HITACHI
Inspire the Next

Hitachi Virtual Storage Platform

◎**Hitachi Data Systems**

Transform the Data Center into the Information Center

Hitachi Data Systems delivers on a vision that IT must be virtualized, automated, cloud-ready and sustainable in order to help organizations transform their data centers into information centers. From the heart of our vision, we bring a storage virtualization solution for all data with the ability to manage multivendor environments.

The Hitachi Virtual Storage Platform is the only 3D scaling storage platform designed for all data types. It is the only storage architecture that flexibly adapts for performance and capacity, and it extends to multivendor storage. With the unique management capabilities of Hitachi Command Suite software, it transforms the data center.

Hitachi Virtual Storage Platform

Hitachi Virtual Storage Platform is the only 3D scaling storage platform designed for all data types. It is the only storage architecture that flexibly scales for performance, capacity and utilization of multivendor storage assets.

The Virtual Storage Platform moves block, file and content data dynamically across virtual storage tiers. It enables host-transparent migration with storage virtualization and greatly reduces outage windows.

Its highly efficient data center design delivers the highest performance and capacity combined with the lowest power consumption and lower cooling requirements.

Integration with Hitachi NAS Platform, powered by BlueArc, Hitachi Content Platform and Hitachi Data Discovery Suite provides a tiered storage solution unmatched in the

industry. To manage the new Hitachi Virtual Storage Platform, the Hitachi Command Suite offers a unified management software framework that simplifies provisioning, automates management and establishes end-to-end server and storage virtualization.

Hitachi Virtual Storage Platform is the only enterprise storage system designed for all types of data: block, file and content. Unlike alternatives, the Virtual Storage Platform optimizes return on storage assets with a combination of unmatched performance, capacity and utilization of multivendor assets. Its virtual tiering capabilities make the storage infrastructure more fluid and IT more agile.

All of these capabilities are managed end to end to put the right data in the right place at the right time.

- Transform your data center with the Virtual Storage Platform to meet growing business needs, increase efficiency and optimize performance at the lowest cost.
- The Virtual Storage Platform scales up to the highest industry performance as measured by the Storage Performance Council.

The Virtual Storage Platform is a powerful and cost-effective storage solution for data retention and business continuity. With the majority of the FORTUNE 500® companies as our customers, Hitachi Data Systems has the experience and technology to meet the storage challenges of large and small enterprises. Complemented by professional services from Hitachi Data Systems, the Virtual Storage Platform is the most complete enterprise storage offering available.

Are These Challenges Yours?

Hitachi Virtual Storage Platform helps you address these data center challenges:

- Increasingly stringent quality of service (QoS) requirements
- Managing growing data volumes for key applications while retaining performance
- Consolidating multiple storage or NAS systems while maintaining application isolation and QoS

- Incompatible storage systems that are not fully utilized
- Storage that does not scale due to performance, capacity and security limitations
- Increasingly complex storage infrastructure with different storage and management utilities
- Cost constraints, availability of power and cooling limitations
- Time required to move applications to different storage systems
- Complex replication tools and procedures that put data protection and business continuity at risk
- User uptime requirements driving a need to reduce backup windows and speed recovery times
- Regulatory compliance or other data retention requirements to store large amounts of secure online data

Meet These Challenges with 3D Scaling

3D scaling gives you optimal infrastructure growth in all dimensions.

Scale up to meet increasing demands by dynamically adding processors, connectivity and capacity in a single unit. This gives you optimal performance for open systems and mainframe environments.

- Proven scalability that more than doubles the Hitachi Universal Storage Platform® capacity; powered by 192GB/sec aggregate internal bandwidth; highest performing storage system per Storage Performance Council
- Rackmountable design: can be used as a diskless controller; can grow its storage up to 2,048 SAS 2.5 in. drives or 1,280 SATA 3.5 in. drives and support up to 256 flash drives for exceptional performance
- Unmatched multiplatform connectivity with up to 192 Fibre Channel 8Gb/sec host ports or 192 IBM FICON® 8Gb/sec host ports or 96 Fibre Channel over Ethernet (FCoE) 10Gb/sec host port and network attached storage (NAS) gateways

Scale out to meet business demands by dynamically combining multiple units into a single logical system with shared resources. Support increased needs in virtualized server environments and ensure safe multitenancy and QoS through partitioning of cache and ports.

- Up to eight virtual storage directors and 1TB single image global cache
- Powered by our fifth-generation crossbar switch architecture that joins multiple control chassis under one logical system

Scale deep to extend the advanced functions of Hitachi Virtual Storage Platform to multivendor storage through virtualization. Offload less-critical data to external tiers in order to optimize the availability of the tier one resources.

- Virtualization of internal and externally attached storage from Hitachi, EMC, IBM, Sun and other manufacturers up to 255PB under management
- Multitenancy support enabled by virtual port, cache partitioning, resource group access control and volume ownership management

3D management is enabled by Hitachi Command Suite with efficient storage management that lowers costs and properly manages all data types.

