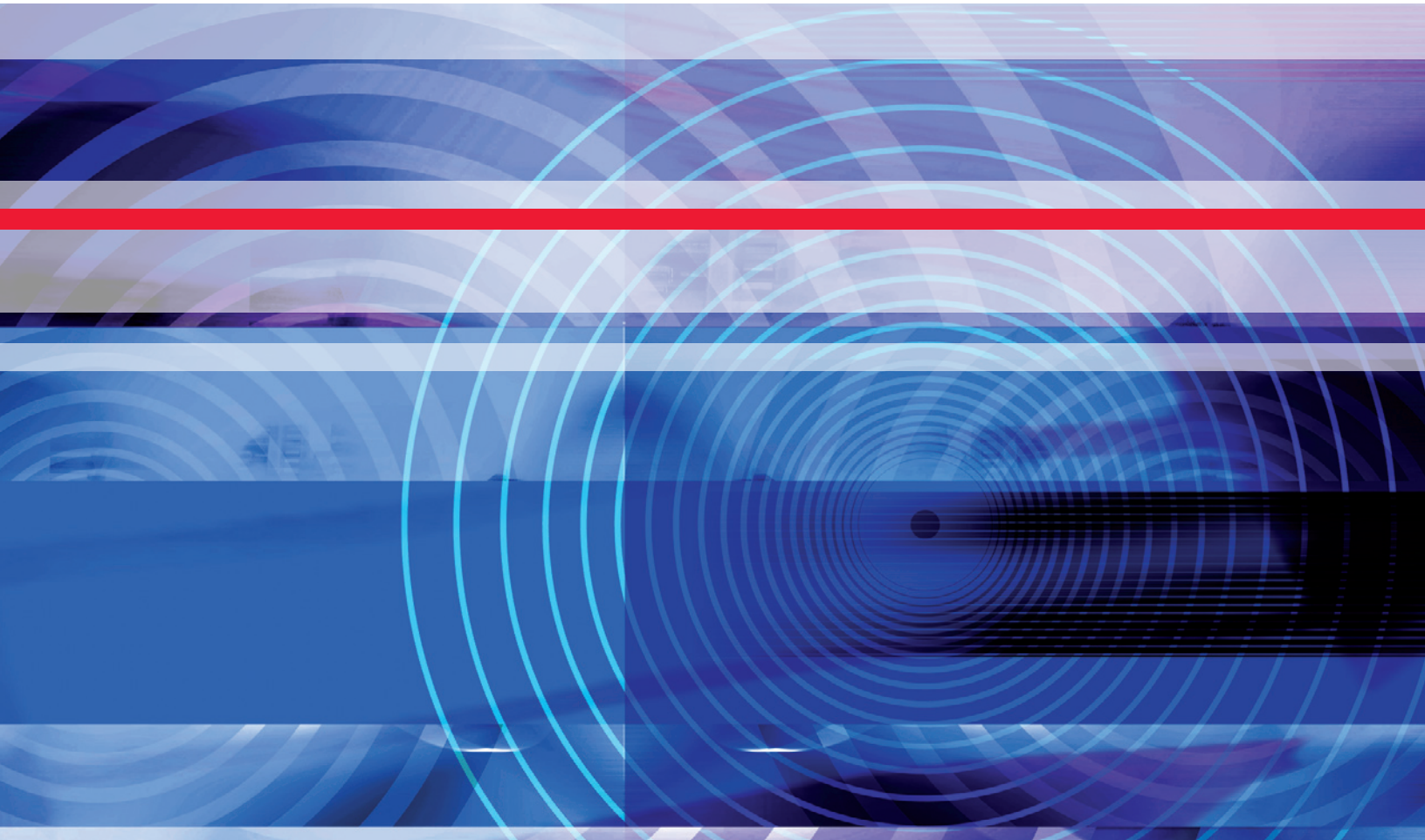


# Hitachi NAS Platform 3080 and 3090

Storage Consolidation and Intelligent Tiering for VMware Environments



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## Storage Consolidation and Intelligent Tiering for VMware Environments

The rapid adoption of server virtualization technology by organizations of all sizes has been driven by cost, flexibility and time to market. The cost savings in server consolidation are the primary motivators, but the ability to quickly deploy new applications to suit changes in the business has led many to use VMware products.

