How your Business can benefit from QNAP Turbo NAS
Your Business Storage Demands in the Cloud Era

• Satisfy Growing Storage Requirements
• Synchronize your work with Cloud Solutions
• Increase Backup Reliability (Recovery Point/Time Object)
• And a Higher Return On IT Investment.
What is the QNAP Turbo NAS System (QTS)?

QTS is the operating system for QNAP NAS that provides functions and applications that were especially designed to extend NAS functionality for your business:

TVS-EC1280U-SAS-RP with QTS 4.2
Integrate cloud backup services

Deploy and manage your storage with a refined user interface
Utilize your storage with Enterprise-class Snapshot and Tiering features

Share your files across various network protocols and operating systems

Remotely back up your data

Synchronize your work with any device, anytime, from anywhere

How can QTS benefit your Business?

Virtualization Ready Storage for your VM.
Or build your own VM on the NAS with Virtualization Station and Container Station.
“QNAP Turbo NAS have already become an integral part of our daily work. It provides an ideal solution to store our growing media assets and to make a smoother broadcasting & production workflow.” – Yuval, Mizmor HD Productions, Israel.

“The performance of QNAP Turbo NAS exceeds my expectations. It is more than a storage server.” – Leo Shu, Lion Travel, Taiwan.

“QNAP Turbo NAS have been integrated smoothly into our Multiple environment data centers and virtualization platforms.” – Bjorn Andersson, TeleComputing, Norway.

“The QNAP Turbo NAS is the choice of the future. It is easy to use with a friendly UI and is well worth the cost.” – Pachara Pichayanapakul, Toyota TBN, Thailand.

“QNAP Turbo NAS has already become an integral part of our daily work. It provides an ideal solution to store our growing media assets and to make a smoother broadcasting & production workflow.” – Yuval, Mizmor HD Productions, Israel.
Challenge: Store your data in an era of explosive data growth
Refined User Interface:

Manage and backup your storage using a user-friendly and instinctive interface
Professional in Storage:

- Supports RAID 5, RAID 6, RAID 10 and Hot Spare with up to 250 TB available size per volume.
- Supports Thin Provision Volume/Space reclamation to allocate your storage space with maximum flexibility.

Without Thin Provisioning

With Thin Provisioning

Only Allocate space in physical space when data is written to disk to avoid the waste of space.
Whole Volume/LUN Snapshot

Dramatically improves your company’s RPO (Recovery Point Objective) and RTO (Recovery Time Objective) by creating Snapshots locally or remotely while reducing the overall storage requirements and bandwidth usage.

- Support 1024 Snapshots in the whole device
- 256 Snapshots per Volume/LUN
- Need at least 4GB RAM to support QNAP Snapshot
Snapshot Agent

QNAP Snapshot Agent enhances communication between NAS, Windows Server and VMware vSphere and therefore enables true “Application-Consistent” Snapshots (VSS Writer).

To take an application consistent snapshot for a virtual machine in Windows Hyper-V or VMware, the VM configuration, disk, and snapshot/checkpoint must be located on the same iSCSI LUN.
Whole Volume/LUN Snapshot

Block-Level Snapshot reduces the storage and bandwidth usage for your backup

Scheduled Snapshot

Modified Block

Normal Backup

Only the modified Block will be backed up at Snapshot 2.
Qtier™ Auto Tiering

Multi-tier storage management system that relocates the most-active data to high-performance drives and hugely enhances the performance of your storage with lower cost.

Using TVS-EC1580MU-SAS-RP (6 x SAS-SSD RAID 10 + 8 x NL-SAS HDD RAID 5)
SSD caching is used on certain models to improve overall storage performance by moving frequently-accessed randomly-read data to SSD cache.

### Comparison Table

<table>
<thead>
<tr>
<th>Feature</th>
<th>Qtier™</th>
<th>SSD Cache</th>
<th>Full SSD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Available SSD Space</td>
<td>Expandable as needed</td>
<td>Limited by available memory*</td>
<td>Expandable as needed</td>
</tr>
<tr>
<td>Price</td>
<td>Low</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>Applicable Storage</td>
<td>Volume/LUN</td>
<td>Volume/LUN</td>
<td>Volume/LUN</td>
</tr>
<tr>
<td>Data Migration Method</td>
<td>Scheduled</td>
<td>Automatic</td>
<td>-</td>
</tr>
<tr>
<td>Data migration Mechanism</td>
<td>Moves data to different tiers depending on access frequency</td>
<td>Replicates frequently-accessed data to SSD storage</td>
<td>All data stored on SSDs</td>
</tr>
</tbody>
</table>
Virtualization Storage

Storage for Virtualization and Databases (iSCSI LUN)

