

## Hitachi NAS Platform, Powered by BlueArc®: System Software v8

The software for the Hitachi NAS Platform hardware accelerated architecture provides a comprehensive NAS solution that leads the industry in performance and scalability, and complements other powerful Hitachi storage solutions.

### Scale Out NAS with Advanced Data Management

The Hitachi NAS Platform is designed for consolidating unstructured data, dynamic provisioning and “intelligent file tiering,” capabilities that enable policy-based migration of data and content among storage and archive tiers. Users with large data sets see dramatic improvements in information storage, sharing, backup and retrieval.

The combination of features available make the Hitachi NAS Platform family ideal for diverse applications, from NAS or file server consolidation to high performance storage for VMware and Microsoft® Hyper V™ virtual machine environments. They also support commercial enterprise applications, including Microsoft Exchange Server, SQL Server®, SharePoint®, Oracle and more. Enterprise high availability as well as intelligent file tiering features simplify data reorganization, classification, movement and protection.

#### Automated Data Management Is Key

Intelligent file tiering helps organizations move data among storage and archive tiers with automated, policy driven migration tools. This unique integration of NAS and “write once, read many” (WORM) technology sets a new standard for file services offerings to integrate NAS, archive, index and search technologies.

- Cross volume link migration enables migration of data between internal solid state drive (SSD), Fibre Channel, SAS and SATA storage tiers.
- External volume link migration enables data migration between the Hitachi NAS Platform and external devices via NFSv3.
- Advanced virtualization framework delivers thin provisioning and virtual servers.
- Concurrent support for iSCSI, Network File System (NFS) and Common Internet File System (CIFS) eliminates storage silos.
- Integration with the Hitachi Content Platform and Hitachi Data Discovery Suite provides content indexing and enables data migration based on file content and file system metadata.

**Tiered file system (TFS)**, also known as “metadata optimization,” separates file system metadata from user data and automatically places metadata on the highest tier for improved performance and storage cost-efficiency. This feature is complementary with the policy-based intelligent file tiering capability, which migrates data between different file systems. TFS works only within the file system.

**Cluster namespace** creates a unified directory structure across storage pools and

servers. Multiple file systems can be linked and appear under a single common root, and both CIFS and NFS clients can obtain global access through any node in the cluster.

**Virtual file system** supports CIFS and NFS protocols and delivers flexibility and power to handle very large files and millions of small files, as well as several concurrent file system operations, with no performance impact. Automatic file system expansion is also available.

**Dynamic provisioning** (or thin provisioning) with virtual volumes removes the need to pre-allocate capacity and enables oversubscription. Dynamic provisioning also supports large 256TB volumes.

#### Multilayered Approach to Data Protection

- High speed replication (JetMirror) of objects speeds up replication over WANs and improves RTO
- Synchronous data replication via IP with Hitachi TrueCopy® Synchronous remote replication software; support of local clones with Hitachi ShadowImage® Heterogeneous Replication (enterprise) or ShadowImage Replication (modular) in-system software

- Metro Cluster support with active-active geoclustering for distances up to 100km
- High speed snapshot or point-in-time technologies that enable one per second
- File Clones (JetClone) enables the creation of writable snapshots (clones) of files to shorten production data copies in test & development and VDI environments
- Support for quotas for individual users, virtual volumes or directories

**Multiprotocol support** sustains both block- and file-level application data within a single system. This extends to standards-based data transfer protocols:

- CIFS, NFS, FTP and HTTP, which support file-level data access needs of Microsoft Windows® and UNIX client environments
- User Datagram Protocol (UDP) and Transmission Control Protocol (TCP), which provide support for UDP v2 and v3 and TCP v2, v3 and v4 over IP for data transport
- Network Data Management Protocol (NDMP) supports industry standard data migration, tape backup and archiving functions performed using NDMP v2, v3 and v4, enabling backup and data replication
- iSCSI supports up to 8,192 logical unit numbers (LUNs) on each system; allows block- and file-level storage on the same system

### Complete Block, File and Content-based Virtualization Framework

- Complements powerful Hitachi Tiered Storage Manager and Hitachi Device Manager advanced file-based virtualization framework
- Extends powerful storage usage capabilities of Hitachi Virtual Storage Platform with Hitachi Dynamic Tiering software, which automates data movement to the appropriate tier at a fine-grain level based on user access patterns

## FEATURE HIGHLIGHTS AND SUMMARY

### Performance, Availability and Scalability

- Best-in-class performance, near linear scale out up to 16PB<sup>1</sup> and 256TB volumes

### Intelligent File Tiering

- Policy-based Hierarchical Storage Management feature that spans Hitachi NAS Platform and the Hitachi Content Platform

### Advanced Content Indexing<sup>2</sup>

- Provides more efficient indexing operations and implements a data management API, which enables the Hitachi Data Discovery Suite to coordinate intelligent file tiering software operations based on file content

### Enhanced High Availability

- Optimized file system premount checks and improves NVRAM replay time to provide faster cluster failover times that mitigate unplanned downtime
- Nondisruptive “rolling” upgrades limit planned downtime required for updates and upgrades

### System Management Framework

- Comprehensive, centralized management with GUI interfaces: CLI, SNMP, LDAP, Active Directory with Auditing and NIS

### Virtualization Services

- Virtual volumes (VVols), virtual servers and cluster namespace, which unify directory structure while simplifying storage capacity management tasks

### Data Management Services

- Centralized GUI management, pointer-based snapshots, JetClone writable snapshots, quick file restore, hard and soft quotas (volume, group or user), scalable file systems, storage pools, and transparent data migration and relocation.

### Hardware Accelerated Protocols

- NFS, CIFS, iSCSI, NDMP, FTP, HTTP, TCP/IP and UDP

### Data Protection Services

- Active-active clustering, from two to eight nodes with cluster read caching, for scalable, read intensive NFS workload, incremental block replication (IBR), JetMirror high speed replication and Metro Area Cluster
- Complemented by Hitachi Command Suite and Hitachi Command Director management software
- Support for Hitachi Virtual Storage Platform, Hitachi Universal Storage Platform® V and VM, and Hitachi Adaptable Modular Storage systems

### Extend the Architecture

- Simplify backup and restore, as well as data protection for application administrators via application consistent snapshot management.
- Create powerful data protection and management policies with an easy-to-use graphical user interface (GUI) and an online documentation library.

### Complementary Solutions

The Hitachi Data Systems Global Solution Services (GSS) team offers design, implementation and data migration services that support Hitachi NAS Platform and the entire suite of Hitachi storage products.

<sup>1</sup> When used with Hitachi Adaptable Modular Storage 2000 family

<sup>2</sup> In the latest version of the file system.

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