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Hitachi Protection Platform

Powerful, Scalable Backup Appliance for Enterprise Data Protection

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Introduction

Conventional, nonscalable backup systems are not robust enough to meet the most critical challenges facing today's enterprise and government data centers: explosive data growth, budget constraints, costly data center complexity and increasing risk. With amount of data under protection continuing to grow at 20% or more per year, these challenges continue to worsen annually.

Hitachi Protection Platform offers the simplest, most cost-efficient solution to these challenges. Hitachi Protection Platform delivers the performance needed to meet the most stringent backup windows, the flexibility to adapt to changes in IT infrastructure, and encryption of data at rest for added security. It underscores Hitachi as the safest and most reliable choice for the protection of large-enterprise and government data.

Enterprises are more reliant than ever on powerful applications and very large databases to perform core business operations, from email systems to all-encompassing enterprise resource planning (ERP) databases like SAP and Oracle E-Business Suite. IT staff are under constant pressure to shorten backup windows and speed restore times.

This pressure is only exacerbated by increasingly stringent regulations, such as those from the U.S. Securities and Exchange Commission and the Federal Energy Regulatory Commission as well as, Sarbanes-Oxley Act, Health Insurance Portability and Accountability Act, and the Graham-Leach Bliley Act. These regulations require enterprises to retain data for years and to maintain it online in a format that can be quickly restored.

IT professionals recognize that continuing to add non-scalable disk solutions or physical tape libraries is no longer a cost-effective or -efficient strategy. They need enterprise-optimized data protection solutions to help them address these challenges and stay ahead of the ever-increasing growth of data.

Enterprise Data Protection Challenges

- Meet stringent data protection service level agreements (SLAs).
- Complete backups within shrinking windows despite exponential data growth.
- Restore data within aggressive recovery time objectives (RTOs).
- Optimize system efficiency, lower total cost of ownership (TCO) and maximize return on investment (ROI).
- Comply with increasingly complex regulatory requirements.
- Respond to rapidly changing business environments.
- Do more with fixed budgets and fewer personnel.
- Reduce the amount of data center floor space, power and cooling needed.

Cost-Saving Solution

Hitachi Protection Platform delivers the most powerful and flexible data protection platform in the industry. It, delivers unsurpassed scalability of both performance and capacity to accommodate massive data volumes, rapid data growth, changing storage architectures and emerging data protection trends.

With unique grid scalable architecture and content aware deduplication technology, Protection Platform delivers higher levels of service while reducing operating and capital costs with the following capabilities:

- **Pay-as-you-grow scalability and massive single system capacity** that enables enterprises to add compute performance and/or storage capacity as needed in convenient increments. Up to 4PB of data (before deduplication and compression) is protected in a single, easy-to-manage system.

- **Industry-leading performance** of up to 80TB/hour, regardless of data type, data change rate or capacity of the system. Deterministic performance provides the power needed to consistently meet aggressive backup and restore service level agreements.

- **Easy-to-use dashboard control** that reduces administration time. It puts detailed information and control of all deduplication and remote replication functions at the administrator's fingertips.

- **High-speed multistream multiplexed database backups** with full deduplication. Unique Protection Platform deduplication technology delivers the fastest data ingest and time to safety for large databases. At the same time, it delivers dramatic capacity reduction by eliminating redundant data common in databases.

- **Bandwidth-optimized replication**. This feature enables fast, cost-effective transmission of massive backup volumes to remote disaster recovery sites over a wide area network (WAN) or multiple data centers to a central location with many-to-one replication.

- **Multiprotocol support**. This feature allows simultaneous backup and restore operations over SAN (Fibre Channel) and [IP or Symantec NetBackup OpenStorage (OST)] infrastructures.