- Supports iSCSI LUN/IP-SAN, a centralized data storage solution for your business.
- Build your data store for Virtualization such as VMware, Citrix and Windows Hyper-V with QNAP NAS Storage

iSCSI LUN

iSCSI target with CHAP protected

iSCSI initiator

QNAP
A Virtualization-ready solution for your business

<table>
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<tbody>
<tr>
<td>Virtual Application for VMware: VAAI for iSCSI full copy and NAS file clone, Block Zeroing, Hardware-assisted locking, Thin provisioning, Reserve Space and Space Reclaim</td>
</tr>
<tr>
<td>Virtual Application for Hyper-V: Microsoft ODX (Offload Data Transfer)</td>
</tr>
<tr>
<td>Virtual Application for Citrix: iSCSI and NFS Storage Repository</td>
</tr>
<tr>
<td>Management Tools: QNAP vSphere Client plug-in, QNAP SMI-S provider for SCVMM.</td>
</tr>
<tr>
<td>Protection and Backup: AES256 bit LUN encryption, LUN Backup and Snapshot Agent</td>
</tr>
</tbody>
</table>
Challenge: Share your files and synchronize your work on a private cloud
Manage user privileges

Configure user groups, shared folder privileges and create quotas that suit your business needs. Add the NAS to an exiting Active Directory, or configure the NAS to act as a Domain Controller.

Admin: Can access every device with single account, manages the domain controller.

Employee: Can access their files on the Work NAS and other devices through the Domain.

Partner: Can view specific folders on the Work NAS.
File Station

Designed for File Sharing

Manage and share your files using a familiar interface with SMB/CIFS, AFP, FTP/WebDAV, TFTP and NFS support
File Station

Integrated into your daily work

VLC and the Google Extend Plug-in allow users to view multimedia and documents. These files and entire folders can be shared between employees with a single URL.
Q’sync

Your business’s private cloud solution

Synchronize shared folders with multiple PCs and mobile devices using Qsync. Manage and configure all of the settings from a single window.
Synchronize your data to the cloud

Synchronize shared folders to/from Google Drive and Dropbox and design your own data transfer system.
Security

Protect the NAS and your data

- IP filtering / Two-step login / SSH & SSL authentication and LDAP Directory to enhance connection security
- Build up the company’s private network with VPN Client and Server configurations
- Use AES 256-bit Volume, LUN and Folder encryption to secure company files
Challenge: Back up your data with improved RPO and reduced RTO

RPO: Recovery Point Objective, how often should data be backed up. RTO: Recovery Time Object, how long it takes to restore a system from backups.
Backup your data to the NAS
• Back up your PC/Mac to the QNAP NAS with free utilities or third-party software

Backup NAS data to remote sites
• Sync/Backup your data to remote storage for real-time protection
• Also supports External Device/LUN backup
Enable Backup Versioning for Smart Back up

Create multiple backup versions to preserve more versions in the short term and create a flexible backup plan.
Build Your Backup Without Using the Internet

Expansion Units can be used to transfer huge amounts of data between two NAS to reduce transfer time in long-range backup tasks.

1. Initial transfer time for 50 TB Data between San Francisco and Los Angeles

<table>
<thead>
<tr>
<th>Network Type</th>
<th>Time</th>
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<tbody>
<tr>
<td>100Mbps Network</td>
<td>About 45 Days</td>
</tr>
<tr>
<td>QJBOD Express</td>
<td>In 2 Days</td>
</tr>
</tbody>
</table>

2. “Safely Detach” the JBOD after the backup job is completed

3. Transport the JBOD to a remote site

4. Connect and scan the JBOD

5. Transfer data to remote NAS
Build an Efficient DR Plan with the Cloud

- Several apps in the QTS App Center provide a secure-yet-flexible hybrid cloud backup solution
- Supports S3 Plus, Glacier, Azure Storage, Google Cloud Storage, OpenStack Swift and WebDAV
- Supports client-side encryption, backup file compression and regular-removal function
Challenge: Identify storage that provides more ROI for your Business
Virtualization Station

Deploy any application on a QNAP NAS

- Utilize the NAS hardware’s capabilities by directly deploying VM on the NAS
- Use the NAS as a PC by outputting the VM console to an HDMI display
Supports LXC and Docker® containers

- Use Docker® to bridge computers, NAS, and the cloud for developers and system administrators
- Use LXC, the lightweight Linux® VM on NAS to gain the best VM performance
- Use over 10,000 applications available from Container Station

DMI display

LUX
A lightweight alternative to virtual machines.

Docker
Benefit from a rapid, application-centric, portable deployment technology.
Productivity Utility

Varies Servers Configurations supported

- Use Web Server to quickly & easily host up to 32 websites
- Use RADIUS Server for centralized authentication management
- Use Printer Server for networked printers
- Use Syslog Server to build a central data log repository
Centralized NAS Management for QNAP NAS

Monitor and manage multiple NAS including performance, drive status, and settings with visual reports.
Access your business anywhere, anytime

Securely access your QNAP NAS and data directly over the Internet by using myQNAPcloud

Protected Data Transfer
Password Authentication
Granular Security Control
Account Activity Logging
And App Center:

Customize your QNAP NAS with apps

- Notes, CMS, ERP, Database, Advertisements and more...
- Over 100 applications are available in the App Center to extend the capabilities of the QNAP NAS to meet growing business requirements
Thanks for Listening