

White Paper

Hitachi Data Systems: Conquering new territories in file and content services data archiving and managing

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Hitachi Data Systems: Conquering new territories in file and content services data archiving and managing

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Introduction

Hitachi Data Systems recently released several important enhancements to file and content services that significantly simplify data management and improve total cost of ownership for end users. These enhancements add building blocks to Hitachi's vision to deliver the most highly-integrated file and content services as part of the most highly-integrated storage infrastructure.

Hitachi's new file and content services enhancements improve storage tiering options with increased scalability and the ability to search and index NetApp NAS devices. This eases the

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movement of data between storage tiers, and enables simplified searches through both active and historical information across the enterprise. Collectively, they further enhance Hitachi's Services Oriented Storage Solutions (SOSS) platform, which is a business-centric concept enabling organizations to closely align their storage infrastructure with their business requirements.

These enhancements come at just the right time. 2009 begins with budget constraints imposed on most IT organizations, which consequently have to do more with less because growth in storage requirements has not stopped and compliance regulation requirements have remained unchanged.

Users' challenges in managing information

Current organizational storage structures are complex, particularly those resulting from mergers and acquisitions. Hence, business data is often stored on different storage silos.

Files can reside on NAS or can be archived; emails can be stored on separate storage, which can increase the difficulty of efficiently locating critical information.

Scalability and storage cost continue to be top of mind. The continuing exponential growth in unstructured file data (90 percent to more than 100 percent per year) may cause scalability problems leading to file storage or archiving subsystems sprawl and additional capital or operation expenditures. Budget restrictions are not a new problem for any organization; however, the worldwide financial crisis has heightened it to a new dimension.

In addition to massive data growth, organizations face the challenge of converting data into useful information. Searching for the right information may be difficult and time-consuming and, in addition, may carry a heavy financial impact. For quite some time now, a routine part of litigation has been e-discovery, the search for, disclosure of, and dispute over email and other electronic records. Inability to present such evidence may lead to defeat in court or heavy penalties¹. In the last decade many organizations found that their e-discovery costs, which are unpredictable expenses, have risen dramatically. In addition, compliance regulations such as the revised (2006) Federal Rules of Civil Procedure (FRCP)², provide new reasons to build a solid and intelligent archiving infrastructure. The German code of commerce (HGB, §146.5.2,3) requires that business-related documents be available and quickly-accessible throughout the entire legally-mandated storing period. Two major UK laws that make the installation of an electronic communication archive and retrieval system essential, are the Data Protection Act 1998 - which applies to both public and private sector entities and the Freedom of Information Act – which applies to public sector entities only, and was fully implemented from Jan 2005. Similar regulations exist in other jurisdictions as well.

Several studies have shown that knowledge workers spend 15 to 30 percent of their work time searching for information, and many searches are not successful. Storing data on different subsystems with different user interfaces creates confusion and increases search time. This wasted time reduces productivity and may cause financial damage.

A common search interface across all storage tiers is required to effectively search for documents, presentations, email, email attachments, etc. Such tools help people be more productive, make better business decisions, and achieve greater business success.

¹ In June 2005 the 15th Judicial Circuit Court in Palm Beach County awarded Ronald Perelman \$604.3 million in compensatory damages and \$850 million in punitive damages from Morgan Stanley. The judge ruled that Morgan Stanley failed to produce e-mail documents claiming they had been destroyed, only to find them later. Morgan Stanley had rejected a \$20 million settlement offer from Mr. Perelman during the early stages of the case. The Florida State Appeals Court revised this verdict in March 2007. The June 2005 verdict created enormous world-wide media exposure, whereas the final verdict has been ignored mostly; the litigations costs and costs resulting from loss of reputation are unknown.

² In Dec. 2006 the Federal Rules of Civil Procedure were revised to require organizations to preserve and discover any type of electronically stored information (ESI) on any media and clarify the obligations of parties to turn over emails and other electronically stored records in the event of litigation.

Hitachi's vision for an integrated file and content services infrastructure

Hitachi Data Systems' vision is to provide integrated infrastructure solutions to help manage and govern both structured and unstructured data. Users should be able to search and migrate across the boundaries of storage silos, which are seen as one integrated platform.

File/content-aware management capabilities enable customers to manage all platforms using

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a single interface with policy-based data management, transparent data migration across tiers, and capacity optimization across all tiers. The policy can be to search by content (e.g. ppt containing word "budget"), file type (e.g., ppt, mp3, jpg, xls), file size, last access time, last modification, subsystem threshold level, etc.

