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DATA SYSTEMS



Hitachi TagmaStore™ Universal Storage Platform



Partner Beyond Technology



With capabilities well beyond any other storage system, the Hitachi TagmaStore™ Universal Storage Platform establishes a new industry category, reaching previously unattainable levels of consolidation and bringing to reality the virtualization of internal and external heterogeneous storage into one pool. It provides a comprehensive set of storage and data services, including application-centric storage area management and simplified and unified data replication across heterogeneous storage systems.

Hitachi TagmaStore™ Universal Storage Platform

As an integral component of Hitachi Data Systems Application Optimized Storage™ solutions, the Universal Storage Platform is the architectural foundation for matching application requirements to different classes of storage. The Universal Storage Platform will enable you to deploy applications within a new framework, fully leverage—and add value to—current investments, and more closely align IT and business objectives.

Aggregate internal and external heterogeneous storage into one pool; logically partition storage resources to maximize application QoS (Quality of Service); move data across tiers of storage to match application-centric attributes; establish solid business continuity; and manage it all with a common set of tools from one pane of glass.

The TagmaStore Universal Storage Platform integrates powerful storage, software, and services to support your business in ways never before possible

The TagmaStore Universal Storage Platform establishes a new category for storage systems. Leveraging the third-generation Universal Star Network™ crossbar switch architecture, the Universal Storage Platform is the industry's highest performing and most scalable storage system, delivering two million I/Os per second and unifying data and storage services across as much as 32PB of storage systems. With this powerful engine, the Universal Storage Platform easily supports industrial-strength virtualization, replication, migration, and single-pane management across heterogeneous storage systems.

As the newest addition to the Application Optimized Storage solutions portfolio, the Universal Storage Platform provides you with a new set of possibilities to more closely match business and application requirements with storage attributes. When complemented by professional services and solutions that are designed to realize its potential, the Universal Storage Platform helps you to radically increase efficiencies, simplify management, and better align IT and business objectives.

Created with growing business requirements in mind, the Universal Storage Platform helps you reach your operational objectives and supports your business strategies by offering fewer elements to manage, reducing the complexity of heterogeneous environments, supporting any-to-any local and remote copying, and allowing for the implementation of sustainable and repeatable management processes. The Universal Storage Platform enables massive consolidation and aggregation across disparate platforms and creates a resilient foundation for data lifecycle management and storage utility. Potential? Quite possibly, unlimited.

TagmaStore Universal Storage Platforms provide:

- ∴ *Aggregation/Virtualization.* Enjoy unequalled flexibility by hosting externally attached Hitachi and non-Hitachi storage systems to create large-scale storage pools. You can then logically partition and allocate resources to maximize application QoS.
- ∴ *Business Continuity/Storage Area Management.* Deliver business continuity through universal replication, tying together and managing hardware and software of other storage devices within a unifying storage platform.
- ∴ *Quality of Service.* Realize the economy of solutions that match value of data to the cost of storage.
- ∴ *Scalability and Performance.* Offer unequalled storage capacity, performance, connectivity, and configuration flexibility.
- ∴ *Investment Protection.* Leverage your current storage investment on *your* terms.

Are these challenges yours?

- ∴ Exponential data growth
- ∴ Increasingly complex storage infrastructure
- ∴ Managing data on multiple classes and brands of storage
- ∴ Tight budgets
- ∴ Using point solutions for across-the-board problems
- ∴ Meeting regulatory compliance and corporate governance requirements
- ∴ Diverse skill sets required to evaluate, deploy, and manage solutions
- ∴ Leveraging existing storage investments
- ∴ Linking IT deliverables to business needs
- ∴ Matching application requirements to storage attributes
- ∴ Meeting application service level agreements
- ∴ Too many new technologies to evaluate
- ∴ No time to strategize long-term plans

What can you expect from the TagmaStore Universal Storage Platform?

The TagmaStore Universal Storage Platform overcomes the pain points that an enterprise experiences as it strives to grow revenue and

The TagmaStore Universal Storage Platform changes the storage paradigm by aggregating heterogeneous storage resources

profits, address governance responsibilities, and protect one of its most valued assets—information. With the highest scalability and performance in the industry, the Universal Storage Platform offers unparalleled storage consolidation capabilities, aggregation of heterogeneous storage systems, and optimization of new and legacy storage via improved cost efficiency and simplicity. Further, our breakthrough software, Hitachi Universal Replicator for TagmaStore Universal Storage Platform, not only delivers a business continuity solution but also supports data movement across classes of storage for optimal deployment.

The Universal Storage Platform brings as much as 32PB of storage under the control

of one pane of glass, providing simplified infrastructure and management, and the opportunity for radical improvement in efficiency and decrease in the cost of storage ownership.

With its vast capability for aggregating and virtualizing resources across Hitachi and non-Hitachi storage, the Universal Storage Platform provides new levels of asset and investment protection. (See Figure 1.)

