



DRM VIRTUALIZATION ECONOMICS FLEXIBILITY INNOVATE  
INFORMATION GLOBAL CHANGE INTELLIGENT TECHNOLOGY  
SIGHT OPPORTUNITY SOCIAL INFRASTRUCTURE INTEGRATION

OVERVIEW

## Hitachi Unified Compute Platform Solutions

### **Modernize With Converged Systems and IT as a Service**

In today's fast-paced world, organizations that depend on technology to drive business innovation are intensifying the pressure on IT to deliver services faster and more cost-effectively than ever before. IT teams are responding by increasing virtualization and attempting to implement private cloud capabilities, but taking a component-based approach often delivers the opposite result. IT spends almost a quarter of their time and resources evaluating and installing increasingly disparate hardware components. They must integrate servers, storage and networking infrastructure, and then add a virtualization layer on which they can finally place enabling and application software. Further, the lack of a unified management framework, and the need for highly specialized individuals who can design, configure, optimize, test and manage each component increases cost, complexity and risk. There is an opportunity cost that often exceeds an organization's business plan prediction. In addition, today's business leaders are dealing with budgets that have a large, fixed-cost component. To solve this problem, many organizations are evaluating converged infrastructure solutions.

Overview

Hitachi Data Systems (HDS) has addressed these challenges by creating Hitachi Unified Compute Platform (UCP) solutions for all workloads. UCP enables IT organizations to speed time to production, automate operations and reduce administrative costs by providing integrated systems. It allows compute, network and storage to be managed as a shared pool of resources optimized to support a variety of applications (see Figure 1).

The enterprise-class solutions combine the highest quality systems and the most advanced architecture. UCP creates a framework on which to build

**Converged Systems White Paper**  
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a robust converged cloud infrastructure that includes data protection and management capabilities. UCP includes best-of-breed Hitachi blade servers (powered by Intel Xeon processors), industry-leading Hitachi storage, SAN switches from Brocade, and Ethernet networks from Brocade or Cisco. Hitachi blade servers are known for their superior quality and have advanced functionality that makes them uniquely suited to support mission-critical applications and a converged cloud infrastructure.

Expert professional services also accelerate the time to value by providing assessment, design, implementation and migration services, as well as support and maintenance services after deployment. HDS also offers a choice to organizations with a Hitachi UCP Select solution that supports 3rd-party Cisco Unified Computing System (UCS) servers with Cisco network and Hitachi storage options.

Hitachi UCP solutions are also tested with specific applications, such as Microsoft® Exchange, SQL Server®, SharePoint® and Lync® Server, Oracle Databases and the SAP HANA platform. These applications are validated and certified to ensure their compatibility, performance and supportability. They can be deployed as virtualized solutions for running multiple application or dedicated application-optimized solutions. In addition, HDS handles your technical support needs for the entire solution. No more vendor finger-pointing. Just call us!

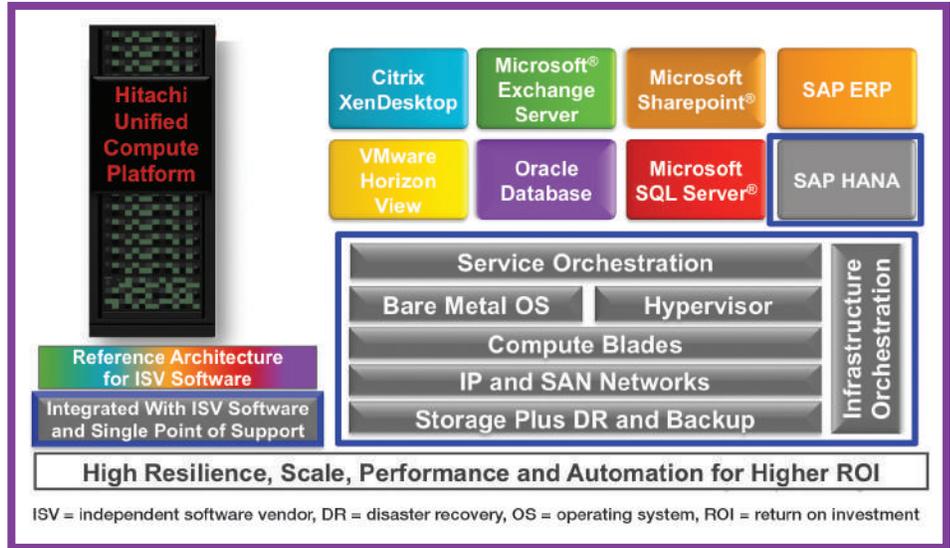


Figure 1. Hitachi Unified Compute Platform provides solutions for all workloads.

