Cloud-Optimized Validated Solutions for an Agile Data Center

Massive growth in data and increasing complexity in today’s data centers have organizations on the lookout for simple and quick-to-deploy solutions that improve flexibility and reduce IT delivery risk and cost. Virtualization has helped administrators to avoid resource contention and tradeoffs, gain agility and avoid vendor lock-in. To support these steps and cut costs of managing disparate resources, organizations are now looking to converged platform solutions and the cloud. Hitachi Unified Compute Platform with Brocade networking technologies helps organizations create cloud-optimized solutions with the flexibility and scalability to deliver IT services on demand.

Hitachi and Brocade Create Cloud-Optimized Solutions

By testing and integrating Brocade Ethernet and Fibre Channel switches with Hitachi Compute Blades and industry-leading storage, Hitachi and Brocade create solutions that ensure best-in-class infrastructure for the cloud (see Figure 1). Large and midsize organizations alike, with virtualization, collaboration, database, data warehousing and/or business analytics applications, benefit from these solutions. Together, Hitachi and Brocade reduce deployment time and complexity associated with implementing a foundation platform to support a private cloud infrastructure.

With these tested and validated solutions, IT stands better prepared to meet rapidly changing business needs in a cost-effective manner. These joint solutions allow IT organizations to achieve improved business economics through lower capital expenditure, operating expenditure and total cost of ownership. Much of an organization’s budget is used to support fixed costs. These solutions offer business efficiencies that can be turned into competitive advantages. They offer almost immediate deployment with greater workload throughput to improve business time to market and profitability.
With best-in-class technologies and deep technology integration, Hitachi and Brocade create the following solutions:

- Hitachi UCP Pro for VMware vSphere.
- Hitachi UCP Select for Oracle Database.
- Hitachi UCP Select for VMware Horizon View.
- Hitachi UCP Select for Microsoft® SQL Server® 2008.
- Hitachi UCP Select for Microsoft® SQL Server® 2012.
- Hitachi UCP Select for Microsoft® Private Cloud.
- Hitachi UCP Select for the SAP HANA Platform (scale-out version).
- Hitachi UCP Select for VMware vSphere.

Hitachi Unified Compute Platform

Hitachi Unified Compute Platform (UCP) is an enterprise-class platform that is designed to accelerate the delivery of business value. Hitachi integrates compute, storage and networking resources into resource pools. The resulting efficiencies support demanding applications in either a physical or virtual computing environment. They help to extract the maximum value out of data assets.

Hitachi UCP solutions are certified and easy to deploy. They accelerate the most widely adopted business applications in the market today, including Microsoft® Exchange, Oracle Database, SAP HANA, Microsoft Private Cloud and VMware vSphere. They help midsize-to-large organizations to reduce risk and increase business efficiencies. They enable greater workload throughput to increase business agility and profitability.

Hitachi Data Systems offers 2 UCP solution types: Hitachi Unified Compute Platform Pro and Hitachi Unified Compute Platform Select.

Hitachi UCP Pro

UCP Pro solutions help IT organizations to substantially cut deployment time and complexity associated with installing a foundation platform to consolidate and virtualize business-critical and enterprise applications. UCP Pro combines Hitachi storage and servers as well as Brocade networking technologies. In addition, it provides a unified management layer: Hitachi Unified Compute Platform Director (UCP Director) delivers the orchestration capabilities IT professionals require to easily and quickly manage a virtualized converged infrastructure. Unlike competitive solutions, Hitachi Data Systems resells and supports every UCP Pro solution component, ranging from high-performance Hitachi storage to Brocade fabric technologies.

Hitachi UCP Select

Like UCP Pro solutions, UCP Select solutions are composed of servers, storage, networking switches and software products and are tested with specific workloads for applications from HDS partners. Also referred to as reference solutions, UCP Select solutions offer investment protection in a flexible building-block approach that allows a choice of Hitachi or 3rd-party servers. Unlike UCP Pro, UCP Select solutions do not include an orchestration layer.

Figure 1. Hitachi Unified Compute Platform Solutions Powered by Brocade Data Center Fabrics
Hitachi UCP Components

UCP solutions combine industry-leading compute and storage. In UCP Pro, management software is incorporated as well.

Compute

The Hitachi Compute Blade server family meets the demanding needs of mission-critical data centers with enterprise-class, built-in reliability, availability and serviceability features:

- Hot-swap and redundant components for high availability.
- Multiblade scaling with symmetric multi-processing technology.
- Optimized efficiency with hardware-based logical partitioning.

Hitachi Compute Blade family supports a range of blade options, and can tailor I/O capability to create a system precisely optimized for your application.

Storage

Hitachi Virtual Storage Platform (VSP) is the only 3-D scaling storage platform designed for all data types. It is the only enterprise storage architecture that flexibly adapts for performance, capacity and multivendor storage. Integrated into UCP solutions, VSP provides such features as robust storage virtualization, dynamic provisioning and automated tiering. Other common and 3rd-party storage can be integrated into the UCP management framework by virtualizing it through VSP.

Hitachi Unified Storage (HUS) is another component of UCP solutions. Hitachi Unified Storage 100 family systems provide a powerful combination of block, file and object storage, and are designed to meet the most stringent service level agreement requirements. Hitachi Unified Storage VM manages existing storage and consolidates data in a single, enterprise-level virtualized platform to ease the management of information. HUS VM all flash system integrates Hitachi Accelerated Flash storage and enterprise storage virtualization to increase the performance of the hard-drive-based HUS VM and delivers advantages in efficiency, cost, virtualization and tiering.

