TS-639 Pro Turbo NAS

Superior Performance NAS with Advanced Security and iSCSI for Business Users

- **6-Bay Hot-swappable**
- **Superior Performance for Data Sharing**
- **Built-in iSCSI Target Service**
- **AES 256-bit Volume-based Encryption**
- **RAID 0/1/5/6/5+Spare/JBOD**
- **Online RAID Capacity Expansion & Online RAID Level Migration**
- **Dual Gigabit LAN: Failover, Load-Balancing & Multiple IP Setting**
- **Touch-N-Go PC-less Installation**

QNAP

TS-639Pro
169.254.100.100

POWER

COPY

Powerful Intel Processor
1.6GHz

1GB
DDRII Memory

- **Superior cooling design**
- **Ultra-low system noise**

Abundant Business Server Features

- RAID Server
- iSCSI Target
- Web Server
- MySQL Server
- Remote Replication (Rsync)

- File Server
- Backup Server
- FTP Server
- Printer Server (Max. 3 sets)
- and more...

iSCSI Target | Volume-based Encryption | RAID 0/1/5/6/5+Spare/JBOD | Online RAID expansion | Online RAID migration | UPS Support | Printer Server

Dual Gigabit Ethernet | Hot Swappable | HDD S.M.A.R.T. | Failover | Load Balancing | Wake on LAN | Schedule on/off

SMS Support | LCD Configuration | SATA I / II | OS Support | PHP SQLite & MySQL | RSS Support | QPKG Support

TS-639 Pro Turbo NAS

Overview

Modern business requires a secure, reliable, and high-performance data center to store important digital assets. To easily and securely back up, protect, and share the stored information are also essential to business productivity. QNAP TS-639 Pro is the new generation 6-bay model of the worldwide award-winning Turbo NAS Series, providing superior performance for massive data sharing, powerful all-in-one business server features, advanced RAID data protection, built-in iSCSI target service, AES 256-bit volume-based encryption, and rock-solid hot swappable hard drive design for modern business and corporations.

Superior performance and advanced RAID redundancy
Powered by Intel 1.6 GHz CPU, 1GB DDRII memory, the TS-639 Pro delivers superior performance for multiple business applications. Advanced RAID configurations, including RAID 0/ 1/ 5/ 6/ 5+Spare, JBOD, online RAID capacity expansion, and online RAID level migration are all supported.

The Most Flexible iSCSI Solution with Virtual Space Allocation
The TS-639 Pro can serve as a NAS and an iSCSI target server. The built-in iSCSI target feature provides an affordable IP-SAN (Storage Area Network) alternative for SMB. The server managers can set up the NAS to expand the storage capacity for existing application servers, such as database server and mail server in an economic way. Moreover, the innovative "Virtual Space Allocation" (Thin Provisioning) feature is provided which allows the server managers to flexibly allocate the capacity of iSCSI LUN (Logical Unit Number) at the beginning without the limitation of the volume space.

Versatile Applications for Business and Corporation
The TS-639 Pro supports file sharing across Linux, UNIX, Mac, and Windows platforms. Versatile business features are supported, e.g. file server, FTP server with encryption, and printer server, PHP/MySQL supported web server, and encrypted remote replication by Rsync. Also, Windows AD (Active Directory) is supported to help create an easy-to-access environment and lower the maintenance cost. SSH login and web page SSL login enable users to transfer, store, and share data securely.

Secure Data Protection by AES 256-bit Volume-based Encryption
The TS-639 Pro's dominant 'volume-based encryption' feature secures the server data by AES 256-bit encryption. Even if the hard drives were stolen, there is no need to fear the confidential would be leaked since the data can only be accessed by an authorized password.

### Easy Setup and Low-cost Maintenance
The handy LCD display on the NAS provides a speedy and easy approach for IT administrators to initialize the NAS and set up the RAID configuration without using any computer. The system information and settings are also displayed for easy management. The schedule power on/off feature is available on the NAS for IT administrators to flexibly manage the NAS server's up time according to the working hours. Also, the smart Wake on LAN is supported for convenient remote wakeup of the NAS in the local network.