- **Detailed reporting and trend analysis** that allows administrators to optimize efficiency, ensure data is protected and budget accurately for future capacity requirements. Administrators access comprehensive operation information and detailed deduplication reporting by backup client and backup job for easy backup management and chargeback

Grid Scalability and Massive Single System Capacity

Built on powerful scalable grid architecture, Hitachi Protection Platform lets enterprise data managers scale performance and capacity independently for "pay as you grow" cost savings. By protecting petabytes of data in a single, easy-to-manage system, Protection Platform:

- Eliminates overprovisioning.

- Reduces system administration time.

- Cuts data center floor space, power and cooling costs.

- Enables a higher capacity reduction through advanced byte-differential deduplication.

- Eliminates system sprawl.

Data managers can start with a single Protection Platform appliance that meets their current requirements and add modular processing nodes for more compute performance or disk shelves for more storage capacity as their environment grows and changes. Each system delivers deterministic backup performance of up to 80TB/hour and capacity can scale independently up to 4PB (before deduplication and compression) This performance and capacity enable enterprises to backup petabytes of data in a single, easy-to-manage system.

Cost-Saving Automation and System Optimization

Each Hitachi Protection Platform processing node is a high-capacity, enterprise-class server that automatically load balances all backup, deduplication, replication and restore operations. Each node maintains maximum throughput while eliminating all manual disk subsystem management tasks. Each Protection Platform system can be configured with as many as 8 nodes for industry-leading backup performance of up to 80TB/hour. The processing nodes within a single system work cooperatively to automate performance tuning and fail-over processing from one node to another as needed.

Protect Petabytes in a Single System

The scalable grid architecture allows administrators to increase storage capacity simply by adding disk shelves. Physical storage capacity is optimized with 4TB drives, hardware compression and patented byte-differential deduplication algorithms. New disks appear to administrators and to the backup software as a larger-capacity disk backup target with more connection points. With industry-leading scalability and advanced deduplication software, Hitachi Protection Platform delivers significant cost savings when compared with other solutions. Other solutions require IT personnel to purchase, install and configure additional standalone backup appliances to support growing data volumes. Hitachi Protection Platform scales usable capacity up to 4PB (before compression and deduplication).

Set the Standard for Performance

The unique Hitachi Protection Platform architecture was designed specifically to deliver the extraordinary levels of performance needed by today's data-intensive enterprises. Key features include:

- Deterministic, scalable performance up to 10TB/hour, per node, and up to 8 nodes, for total throughput up to 80TB/hour in a single system.

- Eliminate repeat purchases of siloed, limited scale appliances (sprawl) with a single system that backs up massive data volumes within shrinking backup windows and meets demanding enterprise restore SLAs and recovery point objectives.

- Automatic, multinode load balancing provides massive parallelism for the fastest backups, restores, replication and the highest deduplication ratios.

Patented software technology coupled with 64-bit Linux kernel that supports multicore CPUs deliver many times faster performance than the nearest competitive appliance solution. Each node features four 8Gb Fibre Channel connections, two 10Gb Ethernet and four 1Gb Ethernet host connections for faster ingest performance and multiprotocol support. It is designed to deliver guaranteed high performance and industry-leading encryption, deduplication and replication. It is built for large-enterprise data volumes with high-performance Exar 1845 compression and encryption cards.

Deduplication Designed for the Enterprise

At the heart of Hitachi Protection Platform is unique byte differential deduplication technology that makes Protection Platform the only scalable, global, deduplication solution specifically designed for large-enterprise data centers. Unlike inline hash-based solutions that slow backup performance, Protection Platform performs deduplication concurrently with backup and replication processes for the fastest time to safety and most efficient capacity optimization in the industry. Protection Platform software is a next-generation byte-differential deduplication technology that is a scalable, fully "user tunable" deduplication solution designed for the enterprise.

Hitachi
Deduplication
Solutions

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Leveraging patented content-aware deduplication technology, innovative Protection Platform deduplication software collects metadata from the backup stream as it is written to disk. It uses this metadata to identify relationships between objects (for example, Microsoft® Word, Microsoft Excel, database files and so forth) in the backup stream that indicate that they are likely to contain duplicate data. This small subset of data containing duplicates can then be examined at the byte level for maximum capacity reduction.