It extends the useful life of, and even adds value to, currently installed storage, easing concerns about technology becoming obsolete ahead of your depreciation schedule. On the other hand, if you decide to consolidate your existing storage systems into one or more Universal Storage Platforms, you can achieve higher utilization of storage resources and lower total cost of ownership. How? These results are achieved through the reduction in number of required software licenses, lower maintenance and

Vast Aggregation Capabilities of the Universal Storage Platform

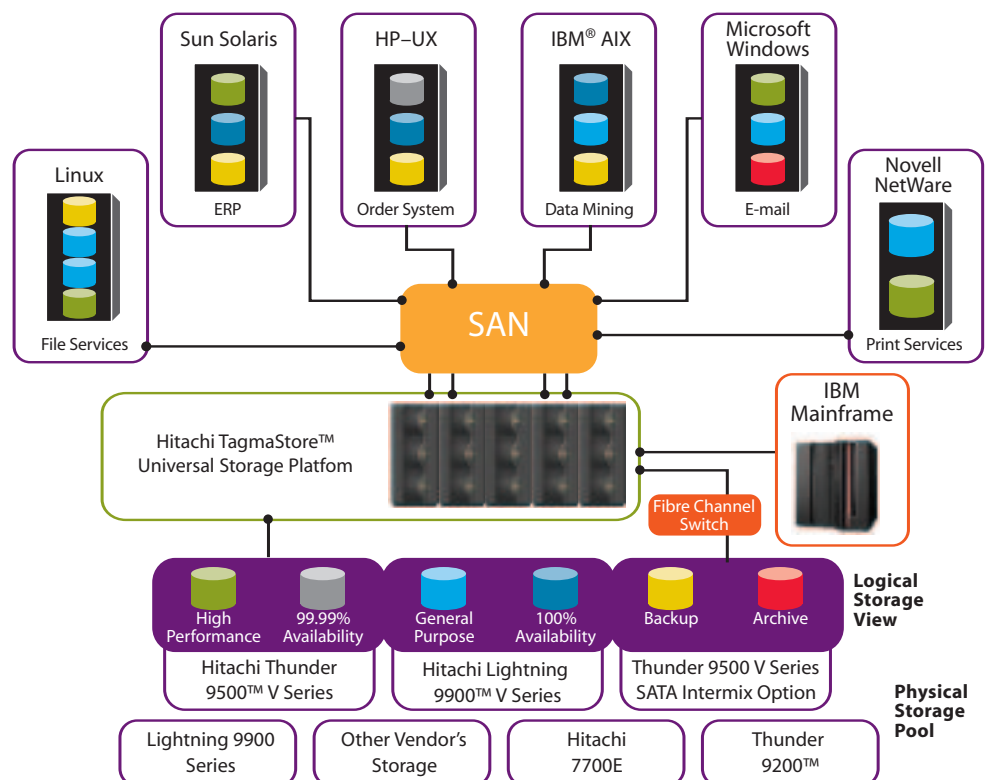


Figure 1: Multiple mainframe and open systems can be managed by Universal Storage Platform's software tools under a "single pane of glass."

environmental costs, and more efficient centralized management.

Multiple storage systems connected to a TagmaStore Universal Storage Platform are presented as if they were just more internal storage in the common pool, managed by Universal Storage Platform's software tools. This external storage can be grouped into classes based on attributes of performance, availability, recoverability, and cost, but it is functionally equivalent to internal storage as far as software for data migration and replication or host-based software is concerned.

Universal Storage Platform thus becomes the foundation for your implementation of comprehensive and cost-efficient tiered storage configurations for applications such as e-mail archiving and compliance. Because the Universal Storage Platform supports mainframe as well as open systems servers, you can now provide lower cost storage, including the SATA Intermix Option for Hitachi Thunder 9500™ V Series modular storage systems, to archive or replicate any data that does not require top-tier performance and availability—including older mainframe data.

Optimizing Performance

In addition, Universal Storage Platform uses Hitachi Volume Migration software (formerly known as Hitachi CruiseControl) to actively tune and balance the workloads within its common storage pool. Thus, you can balance the load among both internal storage and aggregated storage systems in an action that is transparent to your end users and applications and occurs in real time. Placement of highly accessed volumes

is balanced with the placement of lower activity volumes throughout the common storage pool to reduce storage resource contention and maintain peak performance and response times while improving your asset utilization. The result is improved availability, performance, and response times and the assurance that your data is optimally located for fastest access.

Consolidate and aggregate: streamline storage management, re-direct energies for business, and save

- :: Fewer elements to manage, less stress, more savings
- :: Common and consistent storage management, including business continuity processes and procedures
- :: Higher utilization of resources, including staff
- :: Ability to adjust newly released resources to other projects
- :: Less software to buy; fewer licenses required
- :: Less hardware necessary; fewer maintenance agreements needed
- :: Lower environmental costs
- :: Investment protection—extends life and adds value to existing storage assets; redeploy older storage systems

With three Universal Storage Platform models to choose from—TagmaStore USP100, USP600, and USP1100—you're on the fast track for common management, advanced data lifecycle management, storage aggregation and consolidation, any-to-any data replication, and virtualization

The Universal Storage Platform carries universal data and storage services, including replication across *heterogeneous platforms*. This unique technology foundation has it all—connectivity, virtualized multiplatform storage pooling, and logical partitioning—all enabled by:

- :: Third-generation Universal Star Network crossbar switch architecture
- :: 81GB/sec internal bandwidth
- :: 330TB internal capacity
- :: 32PB of external capacity
- :: 128GB cache
- :: 192 Fibre Channel, 96 ESCON, or 48 FICON ports
- :: Up to 64 back-end Fibre Channel loops
- :: Fibre Channel initiator for external storage connections
- :: Optional embedded NAS

Hitachi Storage Area Management (SAM) Suite of software delivers single-pane-of-glass management

Our SAM Suite is enhanced by the Universal Storage Platform, which moves many of the data movement and virtualization tasks off the fabric and closer to the hardware. The SAM Suite's heterogeneous HiCommand® modules, standards-based and powered by AppIQ, provide:

- :: Heterogeneous storage management through one console
- :: Automated functions for improved administrator productivity
- :: Reduced costs via common management, processes, and procedures across all classes of storage
- :: Optimized application performance
- :: Storage utility enablement