Advanced RAID Management

Advanced RAID Management with How-swap Design
The NAS offers advanced RAID 0, 1, 5, 6, 5 + Spare, Single, and JBOD disk configurations. It also supports hot-swap design that a failed drive can be replaced by hot swapping without turning off the server. Besides, the best-in-class RAID on the NAS brings users a higher level of data security by allowing one more hard drive failure than other NAS of the same level.

Online RAID Capacity Expansion
The storage capacity of a RAID configuration can be expanded by replacing the hard drives with larger ones. All the data will be kept and seamlessly moved to the newly installed hard drives. There is no need to turn off the server during the process.

2.5TB (RAID5)   **5TB (RAID5)**
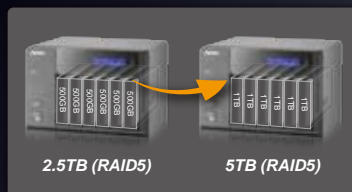
Online RAID Level Migration
Users can upgrade the disk configuration to higher RAID level with the data retained. There is no need to turn off the server during the process.

RAID 1 Mirroring   RAID 5 (5 HDD)   a. RAID 5 (6 HDD) b. RAID 6 (6 HDD)

c. RAID 5 + spare (5 HDD)
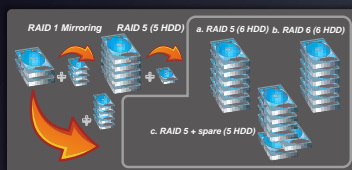
AES 256-bit Volume-based Data Encryption

The TS-639 Pro's dominant "volume-based encryption" feature enables the server manager to build encrypted disk volumes on the NAS for the first time installation. The disk volume is securely protected by AES 256-bit encryption. An encryption key is required to unlock the encrypted volume to access the server data. This prevents data leakage if the server or the hard drives were stolen.
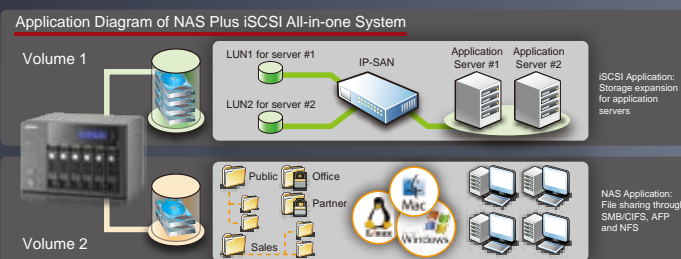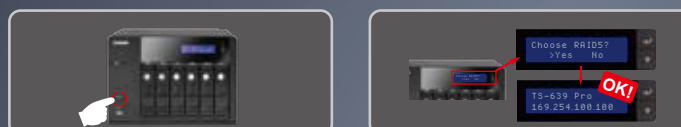
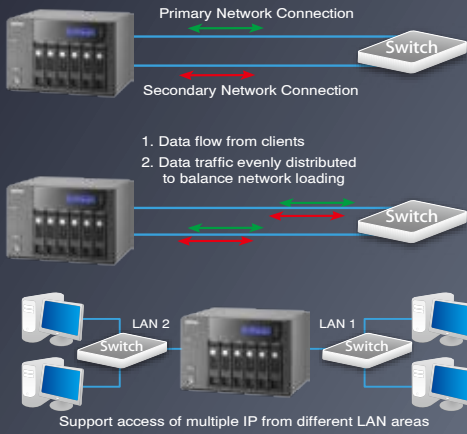## DOM Architecture and Fail-Safe Dual OS Protection

All the OS and applications of the TS-639 Pro are embedded on the DOM. The NAS allows system booting without accessing the physical disk sectors and that prevents unsuccessful system startup caused by bad block sectors or file errors on the hard drives. Two operating systems are built on the DOM for system booting alternatively upon every system startup. When one fails, the other one will be used to boot up instead, and the failed OS is recoverable from the other healthy OS.

Flexible Built-in iSCSI Solution

Built-in iSCSI Target Service
For small business, a high-performance and flexible storage expansion solution for the existing application servers is required. However, DAS (Direct Attached Storage) is not an efficient solution and a Fiber Channel SAN is too expensive and complicated to implement.

The TS-639 Pro can act as a NAS and iSCSI target server at the same time. It provides a cost-efficient iSCSI solution to set up an IP-SAN. The server manager can make use of the built-in iSCSI target service to add up to 8 iSCSI devices. Different iSCSI Target LUNs (Logical Unit Number) can be defined as storage expansion or backup destination of the existing application servers, such as database servers and mail servers.

