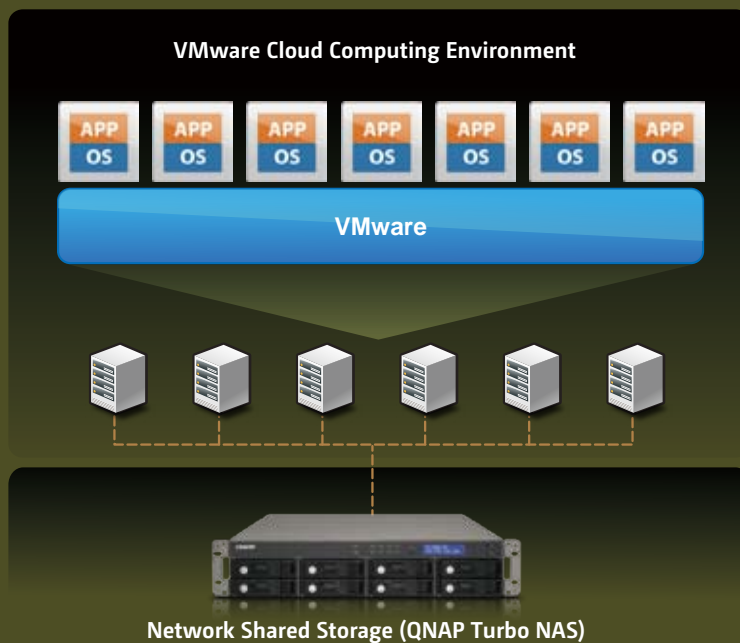


Server Virtualization with QNAP® Turbo NAS and VMware®

QNAP® offers you superior performance and affordable VMware® Ready™ network storage solutions



Virtualization increases efficiency of IT management and availability of IT applications and resources. QNAP Turbo NAS (Network Attached Storage) is the high performance and reliable storage designed to provide an affordable and easy-to-manage solution with iSCSI service for virtualized and clustered environment and reduce the total cost of ownership (TCO).

With QNAP Turbo NAS, you can:

- Leverage all the benefits from VMware solutions.
- Deploy the virtualization environment with flexibility.
- Improve work continuity.

Leverage the benefits from VMware virtualization technology

The VMware Ready certified products from QNAP enable fast integration and deployments into VMware environment and are able to operate reliably with advanced features such as DRS (Distributed Resource Scheduler), VMotion, Storage VMotion, VMware High Availability, Data Recovery, Fault Tolerance, and so on. The features help the customers to create highly scalable, manageable, and agile virtual infrastructure.

Deploy the virtualization environment with flexibility

QNAP Turbo NAS can be utilized as NFS or iSCSI datastore in the VMware environment. It allows file sharing across Windows, Mac, Linux, and UNIX platforms at the same time. The iSCSI thin-provisioning offers great flexibility in the storage capacity planning and allocation when creating iSCSI LUNs from the beginning. With QNAP NAS, LUNs can be mapped to, unmapped from, and switched among different iSCSI targets.

Improve work continuity with high availability QNAP shared storage

QNAP Turbo NAS protects all your virtual machines with RAID 1/ 5/ 6 with hot spare and RAID recovery. The dual-Giga LAN design provides load balancing and failover to sustain any single point of failure and keeping the connection alive between the guest OSes running on the VMware hosts and the QNAP NAS.

Application Scenario

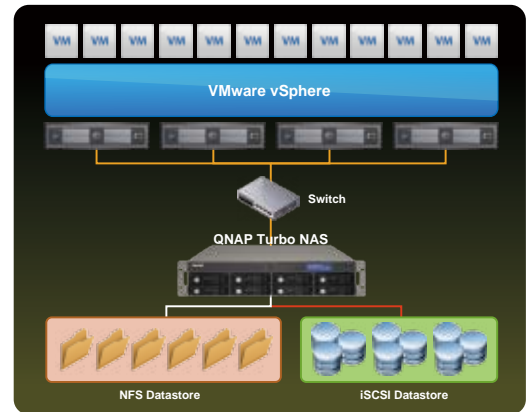
- Primary Datastore for VMware vSphere
- Shared Storage for Virtualized Testing Environment
- Backup Storage for Existing Virtualization Environment

Key Features

- VMware Ready Certified
- Supports Both NFS and iSCSI Deployments
- Supports VMware Cluster and Windows Server 2008 Failover Cluster
- Dual-Giga LAN Design for Continuous Services and Performance Gain
- Segment-leading iSCSI Features
- Secure Data Protection
- High Ease-of-Use