TagmaStore Universal Storage Platform: the foundation for Data Lifecycle Management

While the value of data to an enterprise changes over time, there is still a need to manage and store data throughout its lifecycle. For many types of enterprises, regulations are increasing that length of time. With the Universal Storage Platform you can:

- :: Match data to the appropriate storage
- :: Create unique and appropriate storage pools
- :: Keep more data for longer periods of time
- :: Meet governmental compliance regulations and legal requirements to protect your enterprise
- :: Manage tiers of storage in pools with a single console
- :: Direct fluid and transparent movement of data between different classes of storage

Logically partition the TagmaStore Universal Storage Platform: dedicate storage resources to ensure application QoS

Extending its innovative port virtualization technology to the whole system, Hitachi now enables you to logically partition the Universal Storage Platform and create up to 32 Private Virtual Storage Machines, each with dedicated capacity, cache, and ports. (See Figure 2.)

Private Virtual Storage Machines allow you to guarantee application QoS by matching the application requirements to the attributes of the partition and its allocated resources both within a Universal Storage Platform and the storage attached to it. Further, because each Virtual Machine has its own virtual serial number, you can charge back to departments or business units or create a sophisticated storage utility associating the specific business value delivered to selected business entities.

All software functions are available for you to manage a Virtual Machine, from the Hitachi SAM Suite to within-system and remote copy, as well as performance enhancement. Management of a Virtual Machine can be delegated to a local administrator or managed centrally to match your process needs.

Made for business: Universal Replicator software eliminates the complexity created by multiple heterogeneous replication products

Universal Replicator software provides simplified and unified data replication across as much as 32PB of storage in or attached to the Universal Storage Platform. It powers a business continuity framework that simplifies satisfaction of the most demanding uptime requirements, regardless of the type of storage platform hosting the business-critical data.

Utility Enablement

The Universal Storage Platform supports the efficiency of utility management. Charges are made for specific usage rather than a flat rate, much like traditional gas or electric utilities. The storage utility model supports the efficient use of storage resources and helps minimize associated costs.

The Universal Storage Platform offers you a shared-pool model in which an enterprise can centralize its storage resources to serve a large number of users. Combine this model with our SAM Suite, which includes path provisioning, chargeback, and logical storage partitioning support, and you gain a utility that is both practical and sophisticated.

- :: Provision storage where and when it is needed
- :: Obtain usage billing
- :: Maximize efficient use of storage
- :: Serve a large number of users
- :: Provide on-demand hardware allocation
- :: Create unique storage pools
- :: Allocate capacity and bandwidth

Logical Partition of the Universal Storage Platform

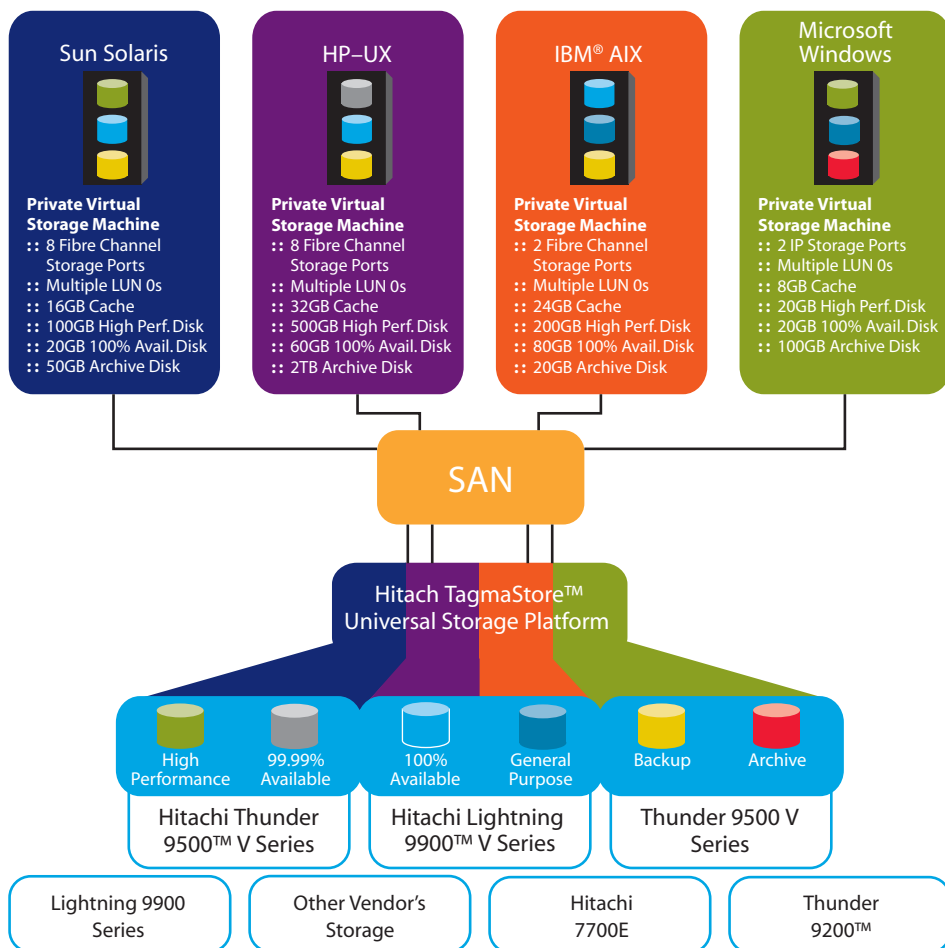


Figure 2: Through partitioning, you can create up to 32 Private Virtual Storage Machines from internal and attached storage, each with dedicated capacity, cache, and ports.