Virtual Space Allocation (Thin Provisioning)
The "Virtual Space Allocation" (Thin Provisioning) feature is provided which allows the server manager to flexibly allocate the capacity of iSCSI LUN (Logical Unit Number) at the beginning regardless of the physical volume capacity. When the physical storage capacity of the volume is going to be full, the server manager can easily expand the storage capacity of the NAS by "Online RAID Capacity Expansion".

Application Diagram of NAS Plus iSCSI All-in-one System

Volume 1

LUN1 for server #1
LUN2 for server #2
IP-SAN
Application Server #1
Application Server #2

iSCSI Application: Storage expansion for application servers

Public   Office
Partner
Sales

NAS Application: File sharing through SMB/CIFS, AFP and NFS

Volume 2

Touch-N-Go PC-less Installation

You can use the handy LCD to finish the first time installation in 3 simple steps. The TS-639 Pro will automatically complete the hard disk formatting and RAID building.

Choose RAID5?
>Yes   No

OK!

TS-639 Pro
169.254.100.100

Benefit of Dual LAN Deployment

Primary Network Connection

Switch

Secondary Network Connection

1. Data flow from clients
2. Data traffic evenly distributed to balance network loading

Switch

LAN 2   LAN 1

Switch   Switch

Support access of multiple IP from different LAN areas

Network Failover
Failover allows the NAS to sustain the failure of one network port to provide continuous services.

Load-Balancing
Bandwidth aggregation is supported to boost the file transfer speed (works with managed Ethernet switch with 802.3ad configured).

Multi-IP Setting
The NAS can be deployed with two different IP settings for sharing among different workgroups in two different subnets.

Complete Backup Solution

NetBak Replicator (no license account limitation)
The backup software, NetBak Replicator, is provided for the NAS users to perform real-time synchronization or schedule backup from multiple PCs to the NAS.

Encrypted Remote Replication by Rsync
Data on the Turbo NAS can be backed up to or from another Turbo NAS or Rysnc server over the network securely.
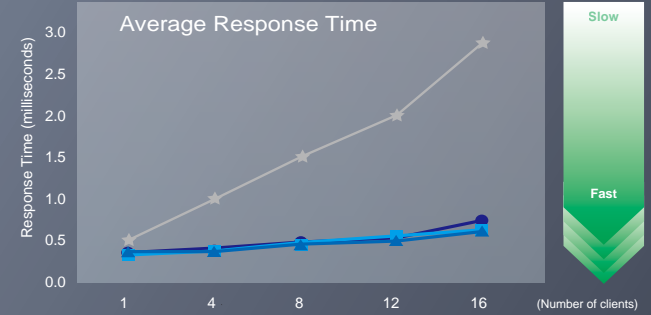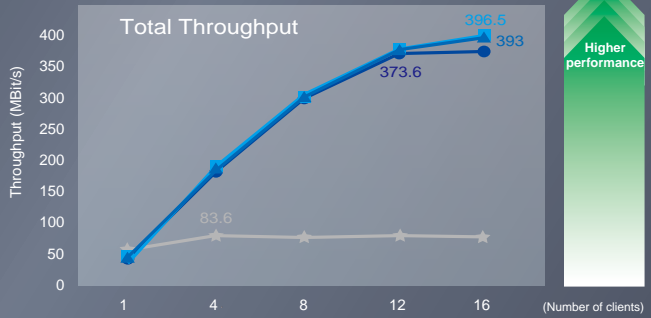
3rd Party Backup Software Ready
Arconis True Image, CA BrightStor ARCserve Backup, EMC Retrospect, Symantec Backup Exec, and LaCie Silverkeeper.

One Touch USB Auto Copy
The one touch button can be configured to trigger instant data backup from the external USB device to the NAS or the other way round (applies to the USB device connected to the front USB port of the NAS only).

Software Expansion via QPKG Platform

The QPKG software package platform enables the users to maximize the usage of Turbo NAS by installing additional software packages developed by the users and community worldwide.