Converged Solutions for Virtualization and Cloud IT

Each UCP solution for VMware vSphere and Microsoft Private Cloud (Hyper-V®) is configured to maximize the value of your server virtualization environment. Equipment is neither overpurchased nor overprovisioned. It is architected as a fully integrated platform for deploying IT as a service. And it improves organizational agility by quickly deploying new applications and services to respond to changes in business needs and integrate them into current environments.

With UCP solutions, you will:

- **Have certainty** with the predictable reliability of a robust private cloud platform aligned to business service levels.
- **Reduce management** cost and complexity with coordinated comprehensive provisioning and administration of virtualized private cloud environments.
- **Simplify the ordering and procurement process** as well as the deployment and management of physical and virtual resources.

- **Increase operational efficiency** and resource utilization by aligning business processes to IT execution.

Hitachi storage platforms are also natively integrated with the server virtualization software API engines. Native integration means multiple VMware ESXi servers and Hyper-V can offload workloads, such as vMotion, to Hitachi storage. This integration frees resources on the server, reduces traffic on the network and dramatically improves infrastructure efficiency.

When used with cloud automation software, such as VMware vCloud Automation Center, Microsoft System Center or Hitachi Cloud Automation Suite, UCP for virtualization solutions enables cloud self-service functionality. Hitachi Cloud Automation Suite management portal provides self-service and operations management capabilities. The portal enables self-service via a service catalog, automated provisioning, charge-back, subscription management, billing and other capabilities required to support private clouds. The portal supports Hitachi Unified Compute Platform solutions for VMware, enabling self-service for VMware vCenter and vCloud Director.

Hitachi Data Systems keeps pace with your business needs with best-in-class solution types for mission-critical workloads: application-optimized solutions and integrated turnkey solutions for virtualized environments, featuring UCP Director infrastructure automation software.

## Hitachi Unified Compute Platform for VMware vSphere

Hitachi UCP for VMware vSphere is a fully integrated solution that includes all hardware plus VMware vSphere and Hitachi Unified Compute Platform Director software. UCP Director integrates deeply into VMware vSphere and VMware vCenter to enable faster deployment of cloud infrastructure and efficient resource allocation. The UCP for VMware vSphere solution can scale to run hundreds or even thousands of applications on both virtualized or non-virtualized bare metal operating systems. Hitachi UCP Director advanced automation software enables IT to provision, monitor, protect and operate all elements of the modern data center from a single dashboard. It is fully integrated with vCenter to all the applications and virtual machines (VMs) to reduce operational costs.

Bring infrastructure onboard quickly with faster deployment and preconfigured elements. Automate and orchestrate the management of essential infrastructure components as unified pools of business resources from directly within the VMware vCenter management console. Simplified configuration and integration of all solution components accelerate time to value for your most demanding applications.

## Hitachi Unified Compute Platform Select for VMware vSphere With Cisco Unified Computing System

UCP Select for VMware vSphere with Cisco UCS is a complete, end-to-end reference stack for VMware vSphere 5.x. It uses industry-leading solutions from Hitachi and Cisco, and is designed around Hitachi storage platforms [Virtual Storage Platform (VSP) family, Unified Storage VM (HUS VM), Unified Storage (HUS), and NAS Platform (HNAS)], Cisco Unified Fabric network and Cisco UCS. These compute, network and storage resources are natively integrated with VMware vSphere 5.x, creating a simple, flexible and cost-effective product stack for deployment of your virtualized data center architecture.

Hitachi Data Systems and Cisco certify each component for interoperability. Using only tested and validated components, UCP Select for VMware vSphere with Cisco

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UCS is a Cisco Validated Design (CVD), which reduces the risk of introducing new technologies to your data center. This validation gives you the confidence to size the infrastructure to satisfy today's data center requirements and the assurance of growing incrementally as needs change. Hitachi and Cisco have many years of experience supporting mutual customers and both companies offer consistent high-quality, high-touch technical support. The cooperative support model formalizes this relationship, giving organizations an efficient and flexible support solution that provides clear ownership of problems, effective cross-vendor collaboration and fast problem resolution.

## Hitachi Unified Compute Platform for Microsoft® Private Cloud

Reap the benefits of Microsoft-based private cloud solutions quickly, with predictable performance, faster deployment and less risk. UCP for Microsoft Private Cloud (Hyper-V) gives you a prevalidated solution. It combines compute blades and storage from Hitachi Data Systems with network infrastructure and Microsoft Windows Server® 2012 with Hyper-V and System Center 2012 software. Create building blocks for a cloud environment that give you the flexibility to scale quickly, as needed, with known results. It's all based on industry-leading Hitachi servers and storage, so you can quickly address current business needs.