Server virtualization brings a new set of challenges for storage administration and Hitachi Data Systems is ready with the ideal complement to a VMware vSphere environment. The midrange Hitachi NAS Platform 3080 and 3090 provide simplified storage provisioning and management for VMware ESX hosts with performance and scalability to meet the needs of enterprise class storage consolidation.

### Key Benefits

- **Improved performance.** Massively parallel computing in hardware accelerates application performance.
- **Intelligent tiering.** Automated migration of data between storage tiers optimizes cost and performance.
- **Faster backup and recovery.** Support for up to one snapshot per second enables frequent backups and instant recovery.
- **Improved reliability.** Four-way cluster scale out protects the VMware vSphere environment.
- **Simplified management.** Hitachi Storage Command Suite centralizes management of VMware datastores.
- **Reduced costs.** Lower cost iSCSI infrastructure can be deployed.

### Storage Consolidation

The midrange Hitachi NAS Platform 3080 and 3090 deliver best-in-class performance and scalability with the flexibility to provide multiprotocol file services and native intelligent storage tiering. This unified storage approach is ideal for storage consolidation projects alongside server consolidation. The Hitachi NAS Platform, powered by BlueArc®, can scale to 2PB in a single namespace, so organizations can realize a greater return on their investments by consolidating storage from multiple direct attached storage (DAS) and NAS devices into a centrally managed pool, simplifying management and increasing productivity.

Unstructured data is the fastest growing category of data storage, increasing file server sprawl and leading to islands of data in file servers and NAS devices. Hitachi NAS Platform has the performance and capacity to enable consolidation of multiple DAS and NAS storage systems into a single system for better utilization and ease of management. Storage consolidation also helps organizations move towards the green data center; fewer disks and servers require less power and cooling. Now organizations can do the

right thing for the environment while reaping the business advantage and saving costs.

## Intelligent Tiered Storage

Intelligent storage tiering enables native policy-based Hierarchical Storage Management (HSM) and can be automated on the Hitachi NAS Platform. The setup is via an intuitive wizard and can dynamically and nondisruptively move data between different tiers of storage. For example, older data may be moved from high speed Fibre Channel or SAS disk to lower cost SATA disk, or even archive media. Based on usage, data can be promoted or demoted simply. In addition, dynamic read caching takes storage tiering further by automatically placing recently accessed data into high-performance cache, reducing the need for increased capacity in the performance tier.

## Simplified Management

With the ease of setting up new VMware virtual machines, there is a clear need to make it simple to provision storage. The intuitive, single-pane-of-glass management interface enables IT administrators to quickly perform key tasks, such as setting up thin provisioning on a datastore level for VMware ESX hosts, specifying automated backup or defining policies for automated storage tiering. As more storage is consolidated in the single namespace — up to 2PB — the management tasks on silos of DAS and NAS can be reduced, increasing IT productivity. Storage can be added on the fly with no disruption to users or applications. The snapshot capability built into the Hitachi NAS Platform allows up to one snapshot per second per file system, providing fine granularity of backup and the ability to go back to a specific point in time.

## Performance

Hitachi NAS Platform uses a Hybrid Core Architecture that accelerates processing to achieve best-in-class performance. The unique hardware-based file system enables outstanding 1,100MB/sec data throughput and up to 100,000 IOPS per node. Performance and availability are enhanced with up to four nodes per cluster, enabling more virtual machines to serve more users.