File Server Performance (NetBench)

Total Throughput

Throughput (MBit/s)

400 — 350 — 300 — 250 — 200 — 150 — 100 — 50 — 0

83.6   373.6   396.5   393

1   4   8   12   16   (Number of clients)

Higher performance

Average Response Time

Response Time (milliseconds)

3.0 — 2.5 — 2.0 — 1.5 — 1.0 — 0.5 — 0.0

1   4   8   12   16   (Number of clients)

Slow

Fast

△ TS-639 Pro, Single ● TS-639 Pro, RAID 6
■ TS-639 Pro, RAID 5 ★ Other NAS (RAID 5 Mode)

• Testing benchmark program: ZD NetBench version 7.0.3
• Client PCs (16 Total): Intel Celeron 1.6GHz CPU, 1GB DDRII 667, Atheros AR8121 GbE Chip, Windows XP SP3

Practical System Management Tools

S.M.A.R.T. & Advanced HDD Health Scanning (HHS)
The NAS supports Hard Disk Drive S.M.A.R.T. (Self-Monitoring Analysis and Reporting Technology) for monitoring the HDD status. Moreover, the NAS is embedded with HHS (HDD Health Scan) which supports disk checking and bad blocks scanning.
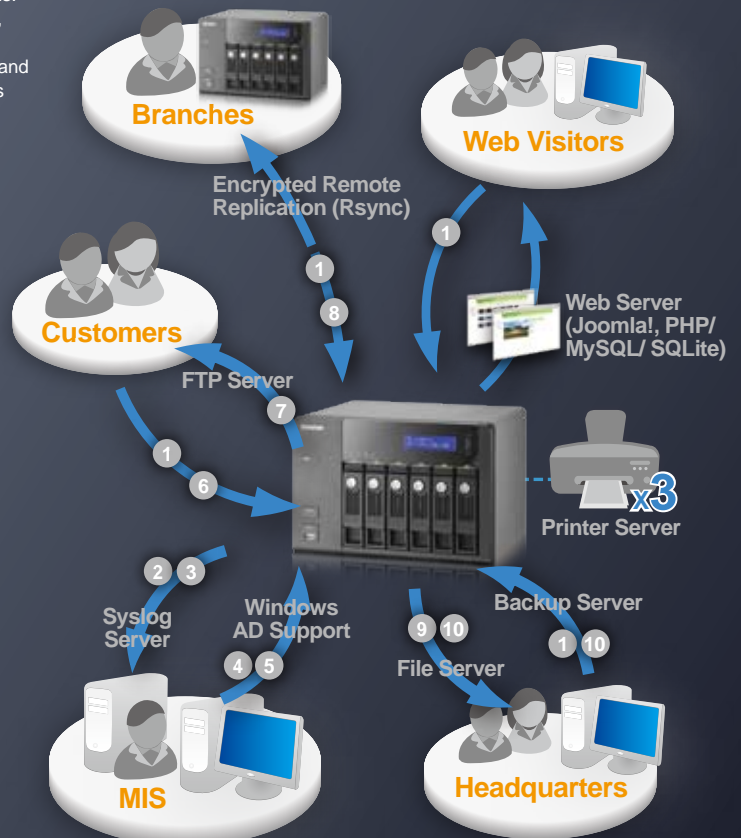
Advanced Alert Notification via SMS/Email
The NAS manager will be informed by e-mail of any warning or malfunction. In addition, the error notification can also be sent by SMS to assigned mobile phone.

All-in-one Turbo NAS Applications for Business

The TS-639 Pro supports file sharing across Linux, UNIX, Mac, and Windows platforms. Versatile business functions are supported, e.g. file server, FTP server, backup server, printer server, web server, encrypted remote replication by Rsync and Windows AD (Active Directory). SSH login and web page SSL login enable users to transfer, store, and share data securely. The NAS supports UPS devices to prevent avoid critical data loss when power outage occurs during data transfer.

Secure Measures for Data Storage and Access

1. **Policy-based Unauthorized IP Blocking:** Server manager can allow, deny or auto block specified IP address or network domain which attempts to connect to Turbo NAS via SSH/ Telnet/ HTTP(S)/ FTP/ samba/ AFP.

2. **Comprehensive Event Log System:** Detailed logs of file-level data access to the Turbo NAS via samba, FTP, AFP, HTTP, HTTPS, Telnet, and SSH, and networking services accessed by online users are all recorded.

3. **Syslog Setting:** All the system event logs and connection logs can be saved to a remote syslog server.

4. **Remote Login** by SSH (secure shell) or Telnet connection is supported.