Protection Platform also delivers automated, transparent space reclamation that saves administration time and frees capacity faster by reclaiming space continuously. Unlike hash-based systems, Hitachi Protection Platform administrators do not need to plan and schedule cleaning windows or delay backups until capacity becomes available.

Multistream Database Deduplication: Deduplication for Large Databases

Protection Platform is the only backup appliance in the industry that can deduplicate multistream, multiplexed databases efficiently. Because it uses the actual content of the backup rather than a cryptographic hash identifier to identify duplicate data at the byte level, multistream database deduplication can find duplicates in separate parallel backup streams (multistream) and across multiplexed data volumes.

In contrast, the published database best practice for hash-based deduplication technology is to set FILESPERSET=1, to stop the multiplexing of data across multiple streams. They also recommend using no more than 3-5 simultaneous backup streams because cryptographic hash based systems cause performance to slow dramatically in VLDB environments. Hitachi Protection Platform on the other hand can support up to 16 simultaneous streams and allows you to increase the FILESPERSET setting to multiplex the backup streams. Protection Platform multistream database deduplication delivers the fastest database backup and restore performance and very high database-deduplication ratios of up to 50 to 1 or more.

This approach enables Protection Platform to achieve wire-speed performance during backup operations, regardless of the data type, change rate or system capacity. Protection Platform software finds more duplicate data, uses less processing power and completes the deduplication process faster than any other technology. It also enables Protection Platform software to provide deeper application-specific integration. For example, Hitachi Protection Platform is the only deduplication solution that is optimized to find duplicate data even in the progressive backup environment of the IBM® Tivoli® Storage Manager (TSM).

Enterprise Backups Require the Fastest Restores Available

Hash-based deduplication technologies are prone to slow restore times because they have to reassemble deduplicated data before restoring it. Over time, restoring data from these hash-based systems takes longer, requiring more and more processing time spent on reassembly. In contrast, Protection Platform restores the most recently backed up data immediately without the need for reassembly. As each new backup is performed, it replaces the previous backup as the baseline for deduplication comparisons. Duplicates found in older stored data are replaced with pointers forward to the most recent backup. By keeping an un-deduplicated copy of the most recently backed up data, Protection Platform delivers multistream restore performance of the latest backup at disk speed, which is significantly faster than other deduplication products.

Bandwidth-Optimized Replication

Hitachi Protection Platform provides flexible and affordable disaster recovery options with its own integrated remote replication software as well as Symantec-certified support for NetBackup's OST Auto Image Replication (AIR) feature. Remote replication software in Hitachi Protection Platform delivers network optimized, secure replication for data-intensive enterprises. Using network-optimized transmission techniques, remote replication enables IT managers to easily replicate enterprise-scale data volumes to Protection Platform appliance at a remote site over a WAN. Replication is performed automatically for each defined pool of storage (see Storage Pooling section) according to enterprise disaster recovery policies, eliminating the need for human intervention and the potential for human error. As a result, remote replication software reduces risk and eliminates costly, time-consuming administration of tape media by making remote replication fast, simple and cost effective.

Remote replication software delivers fast, cost-effective replication of large data volumes by transmitting only unique data. Protection Platform also features dual hardware accelerators that offload the compression and decompression of remote replication and OST replication payloads, freeing system resources for high performance ingest and deduplication.

Network Optimized for Industry-Leading Replication Efficiency

Administrators can choose to replicate either data that is deduplicated or is not deduplicated. When utilizing Protection Platform byte-differential deduplication, remote replication software works in conjunction with Protection Platform software to transmit only new data at the byte level. It provides pointers to previously stored data as well as instructions for reassembly at the remote site. The backup is reassembled at the remote site and maintained as a mirror copy of the primary site. This technique reduces the volume of transmitted data by as much as 97% versus non-deduplicated data. As a result, massive volumes of data can be replicated and restored at the fastest performance rates in the industry.