Optimize your control over both recovery-time and recovery-point objectives, as you trade off between risk to business and the cost of a business continuity solution.

Business continuity and the Universal Storage Platform in the face of disaster

The Universal Storage Platform can stand up to outages or disasters across all aggregated storage with full business continuity capabilities, based in large part on the unique capabilities of our Universal Replicator software. It ensures that essential functions can be continued during and after an outage or disaster. Mission-critical services are not interrupted, and full functioning is quickly re-established.

The Universal Storage Platform offers numerous business continuity advantages. (See Figure 3.) These include maintaining up-to-date copies of data in geographically dispersed locations (which can be readily accessed if one location is disabled) and centralized secure management to satisfy the most demanding disaster recovery and uptime requirements, regardless of the type of storage system hosting business-critical data.

Disk-based journaling advantages of the Universal Storage Platform include:

- Improved recovery point objective capabilities

Organizations with heterogeneous data replication needs for business continuity or improved IT operations will find that Universal Replicator software provides the enterprise-class performance associated with storage-system-based replication. Unlike server- or appliance-based replication products, Universal Replicator software delivers business continuity without employing redundant servers or replication appliances.

Universal Replicator includes:

- Disk-based journaling
- Advanced bandwidth control for communications links
- Link failure mitigation
- Workload management to reduce resource usage on production/primary systems
- Multi-data-center support
- ...and full leverage of the Universal Storage Platform

Universal Storage Platform Business Continuity Framework

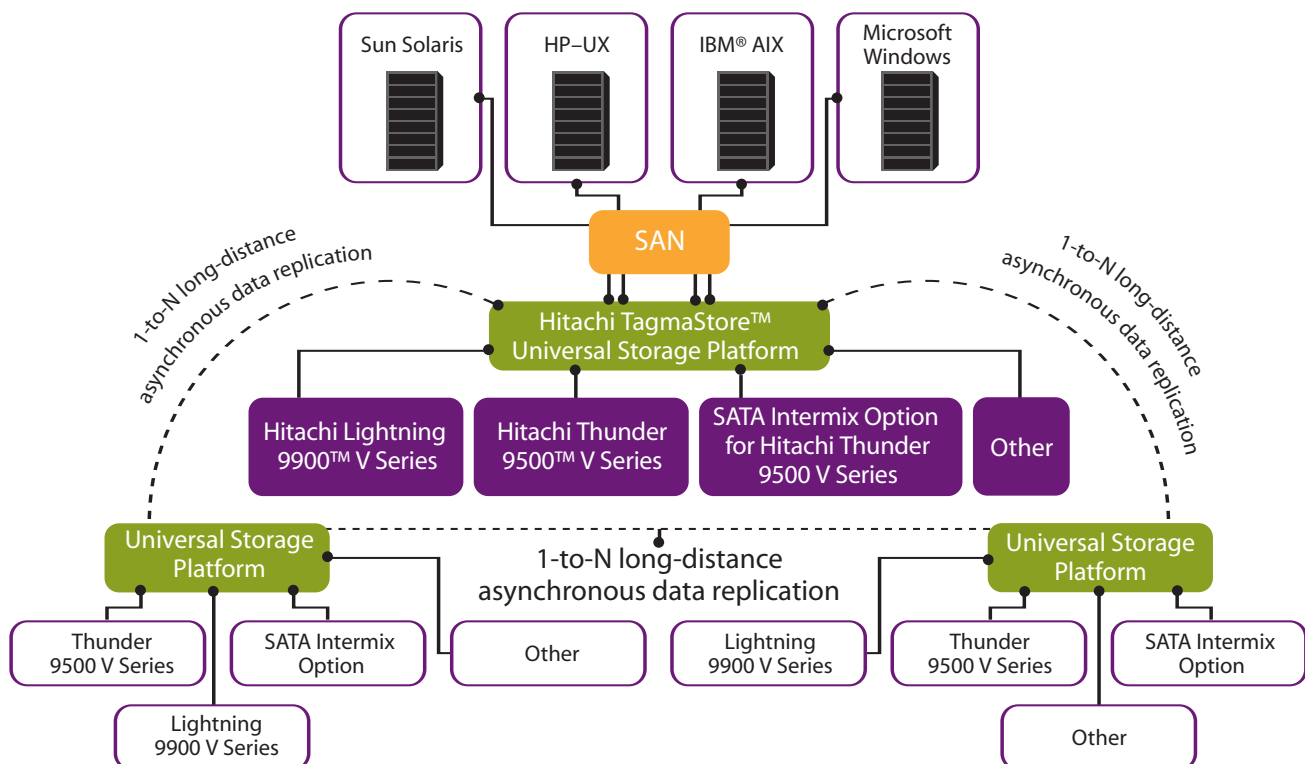
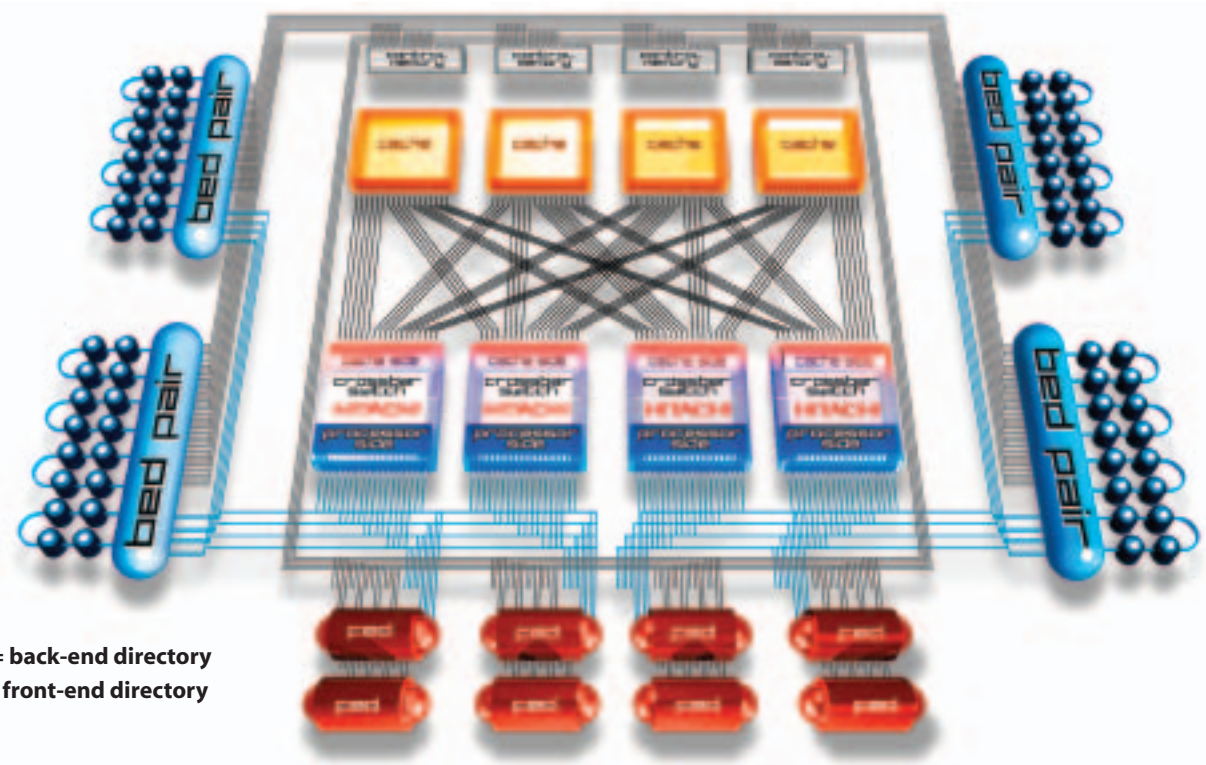