5. **SSL Security (HTTPS):** The Turbo NAS can be accessed and configured by the web browser securely. The administrator can also upload a secure certificate and RSA private key in X.509PEM format issued by a trusted provider for the users to access the Turbo NAS by secure SSL login.

6. **Secure FTP:** The data can be transmitted with SSL/TLS (explicit) encryption. Passive FTP port range setup is also supported.

7. **Write-only access right on FTP server:** The third party partners are allowed to upload data to the NAS but not able to read or edit the data on FTP server.

8. **Encrypted Remote Replication by Rsync:** Data on the NAS can be backed up to or from another Turbo NAS or Rsync server over the network securely.

9. **Share Folder Management:** For the security of Windows network environment, server managers can hide or show network share folders.

10. **User Authority Management:** The NAS allows the server manager to create user ID and password, and define the authority and quota for each user.

Branches

Web Visitors

Encrypted Remote Replication (Rsync)

1   8   1

Web Server (Joomla!, PHP/ MySQL/ SQLite)

Customers

FTP Server   7

1   6

x3

Printer Server

2   3

Syslog Server

Windows AD Support

4   5

9   10

File Server

1   10

Backup Server

MIS

Headquarters

Hardware Specifications

Processor
• Intel Processor 1.6GHz

Memory
• 1GB DDRII RAM, 128MB flash (DOM)

HDD Capacity
• 6 x 3.5" SATA I/II HDD (up to 1.5 TB HDD, the standard system is shipped without HDD)

HDD Tray
• 6 x hot-swappable and lockable tray

LAN Port
• 2 x Gigabit RJ-45 Ethernet port

LED Indicators
• Status, LAN, USB, eSATA
• Power, HDD 1, HDD 2, HDD 3, HDD 4, HDD 5, HDD 6

USB
• 5 x USB 2.0 (Front: 1; Back: 4) Support USB printer, disk, pen drive, USB hub, and USB UPS etc.

eSATA
• 2 x eSATA port (Back)

Buttons
• System: Power button, USB one-touch-backup button, reset button

LCD panel
• Mono-LCD display with backlight Enter button, Select button for configuration

Alarm Buzzer
• System warning

Form Factor
• Compact

Dimensions
• 235(D) x 257(W) x 175(H) mm

Weight
• Net weight: 5.2Kg
• Gross weight: 6.5Kg

Operation Environment
• Temperature 0~40°C
• Humidity 0~95% R.H.

Power Supply
• ATX 250W, Input: 110-240 Vac~, 50-60Hz, 5A

Secure Design
• K-Lock security slot for theft prevention

VGA
• Reserved VGA interface for maintenance

Fan
• 2 x quiet cooling fan (9 cm, 12V DC)

Powerful All-in-one Server

File Server
• File sharing across Windows/ Mac/ Linux/ Unix and centralized management

FTP Server
• Support data access from remote location via FTP (max. 256 concurrent connections)
• FTP with SSL/ TLS (explicit) mode
• FXP supported
• FTP bandwidth control and connection control
• Passive FTP port range control

Backup Server
• QNAP client-side backup software - NetBak Replicator supports instant, schedule, and auto-sync backup
• 3rd party backup software support: Acronis True Image, CA Brightstor ARCserve Backup, EMC Retrospect, Symantec Backup Exec, LaCie Silverkeeper

Printer Server
• Network printer sharing via USB (support Windows & Mac platform)
• Support all-in-one printer (max. 3 sets)

Remote Replication
• Block-level remote replication supports instant, schedule backup management; support synchronization mode

Web Server
• Built-in phpMyAdmin, built-in Joomla!, editable php.ini, SQLite and MySQL dual support

MySQL Server
• Support MySQL database server

UPnP MediaServer (built-in TwonkyMedia)
• Support UPnP/ DLNA multimedia technology; share stored photos and home videos on TV, listen to music on Hi-Fi system via DMP

• Enjoy more than hundreds of worldwide Internet radio (built-in TwonkyMedia)
• Support media playing with PS3, Xbox360, PSP game consoles

iTunes Server
• iTunes server for music sharing on your network
• Support smart playlist for iTunes software