All replication processes are managed and reported through Hitachi Protection Platform including:

- Replication status shows the percent completion of replication jobs through each phase of replication.

- Replication trend data collects up to 90 days of data on replication performance and efficiency for system optimization as well as detailed trend analysis and bandwidth planning. Reports display key data, including time of replication job transfer, time completed, percent completed and transfer status. This data can be exported to third-party reporting tools for further analysis.

- Replication configuration wizards make setup of source and target systems intuitive and simple.

- Windowing policies enable you to choose the data you want to replicate and set the time and frequency of replication.

- Bandwidth throttling allows data managers to specify not only the maximum number of simultaneous remote replication transfers, but also a maximum bandwidth if the intersite link is shared with applications.

Flexible Disaster Recovery Options: Remote Replication and Symantec OST AIR

Protection Platform is also certified by Symantec for OST Auto Image Replication (AIR), Symantec's multidomain disaster recovery solution. Symantec OST enables enterprises using NetBackup to lower costs and increase backup and restore SLAs. OST can take advantage of 1Gb and 10Gb Ethernet transport, which can deliver significantly better throughput than NFS/CIFS protocols, eliminating the need for tape or virtual tape emulation. OST allows NetBackup to communicate with intelligent disk devices, like Hitachi Protection Platform, to manage advanced functionality such as deduplication and replication. The combination of Symantec's OST AIR and Protection Platforms remote replication provides the following benefits:

- Lowers risk of downtime and data loss thanks to simple and testable disaster recovery capabilities.

- Reduces disaster recovery costs via Protection Platform byte-differential deduplication, up to 97% lower bandwidth utilization.

- Dramatically decreases recovery and business restart times.

- Economically extends a centralized data protection umbrella to remote office locations.

- Consolidates and centralizes tape archiving infrastructure.

Both remote replication and Symantec OST AIR offerings support a variety of configurations intended to meet the business and disaster protection needs of large enterprises. For example, data residing in a headquarters data center can be replicated to a remote disaster recovery site. For enterprises with 2 data centers, Hitachi Protection Platform system provides bi-directional replication, enabling each data center to act as the remote disaster recovery site for the other in an active-active configuration.

Hitachi Protection Platform system also eliminates tape handling in remote sites by replicating from multiple regional data centers to a primary data center in a many-to-one configuration. With remote replication and Symantec OST AIR options,

Hitachi Protection Platform delivers 2 seamless, cost-effective complete disaster recovery solutions that lower business risk and provide high business value in the form of lower costs and better recovery point objectives (RPO).

Simplified Disaster Recovery Testing

Hitachi Protection Platform disaster recovery options save time and cost of disaster recovery testing by eliminating the need for tape handling and pre-test staging. Therefore, enterprises can conduct disaster recovery testing faster and more often, without the need for physical media preparation.

By eliminating physical tape management as a critical roadblock to disaster recovery testing, Hitachi Protection Platform lets data managers focus on identifying areas for improvement in the disaster recovery process: data movement, network delays, bandwidth limits and potential human errors. With Hitachi Protection Platform, administrators can track a wide range of replication metrics, test and tune the efficiency of restores and ensure that applications and data can be restored within acceptable recovery time objective (RTO) targets.

Eliminate Data Protection Sprawl

The unique Hitachi Protection Platform architecture enables enterprises to eliminate costly system sprawl. Sprawl is a common scenario when enterprise backup volumes are separated onto multiple independent silos of storage. More independent systems are added as more capacity or performance is needed. Significant administrative labor is required annually to carefully load balance these systems to minimize the inherently poor utilization of system resources in this "sprawl" model. System sprawl also increases a variety of administration and labor costs and results in significant limitations, including:

■ Administration cost of upgrading and maintaining multiple systems.
■ Poor system utilization and efficiency (resulting in increased capital expense).
■ Reduced system security, increased power, cooling and floor space.
■ Poor operational flexibility.