Figure 3: By maintaining up-to-date copies of data in geographically dispersed locations, Universal Storage Platform satisfies the most demanding disaster recovery and uptime requirements.

Universal Star Network Crossbar Switch Architecture



bed= back-end directory
fed= front-end directory

Figure 4: The Universal Storage Platform's third-generation architecture supports top speed—81GB/sec internal bandwidth and 2 million IOPS; top connectivity—192 ports; and top flexibility—2Gbit/sec Fibre Channel back-end loops. It also enables data movement, virtualization, and management functions.

- :: Lowered cache utilization compared to traditional storage-based replication
- :: Data protection without performance degradation, even when a replication link goes down or optimal bandwidth is not available
- :: Reduced communications costs

Universal Replicator works with other software to create a formidable business continuity framework

- :: Builds on the data integrity heritage of Hitachi TrueCopy™ Asynchronous Extension and leverages the synchronous capabilities of Hitachi TrueCopy Remote Replication software for cascading three data center configurations
- :: Unified, simplified management with Hitachi Business Continuity Manager software (formerly Hitachi CopyCentral)
- :: Tight integration with Hitachi ShadowImage™ In-System Replication

and Hitachi Cross-System Copy software (formerly known as HiCopy) further expands the capabilities of Universal Replicator software.

Movement of data between different classes of storage

TagmaStore Universal Storage Platforms move data at any distance, between any connected devices—any-to-any. To enable data movement across storage tiers, the Universal Storage Platform provides universal connectivity across operating environments, data types, networks, and platforms with support for FICON, ESCON, Fibre Channel SAN, and NAS.

The third-generation Universal Star Network crossbar switch architecture powers the Universal Storage Platform

The industry's fastest architecture (See Figure 4) and the foundation of the Universal Storage Platform supports:

- :: New, faster processors and more paths with enhanced symmetric multiprocessing (SMP) design
- :: 81GB/sec internal bandwidth—over five times faster than closest competitor

Why do TagmaStore Universal Storage Platforms take the lead over all other enterprise storage systems?

- :: Storage pooling across heterogeneous devices
- :: Logical partitioning of storage resources
- :: Any-to-any data replication
- :: World's most scalable enterprise storage platform

- :: 2 million IOPS—five times greater than closest competitor
- :: Up to 128GB of cache with improved algorithms
- :: Separate control paths and memory
- :: 32/64 back-end loops—2Gbit/sec Fibre Channel
- :: Superior performance to manage internally and externally attached storage

Heterogeneous storage pooling and choice of multiprotocol connectivity

- :: Up to 192 connections
- :: Fibre Channel for high-performance, mission-critical applications
- :: ESCON and FICON for mainframe environments
- :: NAS for plug-and-play file sharing

Flexible back-end configurations

- :: 2Gbit/sec Fibre Channel loops for internal disk connections
- :: Fibre Channel initiator used for external storage connections

Pure synergy: Universal Storage Platform with established Hitachi SAM Suite software creates a responsive infrastructure for all your business applications

Our Application Optimized Storage solutions for business rely in great part on the power and intelligence of the Hitachi SAM Suite of software. Hitachi storage-specific modules allow granular discovery and control of your Hitachi storage environment, including attached storage systems that are virtualized into the storage pool of our Universal Storage Platform. Heterogeneous HiCommand modules in the SAM Suite are powered by ApplIQ, built on industry standards that include the Common Information Model (CIM) and the Simple Object Access Protocol (SOAP), and adhere to the Storage Networking Industry Association's Storage Management Initiative (SMI-S). Compliance with industry standards enables the snap-in of software developed by Hitachi and by complementary independent software vendors.