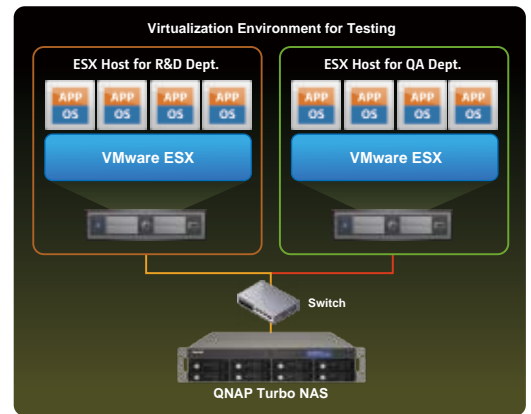
Primary Datastore for VMware vSphere

QNAP Turbo NAS accelerates the setup of your virtualization infrastructure. You can deploy the Turbo NAS as an NFS datastore or an iSCSI datastore for the VMware environment.



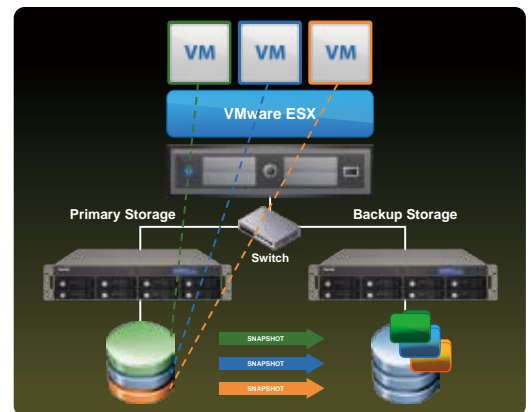
Shared Storage for Virtualized Testing Environment

In the software development process, R&D and QA teams often require different environments and operating systems (Windows/Mac/Linux) to run a wide variety of applications. To reduce the costs for server setup and increase the work efficiency, virtualization environment is established. QNAP Turbo NAS is the perfect shared datastore among different OS in such VMware infrastructure.



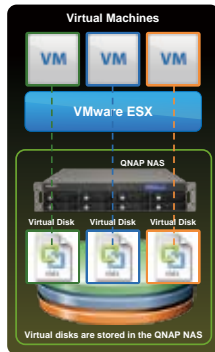
Backup Storage for Existing Virtualization Environment

If you have already deployed VMware ESX with a primary storage, you may need an additional storage for data backup, archiving, or extended storage. QNAP Turbo NAS can be seamlessly integrated to the ESX environment. You can select from 2 to 8-bay Turbo NAS models (tower or rackmount) with up to 16TB storage capacity according to your storage requirements. QNAP NAS supports VMware Data Recovery which allows you to back up your virtual machines from the primary datastore to the NAS. It also works well with third-party backup software such as Symantec Backup Exec to protect your virtualization environment from primary datastore failure.



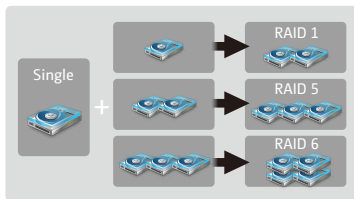
Advanced RAID Management to Protect Your Virtual Machines

The Turbo NAS offers RAID 0, 1, 5, 5+spare, 6, 6+spare, single, and JBOD disk configurations. It supports hot-swap design that a failed member drive of a RAID configuration (RAID 1 or above only) can be replaced by hot swapping without turning off the server.



Online RAID Level Migration

You can upgrade the disk configuration to higher RAID level with the data retained without turning off the server.



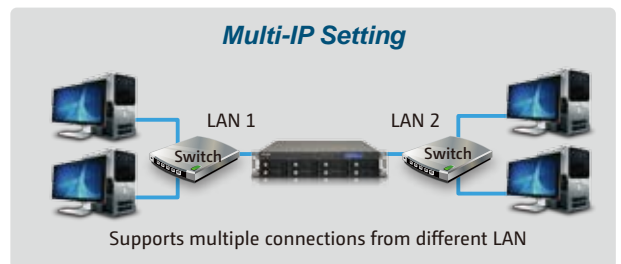
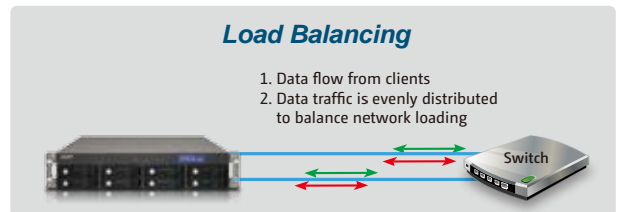
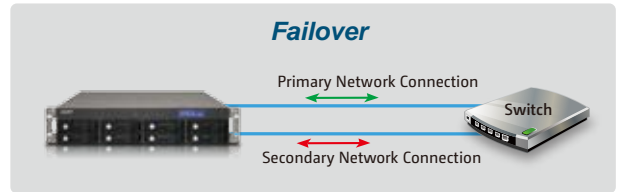
Online RAID Capacity Expansion