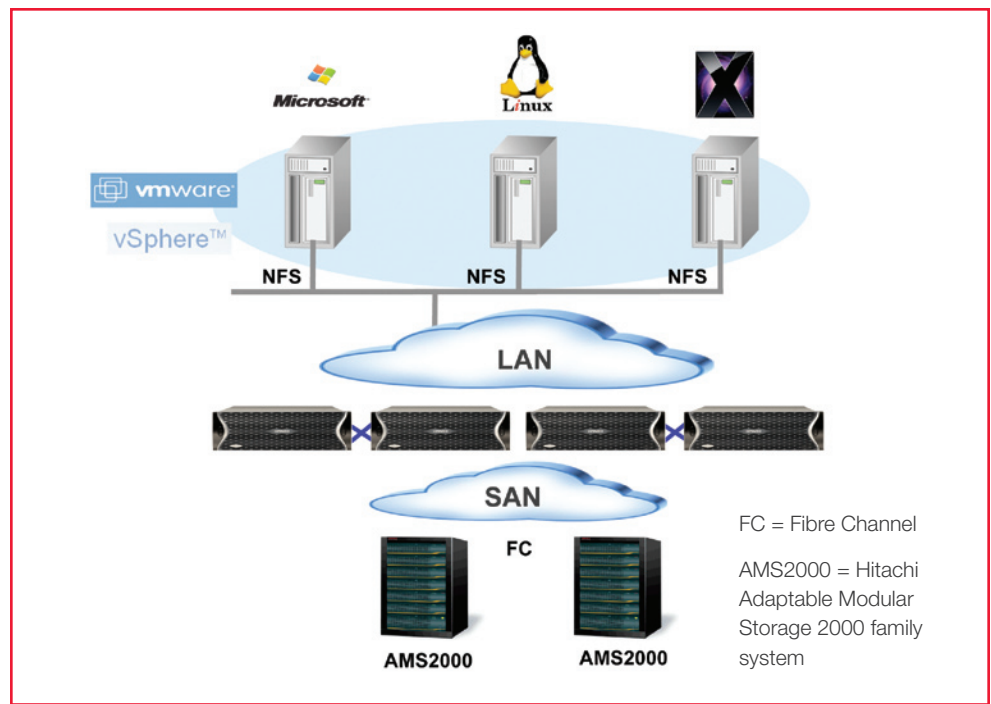


Figure 1: Example of a VMware vSphere and Hitachi NAS Platform NFS Deployment

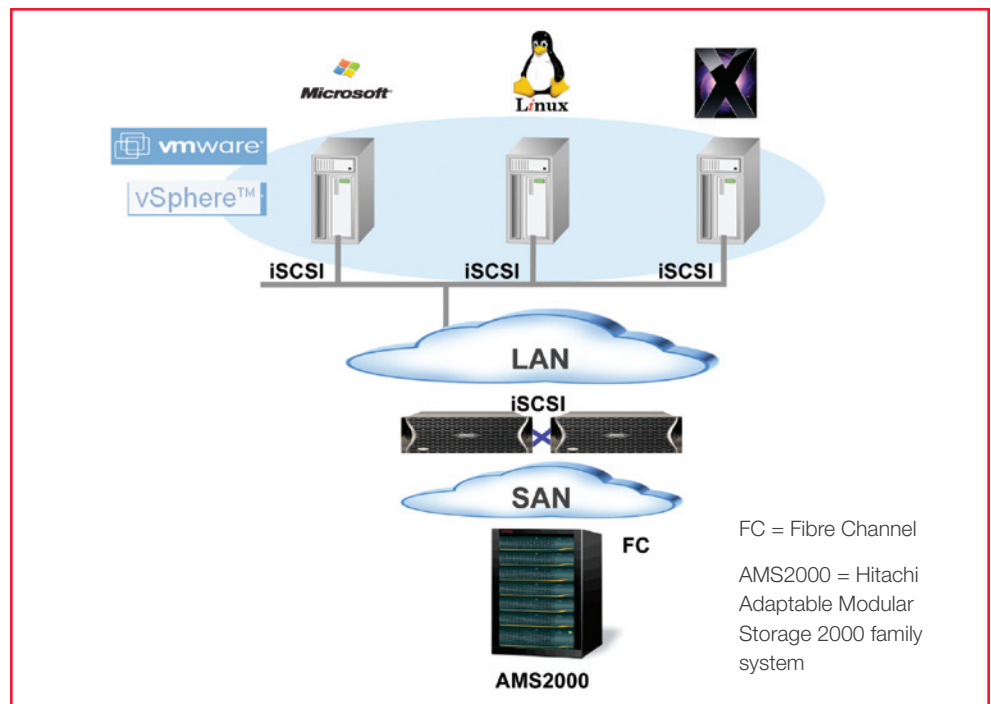


Figure 2: Example of a VMware vSphere and Hitachi NAS Platform iSCSI Deployment

Performance scaling is simple and effective, with no impact to users or applications. With a cluster namespace, a two node Hitachi NAS Platform can grow as required to a four node deployment with virtually linear performance scaling, enabling businesses to expand rapidly, absorb acquisitions or dramatically improve service levels.