Advanced Enterprise Features

Hitachi Protection Platform Scalable architecture is designed with a variety of powerful features that make Protection Platform the most advanced enterprise data protection platform in the industry.

Encryption of Data at Rest

Hitachi Protection Platform offers encryption of data at rest as a licensed option. Protection Platform hardware accelerators deliver inline, high-speed AES 256 encryption and decryption of compressed data without slowing performance.

Protection Platform integrates with encryption key managers (EKM) that are compliant with industry-standard OASIS Key Management Interoperability Protocol (KMIP). This integration allows administrators to take advantage of interoperability across encryption and key management systems.

Storage Pooling

Hitachi Protection Platform supports advanced storage pooling, which enables IT personnel to create discrete volumes of storage pools within a single Protection Platform system. It allows IT to assign each storage pool its own disk type, deduplication configuration, replication priority, backup policies and backup application. This powerful feature enables Protection Platform to store data from multiple clients, departments or applications in separate storage pools, each configured to specific policies. Protection Platform maintains each storage pool's data in isolation, while enabling all

storage pools to be managed from a single, unified management console. Hitachi Protection Platform Processing nodes are not bound to specific storage pools, but instead use their load-balancing capability to process data across all storage pools.

Protection Platform 2500 software allows administrators to assign different storage technologies to data sets, depending on the policy requirements of each storage pool. Additionally, as new disk technologies emerge, IT managers can use the storage pooling and tiering features to migrate to these solutions without disrupting ongoing operations.

Thin Provisioning

Thin provisioning allows administrators to create as many virtual cartridges or OST disk volumes as desired without needing a commensurate amount of physical storage. Hitachi Protection Platform software monitors the disk capacity that is actually used. When it reaches a user-defined threshold, Protection Platform software automatically alerts the administrator that additional storage space is required. This feature enables highly efficient usage of disk for maximum cost savings.

Data Erasure Option

With the optional data erasure feature, Protection Platform eliminates unwanted or expired backup data using a process that conforms to National Institute of Standards and Technology (NIST) SP 800-88, Guidelines for Media Sanitation. Unlike other disk erasure solutions, Protection Platform's data erasure feature destroys data residing on individual virtual tape cartridges as well as the entire disk drive. In addition, the process automatically generates audit reports and returns erased disk space back to the storage pool for reallocation.

Secure Multitenancy for Private Cloud

In addition to storage pooling, thin provisioning and data erasure, the scalable architecture provides secure multitenancy, which makes Hitachi Protection Platform a key enabler of private cloud infrastructures. With these features, enterprise data managers can allocate performance and capacity as well as bandwidth and quality of service (QoS) as needed by their enterprise segments, departments and business units. This capability ensures secure partitioning between tenant storage pools as well as independent QoS provisioning, management functionality and chargeback reporting. They can also track and report usage of these business units for accurate chargeback.

Multiprotocol Support

Each Hitachi Protection Platform node features four 8Gb Fibre Channel, two 10Gb Ethernet and four 1Gb Ethernet host connections for faster ingest performance and multiprotocol support. Protection Platform enables data to be backed up using both tape emulation on 8GB Fibre Channel and/or Symantec NetBackup OST on 1Gb and 10Gb Ethernet. Hitachi Protection Platform also supports all leading backup applications, (that is, Tivoli Storage Manager, NetBackup, EMC Networker, HP Data Protector) as well as NetBackup OST features, including AIR, Optimized Synthetic Backups, Granular Recovery Technology and NetBackup Accelerator.

Mixed-Protocol Environments

There are several scenarios, including migration in an enterprise data center, where a mixed OST and NetBackup or virtual tape library (VTL) environment is the best strategy.