The storage capacity of a RAID configuration can be expanded by HDD replacement. All the data will be kept and seamlessly moved to the newly installed hard disk drives without turning off the server.



Dual-Giga LAN Design for Continuous Services and Performance Gain

The Turbo NAS supports multiple bonding modes for dual-Giga LAN: Balance-rr (Round-Robin), Active Backup, Balance XOR, Broadcast, IEEE 802.3ad, Balance-tlb (Adaptive Transmit Load Balancing), and Balance-alb (Adaptive Load Balancing). These modes enable continuous services and increase the bandwidth between your VMware ESX host and QNAP storage.



Segment-leading iSCSI Features

Multiple LUNs per Target:

The LUNs (Logical Unit Number) can be flexibly mapped to, unmapped from, and switched among different iSCSI targets.

CHAP and LUN Masking:

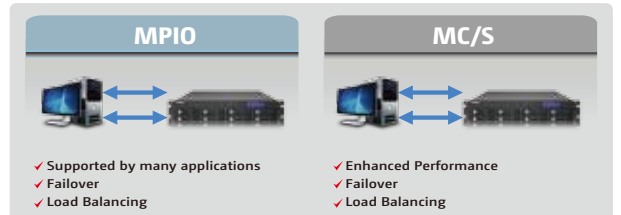
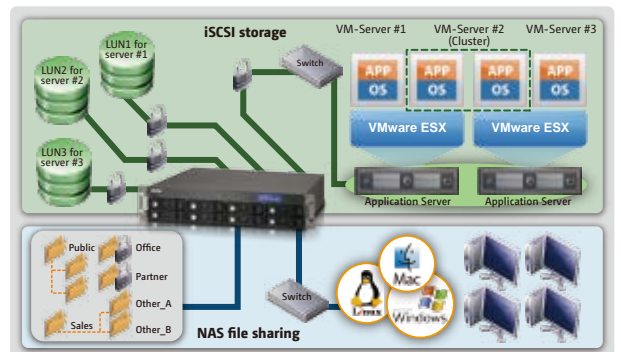
Designed with CHAP authentication and LUN masking, the advanced ACL (Access Control List) offers you the capability to block unauthorized access from the initiators.

SPC-3 Persistent Reservation Supported:

The built-in iSCSI service supports enterprise-level features such as SPC-3 persistent reservation for clustering in VMware and Windows 2008.

Advanced MPIO and MC/S Supported:

With the support of MPIO (Multipath Input Output) and MC/S (Multiple Connections per Session) on the Turbo NAS, you can connect to the QNAP iSCSI targets using 2 or more network interfaces from your server with failover and load balancing. Furthermore, you can achieve better data transmission performance.



Ease of Management

Comprehensive Event Log System, SMS and E-mail Alert

Detailed logs of file-level data access to the NAS via SAMBA, iSCSI, FTP, AFP, HTTP, HTTPS, Telnet, and SSH, and networking services accessed by online users are all recorded. Moreover, you can configure the SMTP server and SMSC server settings on the NAS in order to receive instant system warning or error messages by email and SMS.

AJAX-based Management Interface

The Turbo NAS provides an AJAX-based management interface that allows convenient system configuration by a web browser. Less technical-savvy users can easily install the NAS on the network with simple wizards for adding new NFS shares and setting up iSCSI LUNs. The NAS supports Microsoft Internet Explorer, Safari (version 3 & 4), FireFox 3, and Google Chrome.



QNAP® VMware® Ready™ Storage Products

Tower



TS-239 Pro II



TS-439 Pro II



TS-259 Pro



TS-459 Pro



TS-559 Pro



TS-659 Pro



TS-859 Pro



TS-809 Pro

Rackmount



TS-459U-SP



TS-459U-RP



TS-859U-RP



TS-809U-RP

For more information on QNAP Turbo NAS, please visit: <http://www.qnap.com/>

For more information on QNAP virtualization storage solutions, please visit: <http://www.qnap.com/virtualization.asp>

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