## Reduced Cost

Deploying Hitachi NAS Platform in a VMware vSphere environment reduces cost in a number of ways, including acquisition, deployment and management. The Hitachi NAS Platform can provision storage to VMware ESX hosts using NFS and iSCSI with both leveraging TCP/IP networks; thus, the network infrastructure, including

switches and host bus adapters (HBAs), is significantly less expensive to install than Fibre Channel deployments. Additionally, IT staffs are typically familiar with Ethernet technology, and the learning curve is substantially less than with Fibre Channel SANs.

## Archive and Compliance

The one thing that does not change in a virtual environment is the need to be able to respond to legal, corporate or regulatory requirements for record keeping. Hitachi NAS Platform has enhanced “write once, read many” (WORM) technology that effectively locks down selected storage in an unchangeable state, providing secure archiving of critical company records. In conjunction with the Hitachi Data Discovery Suite, e-discovery can be achieved in a timely manner with minimum impact on IT staff.

## Intelligent Thin Provisioning

A key Hitachi technology for managing the growth of virtual server deployments is intelligent thin provisioning. The ease of setting up virtual machines and the need for storage availability can lead to overprovisioned storage or virtual machines running out of space. VMware ESX hosts are presented the storage whether via NFS or iSCSI (using VMFS), then ESX allocates storage as .vmdk files to each virtual machine. By releasing storage to applications only when they actually consume it,

## At Your Service

The Hitachi Data Systems Global Solution Services (GSS) team offers design, implementation and data migration services that support Hitachi NAS and the entire suite of Hitachi storage products. With proven methodology, GSS ensures successful implementations that reduce risk and accelerate time to results.

For information on services to help with installation and configuration, meet regulatory compliance requirements, protect data, reduce total cost of ownership or develop a disaster recovery plan for VMware vSphere, contact your Hitachi Data Systems representative or your Hitachi TrueNorth Channel Partner to engage with GSS.

## Features and Benefits

Performance	Support large numbers of virtual machines and tens of thousands of users; design for massive computing parallelism delivers the necessary performance.
Intelligent Tiering	Automatically migrate files between storage tiers to balance cost and performance.
Dynamic Read Caching	Improve performance without intervention from the storage administrator via dynamic read caching, which makes a background copy to a high-performance cache tier.
Hardware Acceleration	Experience data rates up to 700MB/sec and improved performance as a result of processing operations being performed in hardware instead of software.
Scalability	Scale performance by adding nodes or scale capacity by adding storage shelves; neither approach causes disruption to users, applications or virtual machines.
Cluster Namespace	Grow data within a single namespace — up to 2PB — enabling enterprise-wide consolidation.
Thin Provisioning	Manage storage more efficiently and achieve higher utilization by providing storage only when virtual machines actually need it.
Multiprotocol Support	Increase the utilization of your data center by sharing SAN storage space with NFS and CIFS (reverse the order) file sharing across both physical and virtual machines.

real storage can be virtually allocated and even overcommitted. Organizations can achieve better utilization and can postpone storage hardware purchases to a later date.

## Solution Benefits

The Hitachi NAS Platform has a unique, performance oriented architecture with outstanding scalability at a midrange price point. It offers both NFS and iSCSI connectivity for storage consolidation in VMware vSphere

environments, with ease of management and ongoing cost advantages.

## For More Information

To learn more about how to effectively plan and deploy the Hitachi NAS Platform in your VMware vSphere environment please contact your Hitachi Data Systems representative or your Hitachi TrueNorth Channel Partner, or visit [www.hds.com](http://www.hds.com).

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