The flexibility built into Protection Platform lets data managers back up databases such as Oracle, IBM DB2® and Microsoft SQL Server® directly over a SAN while nondatabase or file-system-based data is simultaneously backed up via OST over Ethernet. Both backup scenarios store data on a single Protection Platform system.

Similarly, Oracle RMAN supports a SAN-direct backup, which is more efficient than streaming a backup through an OST media server, because OST enables only single-stream backups. Therefore, backups over Fibre Channel or VTL are more efficient for large databases and other formats that require multistreaming, multiplexed configurations. For example, hot backups using Oracle RMAN are typically configured using Protection Platform multistream database deduplication for multistreaming, multiplexed databases or as tables backed up simultaneously to different virtual drives (database streams or channels).

Enterprise Reliability, Availability and Serviceability

Hitachi Protection Platform hardware is built for reliability using Hitachi Data Systems storage. Protection Platform eliminates the vulnerabilities of tape libraries, such as mechanical tape drive failures and tape media management issues. In addition, the system is equipped with an advanced predictive monitoring feature that identifies potential issues in higher risk components before they fail. System data is transmitted to customer service for Hitachi Protection Platform for ongoing analysis and proactive remediation. Protection Platform high-availability features include the following:

- Redundant control and data paths with dual battery backup.

- Redundant connections to disk via redundant Fibre Channel switches.

- Redundant Ethernet switches.

- Hot-swappable power supplies, fans and main chassis.

- Automatic back-end retries on failure.

- Real-time 24/7 platform monitoring and automated alerts.

- Unique Hitachi Data Systems features safeguard data integrity, enhance data protection and reduce drive failure rates dramatically:

  - Read after write.

  - Increased sparing.

  - Surface-cleaning logic.

  - Resulting in 99.999% data availability.

Protection Platform is also designed with a variety of features to ensure reliability and simple serviceability. With a cabinet designed for enterprise-class reliability and scalability, it incorporates a fully redundant infrastructure, including power distribution units, Ethernet switches, Fibre Channel switches, lights-out management and pre-cabling for nondisruptive expansion.

Powerful Management and Reporting

Hitachi Protection Platform provides administrators with a centralized console for configuration, control and monitoring of day-to-day operations. Using this console, IT administrators define storage pools and their associated policies for backup, retention, archive, replication and tiering. Protection Platform provides detailed storage-pool-level reporting, including a centralized view of capacity growth and consolidated reporting of usage for chargeback, as well as trending reports for capacity and performance planning.

All physical components of Protection Platform are monitored, including servers, switches, storage, and so forth. When adding remote replication and data erasure features to Protection Platform, the features are presented in the console in fully integrated, simple-to-use management screens.

The capacity manager feature provides reporting capacity at every level of the storage hierarchy. The capacity manager feature appears in the navigation tree, with levels for the entire system, individual storage pools, virtual libraries and OST disk volumes and cartridges. OST disk volumes are visible only when OST is licensed. The capacity manager feature shows the amount of logical and physical data in each storage pool and enables the user to drill down into the virtual tape libraries or OST disk volumes to report the volumes of each with unprecedented detail.

An intuitive wizard-driven graphical user interface guides users through all common management tasks, such as setting up Protection Platform, adding storage, or adding processing nodes. (See Figure 1.) Administrators never have to worry about RAID levels, stripe size management, cache settings or other complexities. Protection Platform software automatically brings added storage online, configures the devices to their optimal settings, and incorporates the new storage into Protection Platform for immediate use.

