

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

HP ProLiant BladeSystem servers, together with HP's experience in the field of virtualization, are already helping IT organizations to dramatically increase data center efficiency.

HP Insight Control Environment (ICE) software manages IT infrastructures by deploying servers quickly, optimizing power consumption, proactively monitoring server health, and managing servers from anywhere. HP Insight Orchestration (IO) software automates the provisioning and repurposing of IT infrastructures using a self-service portal, while HP Data Center Automation Center automates life-cycle management.

The Intel® Xeon® 5600 series processor has many unique hardware-assisted virtualization features, produces industry-leading performance at all workload levels, and supports holistic power management. It is the ideal platform for cloud computing infrastructures.

Finally, Intel Virtualization Technology implemented in the VMWare vSphere™ virtualization platform has achieved near-native application performance in environments running Intel Xeon 5600 series processors.



¹ Reference: WinterGreen Research, Inc., August 2009, "Worldwide Cloud Computing Market Opportunities and Segment Forecasts, 2009-2015," <http://www.the-infoshop.com/report/wg97872-cloud-computing.html>

The Cloud Foundation

The HP Intel Communications, Media, and Entertainment (CME) Solution Center has introduced the *Cloud Foundation*, a cloud computing environment based on the Infrastructure as a Service (IaaS) delivery model. The Cloud Foundation provides a dependable, scalable, and dynamically expandable pool of IT resources.

Two use cases demonstrating IaaS capabilities are already available. Both are based on the cloud computing platform shown in Figure 1.

Two Cloud Foundation use cases are already available: Next Generation Hosting and Scale Out

Next Generation Hosting

This use case allows customers to connect to a self-service portal and select pre-configured *templates* of network, storage, and processing resources. Next Generation Hosting greatly simplifies the task of selecting and deploying the infrastructure required for new cloud computing services.

Scale Out

Scale Out builds on Next Generation Hosting to manually or automatically deploy new virtual machines at times of peak load. For database-based applications, it can also implement failover mechanisms between the existing and new machines. This use case demonstrates how a cloud computing infrastructure can be efficiently scaled, provisioned, and monitored while optimizing processing loads across virtual machines.

HP & Intel key hardware components

HP Blade System c7000 enclosure

The BladeSystem 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.

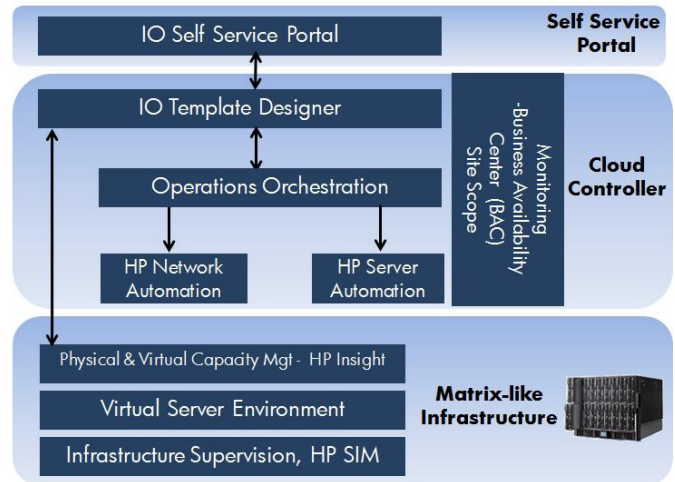


Figure 1: HP's cloud computing platform

HP Intel CME Solution Center's team and facilities

Next Generation Hosting and Scale Out are now available as demonstrations on our premises, at customer sites, or online.

The HP Intel CME Solution Center proposes many other solutions and programs specifically targeted at service providers, including:

- Innovation workshops on topics as diverse as the IaaS and Platform as a Service (PaaS) delivery models, dynamic power capping management, Intel's vision for cloud computing, and the Next Generation Datacenter.
- Proofs-of-concept to investigate and implement solutions specifically tailored to customers' needs.

Cloud service providers are always welcome to take part in these programs by visiting our premises, where technical experts and consultants from HP and Intel are on hand to advise on strategy, investigate needs, and resolve problems.

Intel Xeon processors

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.



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.

Technology for better business outcomes

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For more information, visit <http://www.hpintelco.net>

Cloud Foundation Solution Brief, June 2010.