This solution is designed to reduce the complexity of architecting and deploying a wide range of Microsoft and other applications on Hyper-V. The solution delivers a robust infrastructure to migrate to the latest Microsoft SQL Server, Exchange Server, SharePoint Server, Office 365™ and much more. It includes a full range of storage adapters for Microsoft System Center Operations Manager (SCOM), System

Center Online (SCO), Virtual Machine Manager (VMM) and Windows PowerShell®, and it is certified with the Microsoft Fast Track for converged systems. The solution also supports live migration and disaster recovery with unique auto resynch.

## Converged Solutions for Business Applications, Data Warehousing and Analytics

Mission-critical applications are more frequently run on bare metal operating systems. These applications are core to the success of the business and need to meet stringent service level agreements (SLAs). To achieve and maintain high levels of service levels, systems need to deliver highest performance, scalability and RAS (reliability, availability and serviceability) while avoiding proprietary architectures from single application software and hardware vendors. This approach also protects from the high licensing costs and vendor lock-ins. Major applications rely on a solid database architecture. The databases can be traditional relational databases or state-of-the-art in-memory databases. Hitachi UCP solutions are designed to support a wide range of database solutions to run transactional or analytical workloads.

To keep up with the growth of databases, companies have rushed to add expensive integrated server and storage systems. Adding resources often requires more administrators and software layers to manage the expansion. Without a holistic strategy for optimizing SAP HANA, Oracle Database or Microsoft SQL Server environments, unsystematic growth and its associated uncontrolled costs can create an increasingly expensive cycle. Through a combination of Hitachi UCP solutions and our expertise in database environments, Hitachi Data Systems



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can help your company control capital and operational costs. At the same time, we can help you increase performance, data protection and flexibility. We help ensure that the right information is available in the right place, at the right time, and for the right cost.

### Hitachi Unified Compute Platform for the SAP HANA Platform

SAP High-Performance Analytic Appliance (HANA) is an in-memory data platform that is deployable as an on-premises appliance, or in the cloud. It is a revolutionary platform that is best suited for performing real-time analytics, and developing and deploying real-time applications. At the core of this real-time data platform is the SAP HANA database. In addition, SAP delivers a class of real-time applications, powered by the SAP HANA platform. These applications can be deployed as an appliance or delivered as a service via the cloud.

Hitachi UCP for SAP HANA enables end users with in-memory analytics to work with large volumes of data to compile real-time results. It is designed to deliver the highest performance and is easy to deploy. UCP for SAP HANA solutions utilize industry-leading storage to provide persistent data storage and highest availability to run any mission-critical application. These highly robust and resilient turnkey systems are validated and certified for supportability and come in scale-out and scale-up configurations. Hitachi UCP for SAP HANA includes both scale-out and scale-up architectures. With both solutions, 24/7, mission-critical SAP HANA environments are possible.

Hitachi UCP for SAP HANA is a comprehensive deployment environment for SAP HANA contained within a single enclosure. The combination of enterprise-class storage systems, compute blades and networking components simplifies deployment and helps ensure predictable results. The solution combines Hitachi Compute Blade server technology and enterprise-class storage: Hitachi Unified Storage to scale up and Hitachi Virtual Storage Platform to scale out. The scale-up offering is ideal for proofs of concepts, development and test environments. To scale out, Hitachi UCP for SAP HANA supports up to 16TB of platform memory, which makes it ideal for larger mission-critical SAP HANA implementations.



In addition to the appliance model, to allow more flexibility for its customers, SAP introduced the tailored data center integration (TDI) program, which offers another approach to deploying SAP HANA. With TDI, you have more freedom and flexibility in configuring the layers for SAP HANA, depending on your existing data center layout. You'll be better positioned to stay within your IT budget, shorten implementation cycles, and enable improved consumption of hardware innovations to drive the adoption of SAP HANA. Organizations using VSP and HUS VM can gain these benefits as both storage systems are certified for deploying SAP HANA via the TDI program. By re-using Hitachi VSP and HUS VM storage systems in the deployment, organizations can leverage established operational processes, reducing capital and operational expenses and mitigating risks.