Hitachi Storage Area Management Suite Software

- :: Heterogeneous HiCommand modules
 - :: Hitachi HiCommand Storage Services Manager
 - :: Hitachi HiCommand Chargeback
 - :: Hitachi HiCommand Path Provisioning
 - :: Hitachi HiCommand QoS for Microsoft Exchange

- :: Hitachi HiCommand QoS for File Servers
- :: Hitachi HiCommand QoS for Oracle
- :: Hitachi HiCommand QoS for Sybase
- :: Hitachi storage-specific HiCommand modules
 - :: Hitachi HiCommand Device Manager
 - :: Hitachi HiCommand Tuning Manager
- :: Additional SAM Suite modules
 - :: MyDomain™ for Private Virtual Storage Machines
 - :: Hitachi HiCommand Data Link Manager (formerly Hitachi Dynamic Link Manager)
 - :: Hitachi Performance Monitor
 - :: Hitachi Service Priority Manager (formerly Hitachi Priority Access)
 - :: Hitachi Volume Migration

Hitachi Business Continuity Software

- :: Hitachi Universal Replicator for TagmaStore Universal Storage Platform
- :: Hitachi TrueCopy Remote Replication
- :: Hitachi ShadowImage In-System Replication
- :: Hitachi HiCommand Data Link Manager
- :: Hitachi Copy-on-Write Snapshot (formerly Hitachi QuickShadow)
- :: Hitachi Cross-System Copy (formerly HiCopy)
- :: Hitachi Data Retention Utility (formerly Open LDEV Guard)
- :: VERITAS NetBackup
- :: CommVault Galaxy
- :: TrueCopy Agent for VERITAS Cluster Server (for synchronous remote replication)
- :: Hi-Track® "call home" service/remote maintenance tool

The SAM Suite's HiCommand software

Ensures availability. Accelerates access to information. Aligns application needs with storage attributes in real time. And reduces storage management complexity and cost.

TagmaStore Universal Storage Platform models USP100, USP600, and USP1100 meet business needs across industries

The enterprise-class Universal Storage Platforms have the capacity, redundancy, and “openness” that today’s burgeoning data-dependent industries have been waiting for.

For example, consider banking and financial services, which require maximum uptime and performance for online banking as well as lower cost storage for long-term data retention; life sciences, which require capacity and performance for database management, visualization, and analytical tools; health care industries, which rely on rapid, secure access to patient records, billing, and medical images; broadcast/rich media applications, which include audio/video editing and data lifecycle management for archiving; and frequently used business applications.

As the TagmaStore Universal Storage Platforms serve critical day-to-day needs, they also become the foundation for lowering the total cost of ownership over the lifetime of all your storage by simplifying information infrastructure and management responsibilities.

Hitachi Data Systems Global Solution Services can help you to rapidly and fully apply the benefits of the TagmaStore Universal Storage Platform to your business—on your terms

Implement Application Optimized Storage solutions to reach critical enterprise milestones. Fully exploit the unmatched capacity and performance of the Universal Storage Platform. Capitalize on the platform’s ability to consolidate and aggregate multivendor systems for simplified management. And control your company’s storage universe through a single plane of glass with our SAM Suite software. Global Solution Services (GSS) helps you address the challenges that business presents to IT by applying targeted services to leverage tiered storage pools, multiprotocol aggregation, and single-point-of-management capabilities. (See Figure 5.)

Global Solution Services (GSS) consultants can help you plan, design, implement, integrate, manage, and optimize storage infrastructure solutions that meet your needs. GSS consultants assist you with:

- :: **Industry Solutions**—including enterprise content archival solutions that incorporate hardware, software, and professional services to address your business and regulatory compliance requirements
- :: **Application Optimized Solutions**—bridging the gap between business applications and IT’s ability to precisely deliver service levels with GSS strategic consulting, design integration, and robust deployment capabilities
- :: **Storage Services**—applying proven best practices along with appropriate tools and training to help you with all stages of your storage infrastructure—from planning to maintenance
- :: **Product-based Services**—providing implementation, simplification, and optimized ROI and TCO for Hitachi Data Systems and select third-party products
- :: **Education Services**—helping you to improve your staff efficacy and efficiency in implementing and supporting multivendor storage solutions

Hitachi Data Systems Global Solution Services Delivers Universal Storage Platform Benefits