Hitachi's File and Content Services help users align their storage with application requirements based upon criteria such as performance, service level agreements, quality-of-service, recovery time and recovery point objectives (RTO and RPO), as

well as retention. The unique value is the ability to leverage all of these services on a single, integrated storage platform managed by a common management interface – the Hitachi Storage Command Suite. This vision directly addresses users' challenges and concerns in managing their file and archiving infrastructures.

Hitachi Data Systems storage portfolio

Hitachi Data Systems disk storage hardware and software portfolio is rich, covering all platforms:

- ❑ **Universal Storage Platform USP V and USP VM** are the most technically advanced high-end storage subsystems existing today, with superior functionality and the best performance and availability. The optional embedded virtualization layer supports HDS' and main third-parties' storage subsystems providing a uniform view for heterogeneous storage infrastructures.
- ❑ **Hitachi Adaptive Modular Storage AMS 2000** is one of the leading midrange subsystems on the market. HDS is the only storage company which is able to manage its high-end and the mid-range series using one common storage management software (Hitachi Storage Command Suite).
- ❑ **Hitachi High-Performance NAS Platform (HNAS 3000 Series)** is based on the BlueArc Titan family, offers the most scalable, highest-performing clustered network storage system available in the market today. HNAS series scales up to eight nodes and four PB of storage while delivering up to 200,000 IOs per second and up to 1,600 MB/second per node for sequential workloads.

- ❑ **Hitachi Content Archive Platform (HCAP)** is a content-addressed storage (CAS) active archive solution for long-term retention of fixed content based on the Archivis technology, which Hitachi acquired in February 2007. HCAP is available as a stand-alone appliance with integrated storage or as a disk-less appliance solution supporting all Hitachi block and file storage platforms. HCAP supports up to 40 PB in an 80-node archive system. HCAP uses open (no proprietary APIs), standards-based protocols such as Network File System (NFS), Common Internet File System (CIFS), Web-based Distributed Authoring and Versioning (WebDAV), and Hypertext Transfer Protocol (HTTP). It supports options for digital signatures to ensure authenticity, data compression for efficient use of network bandwidth, in-flight data encryption, and data de-duplication.
- ❑ **Hitachi Essential NAS Platform** is a network-attached storage (NAS) system delivered in two options: as a NAS gateway attached via fiber channel to mid-range and high-end Hitachi storage subsystems, or as a pre-installed stand-alone NAS filer bundled with Hitachi's AMS storage array.
- ❑ **Hitachi Data Discovery Suite (HDDS)** is a key enabler for Hitachi's file and content services vision. HDDS is a content services software solution designed to search across the boundaries of a Hitachi or third-party NAS devices and being able to use content search to trigger the movement of data among the storage tiers as if it were a single entity. With the recent enhancement, the Data Discovery Suite can search and index NetApp NAS devices running OnTap 7.3 and above.

Overview of the Recently Product Enhancements

Key words to remember for the recent product enhancements are integration, content-aware, policy-based movement, federated search, simplicity, and investment protection. As a result, Hitachi continues to implement its vision described in the previous section.

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- ❑ **Multi-tiered infrastructure** with file/content-aware management capabilities, which allows seamless data migration across the boundaries of Hitachi High-performance NAS and HCAP and enables full text federated search and indexing of High-performance NAS, HCAP and NetApp NAS devices.
- ❑ **Integrated block and file services** leverage the same expertise and framework of HDS block-based storage into file/content based services. For example, an HNAS cluster may be connected via Fiber Channel (FC) ports to a USP V and via NFSv3 to a large-capacity HCAP. The USP V may contain FC disks (Tier 1) and SATA disks (Tier 2) and can be connected

using the virtual layer to a third-party SATA mid-range subsystem (Tier 3). The HCAP can be considered Tier 4. Hitachi's Storage Command Suite manages block, file, and content services of all the tiers described above. The integration of the Hitachi Tiered Storage Manager with HNAS provides the industry's most comprehensive virtualization framework for both block and file.