- **Manage up** to unify management and scale to the largest infrastructure deployments.
- **Manage out** for a single management framework with the breadth to manage storage, servers and the IT infrastructure.
- **Manage deep** for the highest level of operational efficiency, with time savings of up to 50% for essential storage management tasks.

Virtual Storage Platform Highlights

- **Data mobility** functions enable rapid transfer of data to new storage with host-transparent migration. Reduce operational risks with advanced data replication topologies.

- **Unmatched efficiency** features yield the highest capacity available in the least space.
  - High density design holds 2,048 drives in six 19 in. standard racks
  - Single image global cache accessible across all virtual storage directors for maximum performance
  - Automated wide-striping of data, which allows pool balancing and lets volume grow or shrink dynamically
  - Latest 2.5 in. 6Gb/sec SAS drives for lower power consumption and higher density per rack
  - Hitachi Command Suite for faster and simpler management
- **Hitachi Dynamic Tiering** software automates data placement for higher performance and lower cost. It manages internal and external data, including multivendor and mainframe data. Its pools place the right data in the right place at the right time with no performance degradation.
  - Automated page-level placement according to user-defined policies across internal and external storage tiers, including multivendor systems
- **Server virtualization** integration with leading virtual server platforms gives you end-to-end visibility from an individual virtual machine to the storage logical unit and protects large scale multivendor environments.
  - Integration with VMware vStorage APIs for Array Integration (VAAI), which enables: hardware-assisted locking for improved protection of VMFS cluster file system metadata, full copies executed on the storage system to offload VMware vSphere host processor cycles, and array-based block zeroing for accelerated deployment of large scale virtual machines
  - Integration of VMware vCenter Site Recovery Manager to automate business continuity and protection
  - Integration with Microsoft Virtual Shadow Copy Service (VSS) for enhanced data protection

- **Sustainable design** is highlighted by certification as a Super Eco-Product.
  - 40% better capacity per square foot and lower power consumption compared to the Hitachi Universal Storage Platform V
  - Transparent space reclamation of existing allocated storage
- **Data resilience** is supported with integrated protection frameworks that work with any hypervisor as well as application-aware replication management, enhanced encryption and advanced security management.
  - Up to four data center topologies
  - Storage-based failover for active-active hypervisor site protection
  - Mainframe enhancements for virtual tiering, greater efficiency for all data types and operating systems, advanced data protection and up to 40% better utilization

Hitachi Data Resilience Software

- Hitachi Universal Replicator
- Hitachi TrueCopy® Synchronous
- Hitachi ShadowImage® Heterogeneous Replication
- Hitachi Copy-on-Write Snapshot
- Hitachi Data Protection Suite, powered by CommVault®
- Hitachi Backup Services Manager, powered by APTARE®
- Symantec Veritas NetBackup
- Remote Replication Agent for Symantec Veritas Cluster Server (for synchronous remote replication)

- Virtual Tape Library Solutions by Hitachi Data Systems

Hitachi Data Systems Global Solution Services

Fully exploit the unparalleled capabilities of the Virtual Storage Platform. Consolidate and aggregate multivendor systems for simplified management. Control your entire storage universe through a single management console. Hitachi Data Systems Global Solution Services incorporates the industry's best people, products, tools and methodologies to make your IT environment more agile so you can reach your critical enterprise milestones and maximize your return on investment (ROI).

We apply targeted services to leverage tiered storage pools, multiprotocol aggregation and single point-of-management capabilities to solve your IT challenges.

Our consultants can help you plan and design, install and implement, transition and integrate, and manage and optimize storage infrastructure solutions that meet your needs.

Services for the Hitachi Virtual Storage Platform include:

- Storage Economics Strategy Service
- Risk Analysis Workshop
- Storage Virtualization and Tiered Storage Services
- Backup Assessment Services
- Implementation Services for Storage Management Products

- Implementation Services for Hitachi Replication Products
- Data Migration Services
- Storage Consolidation Services

Why Invest in Hitachi Storage?

For more than 20 years Hitachi Data Systems has led the field in enterprise storage systems. Advanced design, a reputation for reliability and flexibility ensure that the Virtual Storage Platform extends the legacy of the renowned Hitachi Universal Storage Platform family. The ease of management and efficiencies of having all types of data managed by a single system should not be underestimated. The Virtual Storage Platform offers superb value to the data center.

We Anticipate Your Business Needs

At Hitachi Data Systems, we believe a company's information is a strategic asset. That's why we continue to develop virtualized, automated, cloud-ready and sustainable storage solutions that maximize ROI and minimize risk. We always consider your perspective and business needs to apply the best hardware, software and services to satisfy your requirements.

We are prepared to transform your data center to accomplish your business goals. We offer advanced management practices to effectively manage your storage with limited staff resources while building a sustainable foundation for future growth and the world's finest storage systems.