Hitachi Unified Storage (HUS) and Hitachi NAS Platform (HNAS) 4000 series offer enterprise-level performance and scalability for file server consolidation, primary deduplication, remote replication and disaster recovery of commercial application data.

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Hitachi Unified Storage and Hitachi NAS Platform 4000 Series

Petabyte-Scale File Sharing Challenges

Enterprise organizations are looking for better ways to handle the massive and growing amount of file-based data and applications, whether human or machine generated. Rising costs, data protection complexities, and difficulties meeting service level agreements are obstacles to success. Data centers must become more efficient, more cost-conscious and more reliable to successfully win these challenges. In today's environments, organizations need efficient, highly scalable and high-performance storage systems, but at a lower total cost of ownership.

Business Benefits

Hitachi storage systems were designed to deliver performance at scale, capacity efficiencies and superior economics. As your file share requirements evolve, Hitachi Unified Storage and Hitachi NAS Platform series products will scale to your business and technology needs to improve productivity, drive revenue, increase quality and speed time-to-market.

Hitachi Unified Storage and Hitachi NAS Platform use a hardware-accelerated hybrid-core architecture. This architecture efficiently consolidates capacity across multiple applications and simplifies storage management for enterprise environments, without compromising performance and scalability.

At the same time, multiple levels of virtualization overcome the complexities of large-scale file system management and support popular commercial applications like Oracle and SAP, especially within VMware and Citrix environments.

Features

Hitachi NAS Platform 4000 series presents a standards-compliant object-based file system interface that is feature rich, reliable and very flexible. Key features include:

- Hardware-accelerated network protocols support up to 2GB/sec throughput for sequential workloads and up to 1.2 million NFS OPS with Hitachi Virtual Storage Platform G1000 systems and Hitachi Accelerated Flash.[1]

- Scalability supports up to 8 nodes with 32PB usable capacity, 256TB file system pools, large single namespace up to the maximum usable capacity, and up to 60,000 concurrent users.

- System memory is 108GB on HNAS 4100, 46GB on HNAS 4080 and 4060, and 32GB on HNAS 4040.

- Primary data deduplication using hardware-based SHA-256 calculation engines provides high performance and up to 90% capacity savings, depending on data types. Auto-throttling of the dedupe process enables uncompromised performance during high file sharing workload periods.

- Intelligent file tiering and automated migration enables dynamic policy-based hierarchical storage management (HSM).

- Advanced enterprise virtualization framework delivers thin provisioning and virtual server capabilities.

- Concurrent support for NFS, SMB3, Fibre Channel and iSCSI eliminates storage silos.

- Unlimited file clones are available to enable writable snapshots while efficiently using capacity.

- Object-based remote replication over WAN is provided.

- Hitachi Content Platform allows active archiving, data deduplication and content-aware compression, and it is the foundation for our cloud infrastructure offering.

Summary

Hitachi NAS Platform systems were designed to deliver scale, performance, efficiencies and economics. As your file share requirements evolve, Hitachi Unified Storage and Hitachi NAS Platform series products will scale to your business and technology needs. They will help you improve productivity, drive revenue, increase quality and speed time-to-market.

HITACHI UNIFIED STORAGE AND HITACHI NAS PLATFORM 4000 SERIES: TECHNICAL SPECIFICATIONS

NETWORK INTERFACES

User interface type	10Gb/sec Ethernet, IEEE 802.3ae
Data interfaces	File serving: SFP+, passive copper, SM + MM fibre
	Fibre Channel: SFP+, MM fibre
	Cluster Interconnect: SFP+, passive copper, SM + MM fibre
Port configuration	Port-independent configuration; multiple IP addresses; 256 IP addresses per node (4 IP x 64 EVS)
Module diagnostics	Module status LEDs

DATA MIGRATION OPTIONS

Internal over Fibre Channel	Data migrator and cross volume links
External over IP	HNAS universal migrator from 3rd-party NAS; and data migrator and external cross volume links to Hitachi Content Platform and/or Amazon S3 interface

NDMP BACKUP ATTRIBUTES

NDMP support	NDMP v2, v3 and v4
Tape library system	Support for SAN and LAN connectivity
NDMP features	Direct access recovery, 3-way backup and restore