### Hitachi Unified Compute Platform for Oracle Database

UCP for Oracle Database is engineered to support both older Oracle database releases (9i, 10g and 11g) and the most up-to-date version, 12c. Hitachi offers UCP for Oracle Database solutions for both single instance and Oracle Real Application

Cluster (RAC) configurations. They are pre-tested and qualified to provide predictable high performance and the highest reliability for demanding, dynamic Oracle environments, something Hitachi has been offering for over 20 years. These solutions combine Hitachi compute and storage components and are validated to ensure consistent, predictable results for mission-critical environments running Oracle online transaction and application processing (OLTP and OLAP). For large-scale Oracle environments, running multiple database instances can quickly become a management nightmare. Furthermore, the licensing costs associated with supporting multiple, discrete databases can drive up the overall cost to maintain your environment.

Hitachi UCP for Oracle Database has an industry-leading price-to-performance ratio with up to 50% less total cost of operations (TCO) within the 1st year of operation than competing solutions. These converged infrastructure solutions enable database administrators to consolidate multiple database instances on a single converged system. Hitachi UCP also includes innovative features within the server and storage components, which contribute to lower TCO while improving resilience and efficiency of

available storage capacity. For example, Hitachi compute solutions are the only x86 servers available that offer logical partitioning, or LPARs. These LPARs allow you to consolidate multiple databases on fewer physical servers, which can help to lower Oracle licensing costs.

Hitachi UCP for Oracle Database also has the capability of lowering Oracle licensing costs through our unique N+M cold standby functionality. This allows you to configure “M” cold standby blades for each active “N” blade. The standby blades are powered off and not consuming data center resources. In the event of a hardware failure, the system automatically detects the fault and isolates the problem by identifying the faulty module, allowing for immediate failure recovery. This capability lets Oracle RAC users configure fewer nodes for availability and save those additional license costs. This feature supports standby operations and meets Oracle licensing restrictions.

Together, these features can enable you to lower TCO associated with running Oracle databases, without compromising performance, efficiency or availability.

### **Hitachi Unified Compute Platform for Microsoft® SQL Server® 2012, Fast Track Data Warehouse Solutions**

The Hitachi portfolio of reference architectures for Microsoft SQL Server 2012, Fast Track Data Warehouse are preconfigured, prevalidated solutions. They provide a highly available, high-performance platform for real-time data access anywhere it is needed, and engineered to solve performance concurrency issues. This robust converged infrastructure solution leverages Hitachi blade servers, networking and modular storage and has been tested to adhere to Microsoft SQL Server 2012 Fast Track Data Warehouse program. Businesses recognize Microsoft SQL Server 2012 Fast Track Data Warehouse as a blueprint for deploying a cost-effective data warehouse quickly and with minimal complexity in a small footprint.

## **Hitachi Data Systems**

Data is at the core of Hitachi Data Systems solutions, as it is also the lifeblood of business success. Hitachi solutions are architected for the highest performance, reliability, availability and scalability in data processing, data storage and data management. Organizations employing Hitachi solutions can innovate to lead the market, grow the company and change the world.

These reference architectures provide a prevalidated, preconfigured converged infrastructure with SQL Server deployment best practices to set up the data warehouse environment. They optimally configure the software to ensure peak performance for an entry-size, medium and enterprise-level data warehouse. This approach avoids the challenges of hardware and software balancing. It takes the complexity out of planning, tuning, configuring, testing and adjusting the implementation. In short, by following the reference architecture you can get it right the 1st time, and gain faster insights from your valuable data.

These solutions from Hitachi and Microsoft have been engineered to meet data warehousing requirements for optimal performance, availability and scalability, allowing you to innovate with information by gaining faster insights from your valuable data.

## **Hitachi Service Offerings**

Hitachi Data Systems Global Solution Services (GSS) offers proven methodologies and a comprehensive Professional Services portfolio to help manage your solution infrastructure. Our team of professionals understands the latest in integrated solutions, related technologies and complex IT architectures. We take a strategic approach to services by linking technology to business requirements. That means we can deliver a best-fit, high-performance solution tailored to meet precise business needs.

For Hitachi UCP solutions, GSS provides best practices and knowledge on how best to design, plan and implement your storage infrastructure to optimize migrations and management. Working with Hitachi Consulting and other leading consultants, GSS can provide an extended range of application services. We address all solution environments, including assessments and readiness, architecture design, solution implementation and deployment. Services offerings include:

- Server migrations.
- Data migration planning.
- Design and implementation for the converged platform.
- Archiving and compliance.
- Unified communications.
- Managed services (on-site and remote options available).

## **For More Information**

To learn more about how Hitachi Unified Compute Platform solutions can help you spend less time managing your converged infrastructure for the private cloud and more time solving business challenges, please contact your Hitachi Data Systems representative or visit [www.HDS.com](http://www.HDS.com).

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