Management

Hitachi UCP Director software provides a simple and comprehensive management interface by integrating into VMware vCenter. Its process orchestration capabilities combined with vCenter management capabilities shape a collective group of physical and virtual assets into business resource pools. UCP Director simplifies the integration and ongoing management of large dynamic environments. Because it uses the vCenter user interface, it greatly reduces the barrier to deployment, speeds time to value, and streamlines operational management. These capabilities enable UCP Director to help you improve data center and business economics, even while the scope and scale of these environments continue to grow.

Business Benefits

Hitachi Unified Compute Platform solutions help IT to substantially cut deployment time and complexity of implementing a foundation platform for a public or private cloud infrastructure.

Cost Savings

- Reduced integration costs.
- Faster deployment times.
- Reduced overprovisioning.
- Simplified operational management.
- Faster time to problem identification and resolution.

Reduced Risk

- Repeatable, predictable sizing.
- Validated stack with tested component versions, software and firmware levels.
- Single point of support.
- Flexible approach that supports agile response to changing workloads.
- Components that can be redeployed to meet new needs.

Hitachi Virtual Storage Platform (VSP) technology is an innovative technology that enables organizations to build high-performance, cloud-optimized data centers while preserving existing network designs and cabling, and gaining active-active server connections. For scale-out fabric architectures, Brocade VCS Fabric technology allows organizations to simplify and flatten network designs, provide VM mobility without network reconfiguration, and manage the entire fabric more efficiently. It enables unified storage...
connectivity and allows the seamless insertion of services.

Brocade VCS Fabric technology is embedded in the Brocade VDX switch family, which is optimized for server virtualization; Brocade VDX 6746 Switch (embedded in Hitachi Compute Blade servers), Brocade VDX 6730 Switch, Brocade VDX 6720 Switch and Brocade VDX 6710 Switch.

**Fibre Channel Fabrics: Brocade Switch With Gen 5 Fibre Channel**

Optimized for storage environments, Brocade 6510 Switch with Gen 5 Fibre Channel delivers industry-leading reliability within a flexible, cost-effective and easy-to-use 1U form factor. It provides a critical building block for highly virtualized, private cloud storage environments. Brocade 6510 with Gen 5 Fibre Channel simplifies server virtualization and virtual desktop infrastructure management while meeting high-throughput demands of solid-state disks. Brocade 6510 with Gen 5 Fibre Channel also supports multitendancy in cloud environments through virtual fabrics, quality of service, and fabric-based zoning features.

By delivering market-leading 16Gb/sec Fibre Channel technologies and capabilities that support highly virtualized environments, the Brocade 6510 with Gen 5 Fibre Channel meets the demands of hyper-scale, private cloud storage environments. Designed for maximum flexibility and reliability, it is configurable in 24, 36 or 48 ports, and it supports 2, 4, 8, 10 or 16Gb/sec speeds.

Embedded in Hitachi Compute Blade platforms, Brocade 5460 Switch delivers 8Gb/sec Fibre Channel technology and provides rack space savings, energy efficiency and simplified management.

Brocade Fabric Vision technology, an extension of Gen 5 Fibre Channel, introduces a breakthrough hardware and software technology that maximizes uptime, simplifies SAN management, and provides unprecedented visibility and insight across the storage network. Offering innovative diagnostic, monitoring and management capabilities, Brocade Fabric Vision technology helps administrators to avoid problems, maximize application performance, and dramatically reduce operational costs.

**Service and Support**

Hitachi Unified Compute Platform solutions with Brocade technologies are preconfigured and ready to plug into an organization's network. When professional services are needed, Hitachi Data Systems leverages the implementation experience of our Hitachi Global Systems Integrator partners and our consulting partner, Hitachi Consulting Corporation.

**Optimize Your Data Center**

Hitachi Unified Compute Platform supports best-in-class reliability, performance, scalability and comprehensive management of enterprise data centers and cloud deployments. It combines Hitachi Compute Blade servers and Hitachi storage with Brocade Ethernet or Fibre Channel networking to provide cloud-optimized solutions for your data center (see Table 1). For more information regarding these solutions, contact:

- Your Hitachi Data Systems representative or visit www.HDS.com.
- Your Brocade representative or visit www.brocade.com.

---

**TABLE 1. HITACHI UNIFIED COMPUTE PLATFORM WITH BROCADE**

<table>
<thead>
<tr>
<th>Compute</th>
<th>Hitachi Compute Blade 500.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hitachi Compute Blade 2000.</td>
</tr>
<tr>
<td></td>
<td>Hitachi Unified Compute Platform Director software.</td>
</tr>
</tbody>
</table>

| Storage                    | Hitachi Virtual Storage Platform*. |
|----------------------------| Hitachi Unified Storage VM. |
|                            | Hitachi Unified Storage 100 family. |

<table>
<thead>
<tr>
<th>Software</th>
<th>Oracle Database 11g.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Microsoft Private Cloud.</td>
</tr>
<tr>
<td></td>
<td>Microsoft SQL Server® 2008 and 2012.</td>
</tr>
<tr>
<td></td>
<td>Horizon View.</td>
</tr>
<tr>
<td></td>
<td>SAP HANA platform (scale-out).</td>
</tr>
<tr>
<td></td>
<td>VMware vSphere and vCenter.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Network: Brocade Networking Components</th>
<th>Ethernet Switches: Brocade VDX 6746 Switch (embedded), Brocade VDX 6730 Switch, Brocade VDX 6720 Switch or Brocade VDX 6710 Switch.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Fibre Channel Switch: Brocade 5460 Switch (embedded) and Brocade 6510 Switch with Gen 5 Fibre Channel.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Optional Technologies</th>
<th>Hitachi Command Suite.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Hitachi Content Platform.</td>
</tr>
<tr>
<td></td>
<td>Hitachi NAS Platform.</td>
</tr>
</tbody>
</table>

* This solution can be deployed on an existing VSP already in use in the data center.