DATASHEET

Hitachi Universal Storage Platform™ VM

The Hitachi Universal Storage Platform™ VM delivers proven enterprise-class functionality — advanced virtualization of externally attached storage, logical partitioning, thin provisioning and universal replication 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 executes on the Services Oriented Storage Solutions approach to storage management by Hitachi Data Systems, enabling large businesses to package and deliver common storage services including virtualization, thin provisioning and business continuity across storage assets from Hitachi 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.

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 Machines offer a synergistic linkage of disk, cache and ports for creation

Business Solutions

Hitachi Data Systems and its Hitachi TrueNorth Channel Partners offer industry leading solutions to help organizations of all sizes meet their unique requirements for business continuity, regulatory compliance and data recovery. Together, we provide cost effective storage products and solutions that leverage world renowned Hitachi global R&D resources to deliver performance, availability and scalability — supporting business critical applications and strengthening competitive advantage.

Complementary solutions:

- Hitachi Basic Operating System V software
- Hitachi Storage Command Suite
- Hitachi In-System Heterogeneous Replication software bundle
- Hitachi Adaptable Modular Storage and Hitachi Workgroup Modular Storage

of virtual storage systems to simplify asset tracking and 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.

Hitachi Storage Solutions

◉Hitachi Data Systems

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	1-8
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	4Gb/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) — Maximum Supported
Open systems	65,536
IBM z/OS®	65,536

Disks
Type: Flash	73 and 146GB
Type: Fibre Channel	146, 300, 400 and 450GB
Type: SATA II	1TB
Number of disks per system (min/max)	0-240
Number spare disks per system (min/max)	1-16

Internal Raw Capacity
Minimum	0GB
Maximum (1TB disks)	236.3TB

Maximum Usable Capacity — RAID-5
Open systems (1TB disks)	193.0TB
z/OS-compatible 1TB disks)	182.4TB

Maximum Usable Capacity — RAID-6
Open systems (1TB disks)	165.5TB
z/OS-compatible (1TB disks)	155.9TB

Maximum Usable Capacity — RAID-1+
Open systems (1TB disks)	116.2TB
z/OS-compatible (1TB disks)	108.47TB

Other Features
Maximum internal and external capacity	96PB
Virtual Storage Machines	8 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: 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.

Protect Your Business with Energy Efficiency Services

- Build the foundation of a complete data lifecycle management solution with Hitachi Tiered Storage Manager 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 system 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.

⚙ **Hitachi Data Systems Corporation**