Multimedia Station
• Image slide show and rotation (+90°, -90°)
• Display photo details: date, exposure time, aperture, etc.
• Automatic thumbnail generation for easy browsing
• Photo album access authority management
• Multimedia files (video and audio) local playing
• Automatic file categorization

Download Station
• PC-less BitTorrent/ FTP/ HTTP download
• QNAP remote download control software: QGet (Windows-based application), allows you to control the download tasks of multiple Turbo NAS on one PC via LAN/ WAN
• BitTorrent download supports TCP/ UDP, DHT
• BT schedule download supported
• BT download (up to 500 tasks)
• Download configuration (current seed number, configurable port range, bandwidth control, download percentage, UPnP NAT port forwarding for BitTorrent download)
• Download status list management (download percentage)
• Support access from Mac by Mozilla Firefox

Software Specifications

Operating System
• Linux-embedded system

Networking
• TCP/IP, DHCP Client, DHCP Server, CIFS/SMB, AFP, NFS, HTTP, HTTPS, FTP, DDNS, NTP
• Failover
• Load-balancing
• Multi-IP setting
• Gigabit Jumbo frame

File System
• EXT3 (Internal/ external HDD)
• FAT (External HDD)
• NTFS (External HDD)

Supported Operating Systems
• Microsoft® Windows® 98/ ME/ NT/ 2000/ XP/ 2003/ Vista
• Mac OS X

Disk Management
• Single disk, RAID 0 (Disk Striping), RAID 1 (Disk Mirroring), RAID 5, RAID 5+ Hot spare, RAID 6, and JBOD (Linear Disk Volume)
• Multiple RAID (Maximum capacity for single volume is up to 8TB)
• Online RAID Capacity Expansion
• Online RAID Level Migration
• Disk usage status management
• Check disk (Check Linux file system)
• HDD S.M.A.R.T.
• Bad blocks scan
• Support PC-less RAID setup via LCD panel for the first time installation (Touch-N-Go)
• AES 256-bit volume-based encryption
• Built-in iSCSI target service

User Management
• User quota management (per user)
• Windows AD
• User account management (max. 4,096 users)
• User group management (max. 512 groups)
• Support batch creating users

File System Management
• Network share management (max. 512 shares)
• Network volume status management
• Share folder level ACL support
• Hide share folder on Windows network
• Unicode support
• Journaling file system
• Web File Manager

System Tools
• E-mail alert notification (SMTP authentication)
• SMS alert notification
• HDD standby mode
• Disk usage alert
• Automatic power on after power loss
• QPKG add-on firmware supported
• System firmware upgrade
• Change homepage logo
• Back up, restore, reset system settings
• Smart fan setting
• Configurable management port
• Policy-based unauthorized IP blocking
• Secure remote login by SSH connection; remote login by Telnet connection
• USB, SNMP UPS support
• LCD control panel for easy 3 steps installation
• Wake on LAN
• Schedule on/ off service (max. 15 settings)
• Network recycle bin
• Import SSL certificate

LCD
• RAID configuration for the first time setup
• When the system is ready, users can check or configure the IP settings, physical disk info, volume info, system info, shut down or reboot the NAS, etc.

Event Logs
• Complete system logs (file level): system events management, connection logs, current connection of on-line users

Multilingual Support
• English, Traditional Chinese, Simplified Chinese, Japanese, Korean, French, German, Italian, Spanish, Russian, Swedish, Norwegian, Finnish, Danish, and Polish

Backup Management
• PC-client backup software-NetBak Replicator: Instant/ Schedule/ Auto-sync backup
• Remote Replication support Rsync
• Encrypted remote replication
• One touch USB copy for different destination folders
• Backup to external storage device

Package Contents

TS-639 Pro Turbo NAS

CD-ROM

Ethernet cable x 2

Quick Installation Guide

Power cord

Flat head screw x 24

Hard disk lock

Quick Installation Guide (RAID configuration)

Enter Button
Select Button
LED Indicators: Status, LAN, USB, eSATA
LED Indicators: Power, HDD1, HDD2, HDD3, HDD4, HDD5, HDD6
Power Button
One Touch Copy Button
USB 2.0

Power Connector
eSATA x 2
Giga LAN x 2
USB 2.0 x 4
Password & Network Settings Reset Button
VGA
K-Lock Security Slot

*Designs and specifications are subject to change without notice. Please contact QNAP for updated information.

QNAP
www.qnap.com