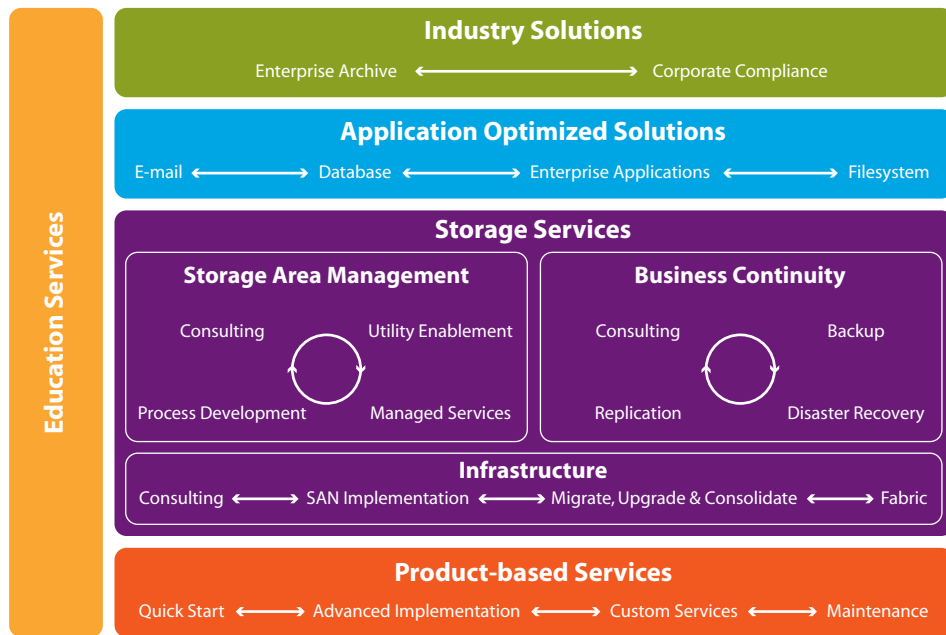


Figure 5: Choose from the wide range of multifaceted Global Solution Services offerings to fully exploit the unmatched capacity and performance of the Universal Storage Platform and address the challenges your business needs present to IT.

The Universal Storage Platform's performance and capabilities surpass competing systems. It offers all the benefits of a virtualization appliance without additional conversion tasks or placing another appliance in the data stream.

The following service groups help you plan, deploy, and maintain the TagmaStore Universal Storage Platform:

Planning for the Universal Storage Platform

- :: Storage Economics Strategy Service**
This strategic service helps you objectively consider your current storage environment (host connected or via a network) and assess the impact of new storage technologies and architectures, including those introduced by the Universal Storage Platform.
- :: Data Lifecycle Management (DLM) Consulting Services**
The Universal Storage Platform represents a quantum leap in the way in which you can address DLM challenges. GSS helps you exploit the possibilities, aligning their teams with your DLM objectives through specific GSS portfolio offerings.
- :: Risk Analysis Workshop**
Working with your team, GSS consultants jointly score your organization's current continuity environment, identify areas of improvement, and objectively map them to potential solutions that can help your organization to realize a higher degree of continuity.

Deploying the Universal Storage Platform

- :: Data Migration Services**
Enjoy worry-free migration. GSS can help you to rapidly and safely migrate your mission-critical data from legacy storage onto the Universal Storage Platform.
- :: Storage Consolidation Services**
The Universal Storage Platform offers unprecedented scalability! GSS can help you to rapidly and safely migrate your legacy systems onto a single Universal Storage Platform footprint, thereby simplifying information management and lowering your IT maintenance and staff expenses.
- :: External Storage Implementation Service for Hitachi TagmaStore Universal Storage Platform**
Unlock the flexibility and efficiency of virtualized storage! GSS helps you optimize application and related business performance, reduce management complexity, simplify information access, and improve business continuity by utilizing external storage capabilities of the Universal Storage Platform.

Maintaining the Universal Storage Platform

- :: Storage Management Process Consulting**
Realize improved storage resource utilization, increased quality of service and cost-containment in your organization by combining GSS Best Practices with a Global IT Service Management Framework.
- :: Storage Infrastructure Management Service**
GSS provides this ongoing service to bring order to your storage environment by reducing the uncertainty and difficulties associated with support and continuous maintenance of complex networked storage infrastructures.

Support for demanding applications and intelligence for simplified infrastructure management

When you choose a TagmaStore Universal Storage Platform, you choose to support business operations and business applications across the enterprise with:

- :: Simplified storage management for more productive assignment of staff and technology**
- :: Responsive support of new business activities**
- :: Optimized resources for performance and return on investment**
- :: Enhanced business continuity for protection of information assets**
- :: Reduced operational costs through streamlining**
- :: Extended value and ROI of existing storage**

Clear business benefits with TagmaStore Universal Storage Platform

As part of the growing portfolio of Application Optimized Storage solutions for business, the TagmaStore Universal Storage Platform is a powerful foundation upon which to support data lifecycle management, build in business continuity, enhance storage area management, and reduce operational expenses:

- Improves information access through an integrated hardware, software, and services platform
- Reduces management complexity through heterogeneous storage pooling and storage area management
- Increases efficiency through massive consolidation or aggregation across different storage platforms without sacrificing performance and availability

Investment protection and ROI

- Aggregates and pools your existing storage hardware instead of replacing it
- Extends life and adds value to existing storage assets
- Reduces the costs associated with multiple software licenses
- Increases storage and server utilization
- Enhances quality of service to users and customers
- Reduces storage management costs; improves storage administrators' productivity

Business continuity—it's essential

- Enables heterogeneous data movement among platforms at any distance
- Plays a critical role in your organization's ability to keep on working—no matter what

Your Partner Beyond Technology

We believe a company's information is a strategic asset. That's why we leverage our global Hitachi R&D resources to develop storage solutions with the performance, availability, and scalability to maximize your ROI and minimize your risk. We focus on your perspective while applying the best hardware, software, and services to satisfy your business needs.

Our commitment to being a *partner beyond technology* sets us apart from other vendors in the industry. It means we're prepared to envision your future as you see it and to work alongside you to accomplish your business goals. We offer you an open and collaborative storage management framework, policy-based automation tools, virtualization capabilities, and the world's finest storage systems.

“Enterprise Strategy Group believes that Hitachi Data Systems is uniquely positioned to bring new innovative storage virtualization solutions to market. Hitachi has the ability to invent a new approach to storage virtualization that is economical and powerful, leveraging their expertise as an Enterprise-class storage solutions provider.”