Figure 1. Hitachi Protection Platform provides an intuitive, wizard-driven graphical user interface.
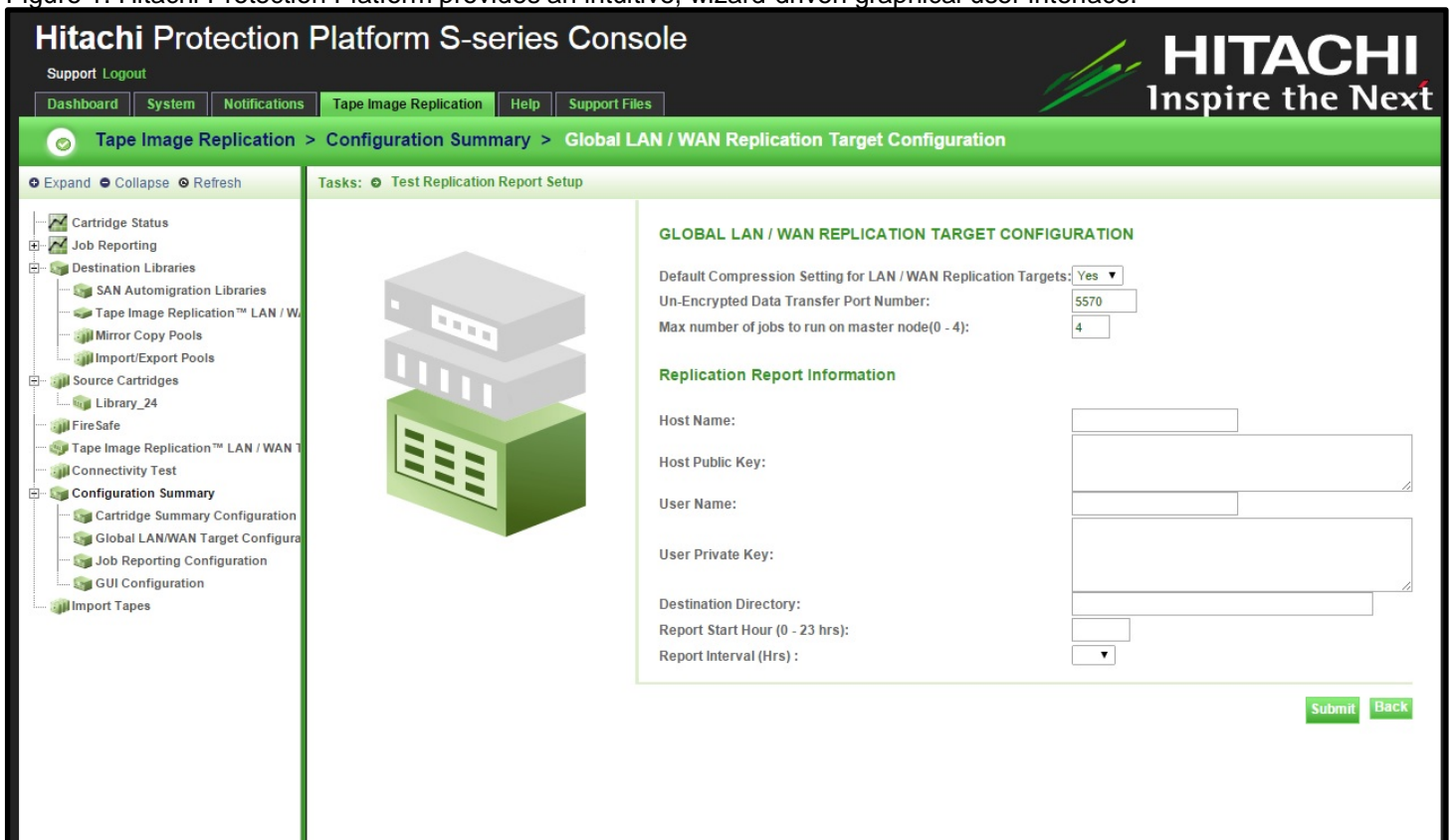
Hitachi Protection Platform Portal for Planning and Analysis

Hitachi Protection Platform portal is a Web-based monitoring tool used by managers for analysis and planning and for support needs reporting and escalation. This portal tracks each Protection Platform system, its processing efficiency and resource utilization, to help detect system bottlenecks.

