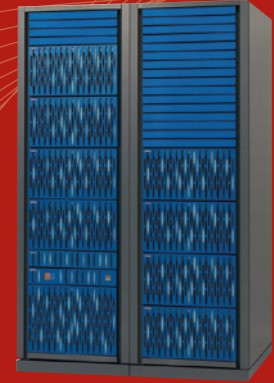


Hitachi Universal Storage Platform® VM

The Hitachi Universal Storage Platform® VM delivers proven enterprise-class functionality with advanced virtualization of externally attached storage, logical partitioning, thin provisioning and universal replication.



Advanced Storage Capabilities in Flexible Cost-Effective Service Oriented Configurations

Confronted with escalating data growth, large businesses are challenged to improve application performance and availability, business continuity and backup windows. They must also simplify the management of increasingly complex infrastructures.

The Hitachi Universal Storage Platform VM is offered in a rack mounted storage services platform that delivers the same advanced storage services available in the Hitachi Universal Storage Platform V with a lower cost and smaller footprint.

It enables large businesses to package and deliver common storage services, including virtualization, thin provisioning and business continuity across storage assets from Hitachi Data Systems and other providers — whether file, object or block based. It is ideally suited for migrating data from storage systems reaching the end of their useful or environmental lives, or for load balancing purposes to improve application performance.

The Hitachi Universal Storage Platform VM with Hitachi Dynamic Provisioning software

supports both internal and external virtualized storage. It simplifies storage administration and improves performance to help reduce overall power and cooling costs.

Complementary Solutions

Additional solutions that complement the capabilities of the Universal Storage Platform VM include:

- Hitachi Basic Operating System V software
- Hitachi Storage Command Suite
- Hitachi In-System Heterogeneous Replication software bundle
- Hitachi Adaptable Modular Storage
- Hitachi High Availability Manager software

Business Benefits

Simplify Management

- Improve utilization and flexibility of legacy systems by aggregating internal storage and externally attached Hitachi and third party storage systems into a single, flexible storage pool.

- Increase efficiency through massive consolidation or aggregation of storage platforms, including those from other vendors.
- Reduce management complexity with optimized storage services managed from a centralized user console and a common set of software tools across storage assets connected to the Universal Storage Platform VM.
- Run operations continuously during storage expansion activities with Dynamic Provisioning software, allocating virtual storage capacity without interrupting critical business applications, requiring fewer physical disks and adding disks only when physical pool size is exceeded.

Optimize Data Center Environment

- Meet the most demanding workloads with the Hitachi Universal Star Network™ massively parallel crossbar switch architecture.
- Ensure application quality of service by partitioning storage resources with Hitachi Virtual Storage Machine™ technology. Individual Virtual Storage

UNIVERSAL STORAGE PLATFORM VM SPECIFICATIONS

Racks (Cabinets)

Integrated Control/Drive Group Rack and 1 optional Drive Group Rack

Universal Star Network Crossbar Switch

Number of switches 2
Aggregate bandwidth (GB/sec) 13.3
Aggregate IOPS 1.2M

Cache Memory

Number of cache modules 1-86
Module capacity 8 or 16GB
Maximum cache memory 128GB

Control/Shared Memory

Number of control memory modules 1-4
Module capacity 4GB
Maximum control memory 16GB

Front End Directors (Connectivity)

Number of Directors 1-3
Fibre Channel host ports per Director 8 or 16
Fibre Channel port performance 4 or 8Gb/sec
Maximum Fibre Channel host ports 48

Virtual host ports 1,024 per physical port
Maximum IBM® FICON® host ports 24
Maximum IBM ESCON® host ports 24

Logical Devices (LUNs/Volumes) — Maximum Supported

Open systems 65,536
IBM z/OS® 65,536

Disks

Type: Flash 200 and 400GB
Type: Fibre Channel 146, 300, 450 and 600GB
Type: SATA II 1TB and 2TB
Number of disks per system (min/max) 0-240
Number spare disks per system (min/max) 1-16

Maximum Internal Raw Capacity

Maximum (2TB disks) 472TB

Maximum Usable Capacity — RAID-5

Open systems (2TB disks) 386.0TB
z/OS-compatible (1TB disks) 182.4TB

Maximum Usable Capacity — RAID-6

Open systems (2TB disks) 330.9TB
z/OS-compatible (1TB disks) 155.9TB

Maximum Usable Capacity — RAID-1+

Open systems (2TB disks) 232.4TB
z/OS-compatible (1TB disks) 108.5TB

Other Features

Maximum internal and external capacity 96PB
Virtual Storage Machines 16 max
Back end director 1 max

Operating System Support

Mainframe — Fujitsu: MSP; IBM: z/OS, z/OS.e, z/VM®, zVSE™, TPF; Red Hat: Linux for IBM S/390® and zSeries®; SUSE: Linux Enterprise Server for System z. **Open systems** — Apple: Mac OS X; HP: HP-UX, Tru64 UNIX, Open VMS; IBM: AIX®; Microsoft® Windows Server®: 2000, 2003, 2008; Novell: NetWare; SUSE: Linux Enterprise Server; Red Hat: Enterprise Linux AS; SGI: IRIX; Sun Microsystems: Solaris; VMware: ESX Server.

Machines offer a synergistic linkage of disk, cache and ports for creation of virtual storage systems to simplify asset tracking and for chargeback purposes.

- Match application requirements to storage attributes, emphasizing responsiveness to business needs.
- Ensure business continuity by simplifying and unifying data protection and replication between storage systems.

Protect Your Business with Energy Efficiency Services

- Build the foundation of a complete data lifecycle management solution with Hitachi Tiered Storage Manager software to enable

the dynamic, nondisruptive movement of data between different tiers of storage.

- Reduce power and physical space with storage virtualization and thin provisioning to increase utilization rates.
- Enable cost-effective large scale data storage for open systems and mainframe environments through tiered storage strategies using internal high capacity SATA disks.

Feature Highlights

- Delivers industry leading availability and reliability in a fully integrated universal storage and data services platform that offers configuration flexibility;

- Storage controller and high performance disk storage for mixed application environments
- Storage controller only for virtualization services and data migration
- Enables the consolidation of open systems and mainframe data onto fewer physical storage devices to minimize maintenance costs and lower software license fees, capital expenditures and environmental costs

For details on Hitachi Universal Storage Platform VM capabilities, visit www.hds.com.

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