- ❑ **Transparent data mobility across tiers of storage** allows user-transparent, policy-based unstructured data migration across tiers to optimize storage costs. For example, all Excel files can be stored at Tier 1; all files smaller than 5 MB are stored at Tier 2; larger files, regardless of size, are stored at Tier 3; and 90 days after creation, stored files containing the word for example "budget" are compressed and moved to the HCAP.
- ❑ **Scalable infrastructure** allows consolidation on a massive scale. HNAS, which supports up to 4 PB of data, and the 40 PB of HCAP can satisfy the requirements of organizations of any size. This huge scalability is an order of magnitude higher than HDS' closest competitor. HCAP's new compression feature can reduce storage capacity requirements by up to 80 percent.
- ❑ **Enhancements and new features for Hitachi Data Discovery for Microsoft SharePoint** offer significant improvements in scalability, performance, and backup of SharePoint environments. It enables customers to do a federated search, including SharePoint environments, in addition to NAS and archive. Moreover, the new functionality provides the ability for archiving content, assigning retention policies, and protecting content from modifications according to compliance regulations. Another improvement is the synergetic search between discovery of SharePoint and Hitachi file services. For example, consider SharePoint files, which are stored in block format on an SQL Server database. When these files are migrated to an HCAP, a *stub* pointing to the HCAP will be automatically created in the database (transparent to users). This provides dramatic improvements in scalability, performance and backup/recovery time for Microsoft SharePoint.

Hitachi's file and content services: unique features and possibilities

- ❑ HDS is the only vendor delivering a file and content services infrastructure with the ability to seamlessly migrate data (with a single click) across tiers and subsystems, at file and at object levels, with intelligent text search capabilities across the entire infrastructure. Other vendors use host-based software to move data across platforms.
- ❑ HDS offers the highest scalability in the industry to match any current and future requirements.

- ❑ Virtualization embedded in the USP V and VM platforms protects investments in third-party subsystems and allows the deployment of disaster recovery for heterogeneous storage infrastructures.
- ❑ Hitachi Tiered Storage, integrated with HNAS, allows customers to natively move HNAS file systems or storage pools to different tiers within USP V systems or externally virtualized storage.
- ❑ Integration with the Hitachi Data Discovery Suite enables file selection by content and allows end-users to control data movements. These content- and metadata- search results can be use to trigger automated file migration.
- ❑ HDS delivers full text search capability for Hitachi High-performance NAS, HCAP archive appliance, and NetApp NAS devices (running OpTap 7.3), enabling customers to search through all their file storage from a single user interface with a single query.
- ❑ Hitachi offers a common storage management solution for its high-end and mid-range subsystems and the ability to manage file, content and block data with the Storage Command Suite software.

Hitachi Data Systems – the “pure play” storage company

Each Hitachi Data System enhancement elevates the firm’s position as the industry’s “pure play” storage company. The integration of different storage platforms and the common management of different storage tiers differentiate it hugely from its main competitors, which still offer islands of storage without any or only minimal integration. Hitachi’s innovative approach to solving storage and archiving challenges is bearing fruit. In the last quarter, combined sales for HCAP and HNAS were up approximately fifty percent compared to the previous quarter, however we have to consider this started from a relatively small base.

HDS has managed to increase its market share in high-end subsystems, having shipped close to 11,000 USP Vs and USP VMs in total, with approximately 1,800 shipped in the first half of this fiscal year alone - a 29 percent increase compared to the same period last year.

Some of HDS’ strongest benefits are the synergies it enjoys with Hitachi Ltd. and Hitachi Global Storage Technologies (HGST) in developing new technologies and future products. Hitachi Ltd. is one of the world’s leading manufacturers of electric and electronic devices and develops a wide range of products, from semiconductors and servers to electric power stations. HGST is one of the leading disk media manufacturers. Synergies with both allow Hitachi Data Systems to constantly increase its innovation gap relative to competitors.

Summary and Conclusions

Data, once found, must be organized and managed to be used effectively and become the information and knowledge required to drive business and help them achieve competitive advantages. The global economic crisis has instilled uncertainty and fears of stagnation

within small and large companies. As IT budgets are shrinking, while the amount of data to be managed continues to increase exponentially, innovative approaches to manage information are essential.

With these enhancements, HDS further delivers on its vision to offer the most integrated, open, and user-friendly file and content services infrastructure. Hitachi's integrated storage infrastructure integration and common storage management are truly unique in the market place. The intelligent multi-tiered infrastructure enables customers to reduce costs by creating a policy-based file/content-aware data management infrastructure. Customers can also simplify

discovery tasks with full text search and index capabilities for HNAS, HCAP, and NetApp NAS devices using a single user interface.

The features and capabilities outlined in this announcement will help organizations improve their storage efficiency and increase productivity to save on storage infrastructure costs and protect existing investments in Hitachi or NetApp storage subsystems, which is so important today - now more than ever.

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