SYSTEM MANAGEMENT ATTRIBUTES

Standard management features	Manage up to 8 nodes; replication management; automated system configuration and backup; role-based management; enhanced system monitoring; antivirus support; out-of-band Ethernet management network
Management interfaces	GUI-based — HTTP, HTTPS; remote console (CLI) via SSH; Scripting — SiCtrl
Secure management access	SSL, SSH
Management access control	User or password authentication; management port definition; management access method; Access Control Lists (ACLs); NIS, Microsoft® Active Directory® (AD) with Auditing and LDAP

PROTOCOLS SUPPORTED

Network protocol support	Server Message Block (SMB) 3.0, 2.0, 1.0; Network File System (NFS) with UDP v3 and v2 or TCP v4, v3 and v2; NDMP v4, v3 and v2; File Transfer Protocol (FTP); iSCSI
Management and other protocols	HTTP, SSL, SSH and SNMP v1; v2c, NIS, DNS, WINS, NTP; email alerts

CONNECTIVITY

User interface type	Fibre Channel, SFP+ connectors
Number of ports	Two 10GbE ports for clustering; four 10GbE ports (on 4060/4080/4100) and two10GbE ports (on 4040) for file serving; four 8Gb/sec Fibre Channel ports for storage; one serial I/O port for management
Fibre Channel port interfaces	8Gb/sec per port for 4060/4080/4100; 4Gb/sec per port for 4040

FILE SYSTEM ATTRIBUTES

File system	Hitachi NAS Silicon File System; hardware-accelerated object-based file system
Single namespace	Cluster namespace for file system virtualization and unified directory structure
Multiprotocol support	Simultaneous SMB/CIFS and NFS
Maximum file system pool size	256TB for 4040/4060/4080/4100; dynamically scalable

PHYSICAL DIMENSIONS

Height x width x length	3U, 5.1 in. (130mm) x 17.2 in. (437mm) x 27 in. (685mm)
Weight	55 lbs. (25kg)

HITACHI STORAGE SUPPORTED

Storage systems	Hitachi Virtual Storage Platform G1000, Hitachi Unified Storage VM, Hitachi Unified Storage 100 series and Hitachi Accelerated Flash
Disk drive types	Flash modules (FMD), solid-state drive (SSD), serial-attached SCSI (SAS), nearline (NL)-SAS

HITACHI UNIFIED STORAGE AND HITACHI NAS PLATFORM 4000 SERIES: TECHNICAL SPECIFICATIONS

Model	File System Objects	IOPS[2] per 2-Node Cluster	Throughput[3]	Maximum Capacity	File System Size	Ethernet Ports	Fibre Channel Ports	Maximum Nodes per Cluster
Hitachi Unified Storage (HUS) and Hitachi NAS Platform (HNAS) 4040	16 million per directory	130,000	Up to 700MB/sec	4PB	256TB file system pool; 4PB single namespace	6 x 1GbE and 2 x 10GbE File Sharing, 5 x 10/100Mb	4 x 4, 2 or 1Gb/sec ports	Up to 2 nodes
HUS with HNAS 4060	16 million per directory	147,957	Up to 1,000MB/sec	8PB	256TB file system pool; 8PB single namespace	4 x 10GbE File Sharing, 2 x 10GbE Clustering	4 x 8, 4 or 2Gb/sec ports	Up to 2 nodes
HUS with HNAS 4080	16 million per directory	209,519	Up to 1,500MB/sec	16PB	256TB file system pool; 16PB single namespace	4 x 10GbE File Sharing, 2 x 10GbE Clustering	4 x 8, 4 or 2Gb/sec ports	Up to 4 nodes
Hitachi Virtual Storage Platform G1000 with HNAS 4100	16 million per directory	1.2 million with 8 nodes	Up to 2,000MB/sec	32PB	256TB file system pool; 32PB single namespace	4 x 10GbE File Sharing, 2 x 10GbE Clustering	4 x 8, 4 or 2Gb/sec ports	Up to 8 nodes

[2] Estimated SPECsfs_2008 NFS v3 ops/sec   [3] NFS and SMB mixed workloads (70% read and 30% write)

@Hitachi Data Systems

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