The Hitachi Protection Platform portal provides utilization trending analysis, by data type, to help managers optimize data retention policies. It provides managers with real-time status of capacity and performance usage and requirements, details other deduplication disk backup vendors can't provide today. Features include:

- System inventory and operational status of hardware components.

- Purchase order history.

- Support ticket creation and management.

- Historical trends for capacity usage and system performance.

- Up-to-date product news and announcements.

- Access to the most current software updates.

- Product knowledge base.

- System and user documentation.

Protection Platform automatically transmits system efficiency data to its portal for routine ongoing monitoring and analysis. If system parameters exceed predefined thresholds, the system automatically alerts Hitachi Protection Platform support staff and designated administrators. The system also supports SNMP trapping to integrate with third-party system management software.

Drive Down the Total Cost of Ownership

Scalable architecture enables Hitachi Protection Platform to drive down the total cost of ownership, making it the industry's most efficient data protection solution.

Control Capital Costs

Hitachi Protection Platform eliminates the need to make large capital expenditures on new systems. It controls costs in a variety of ways:

- Grid scalability and massive single system capacity eliminates the need to purchase multiple systems.

- Pay-as-you-grow scalability means there is no need to overpurchase initially to cover future needs.

- Modular nondisruptive technology migrations smooth the chaos of "forklift" upgrades.

- Bandwidth-optimized replication reduces delays or eliminates the need to upgrade network bandwidth.

Control Administration and Operating Costs

With every new system added, nonscalable, "siloed" solutions require significant administrative labor costs. These costs include labor and training, load balancing and resetting backup policies, adjusting backup scripts, and ongoing system tuning to integrate new systems into the environment. Employ Hitachi Protection Platform to:

- Reduce complexity. Protection Platform eliminates the need for ongoing management and support of multiple systems to ensure efficient operation.

- Improve capacity planning. Single system scalability and content aware deduplication enables a more holistic and predictable approach to capacity planning and management. Reporting on backup performance, deduplication efficiency, replication efficiency and capacity usage is presented simply in Protection Platform's detailed reports. Unlike competitive products with reporting that is far less detailed or impossible with multiple disparate systems, resulting in unpredictable, inaccurate or last-minute requests for more systems or capacity.

■ Plan effectively with system reporting. Systems that can provide capacity reporting details down to individual clients and their backup jobs provide more efficient capacity planning capabilities. Hitachi Protection Platform service console leverages its content-aware deduplication intelligence and provides capacity planning capabilities that are not available with hash-based systems. These abilities support more effective and efficient capacity planning, system load balancing and chargeback accounting processes.

Improve Operational Flexibility

Hitachi Protection Platform delivers the flexibility to adapt to changing business requirements. Protection Platform scales to handle massive growth with little to no impact on the backup environment.

■ Scale to handle mergers and acquisitions simply and cost-effectively by managing multiple backup environments on a single system across multiple storage pools.

■ Consolidate through Protection Platform storage pools to enable enterprise consolidation of multiple backup environments to a single system environment and achieve massive cost savings.

■ Mitigate risk with scalable systems that eliminate needless procurement and implementation delays and enable data centers to provide the performance and capacity they need when they need it – without having to sacrifice backup frequency or retention times. Hitachi Protection Platform eliminates the "make do with what we've got" situations that limited-scalability systems create.

Hitachi Protection Platform: Sound Investment Protection

With tape emulation and multiprotocol support Hitachi Protection Platform integrates into an existing environment without disruption. Storage pooling can be used for seamless, phased migration to new technologies. Industry-leading performance with 8 processing nodes and petabytes of usable storage capacities in a single system ensure an investment in Hitachi Protection Platform is a sound financial investment for the future. Hitachi Protection Platform's independent and industry leading support of all major enterprise backup application technologies ensures a sound technical investment as well.

◎Hitachi Data Systems

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