Storage Virtualization — A New Compelling Vision and Approach

Enterprise Strategy Group, July 2004

Hitachi Tagmastore™ Universal Storage Platform—Technical Specifications

Component	Description	USP100 Entry	USP600 Enhanced	USP1100 High-performance
Controller				
Basic Platform Unit	Integrated Control/Array Frame	1	1	1
	Number of Switches	2	4	4
Universal Star Network™ Crossbar Switch	Data Bandwidth (GB/sec)	17	34	68
	Control Bandwidth (GB/sec)	6.5	6.5	13
	Aggregate Bandwidth (GB/sec)	23.5	40.5	81
Data Cache	Cards	2	2	4
	Base Memory (GB)	4	16	32
	Maximum (GB)	64	64	128
Control Memory	Cards	2	2	4
	Base Memory (GB)	3	3	4
	Maximum (GB)	6	6	6
Front-end Directors	Cards	1-4	1-6	1-6
	Fibre Channel Ports	0-128	0-192	0-192
	Virtual Ports	Up to 16,384	Up to 24,576	Up to 24,576
	FICON Ports	0-32	0-48	0-48
	ESCON Ports	0-64	0-96	0-96
	NAS Blade*/Ports	0-4/0-16	0-4/0-16	0-4/0-16
Back-end Directors	Type	Standard	Standard	Standard
	Numbers	1	2	2,4
Logical Devices Supported		16,384	16,384	16,384
Array Frames				
Array Frames	Number	0,1	1,2	1,2,3,4
Hard Disks (GB)	Type	73, 146, 300	73, 146, 300	73, 146, 300
	Number	5-256	64-512	129-1152
Spare Drives per System	Minimum/Maximum	1/8	1/16	1/40
Internal Raw Capacity (TB)	Minimum (73GB disks)	0.286	4.741	9.152
	Maximum (300GB disks**)	74	148	332
Maximum Usable Capacity RAID-5 (TB) (using 300GB disk drives)	Open Systems	62.4	128.8	287.8
	zOS-compatible	58.6	117.2	270.4
Maximum Usable Capacity RAID-1+ (TB) (using 300GB disk drives)	Open Systems	36.4	72.8	165
	zOS-compatible	31.6	63.0	143.6
External Host Support				
External Capacity		32PB	32PB	32PB
Private Virtual Storage Machines		32	32	32
High Availability				
Hi-Track® Support Package	LAN/Modem etc.	Standard	Standard	Standard
Enhanced Support Package	2nd SVP	No	Optional	Optional

*Each NAS Blade consists of dual NAS servers
 Note: All capacities are based on 1GB=1,000,000,000 bytes
 (1TB = 1000GBs)

**Available Q1 CY05

For platform-specific feature availability, please contact your Hitachi Data Systems account representative or visit our Web site at www.hds.com.

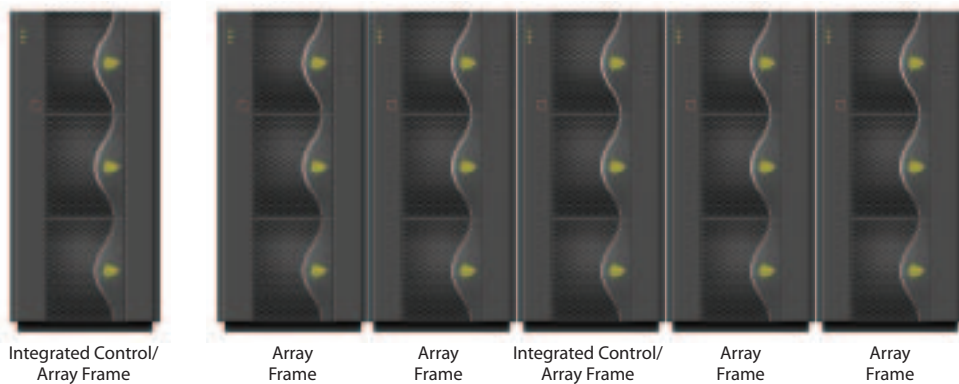
Physical Dimensions

	Integrated Control/Array Frame	Array Frame
Height	1,860mm; 73.2in.	1,860mm; 73.2in.
Width (with two side panels)	782mm; 30.77in.	650mm; 25.59in.
Depth	925mm; 36.42in.	925mm; 36.42in.
	Minimum Configuration	Maximum Configuration
Weight	713kg/1571 lb	4,000kg/8080 lb
Heat	1.88KW/6,431BTU	33.56KW/114,611BTU
Power	1.95KVA	36.15KVA

Operating System Support

Maker	Operating System
Mainframe	
Hitachi	VOS3/FS, VOS3/AS
IBM	OS/390 MVS/ESA, MVS/XA VM/ESA, VSE/ESA z/OS, Z/OS.e, Z/VM RedHat for S/390 and Z-series
Open Systems	
HP	HP-UX Tru64 UNIX, OpenVMS
Sun	Solaris
IBM	AIX
Microsoft	Windows (2000, 2003)
Novell	NetWare
SGI	IRIX
RedHat	Linux

Hitachi Tagmastore™ Universal Storage Platform



The Universal Storage Platform can seamlessly scale from a single platform to the maximum configuration.

 **Hitachi Data Systems Corporation****Corporate Headquarters**

750 Central Expressway
Santa Clara, California 95050-2627
U.S.A.
Phone: 1 408 970 1000
www.hds.com
info@hds.com

Asia Pacific and Americas

750 Central Expressway
Santa Clara, California 95050-2627
U.S.A.
Phone: 1 408 970 1000
info@hds.com

Europe Headquarters

Sefton Park
Stoke Poges
Buckinghamshire SL2 4HD
United Kingdom
Phone: + 44 (0)1753 618000
info.eu@hds.com

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DISK-501-00b December 2004