QNAP

TS-x53D

The Intel® quad-core 2.5GbE NAS with HDMI and PCIe expansion for 10GbE, Wi-Fi 6, or M.2 SSDs

With latest QTS 4.4.2 O.S.

QWA-AC2600

QM2-2S-220A

TS-453D

2.5GbE x 2

Read: 590 MB/s, Write: 535 MB/s

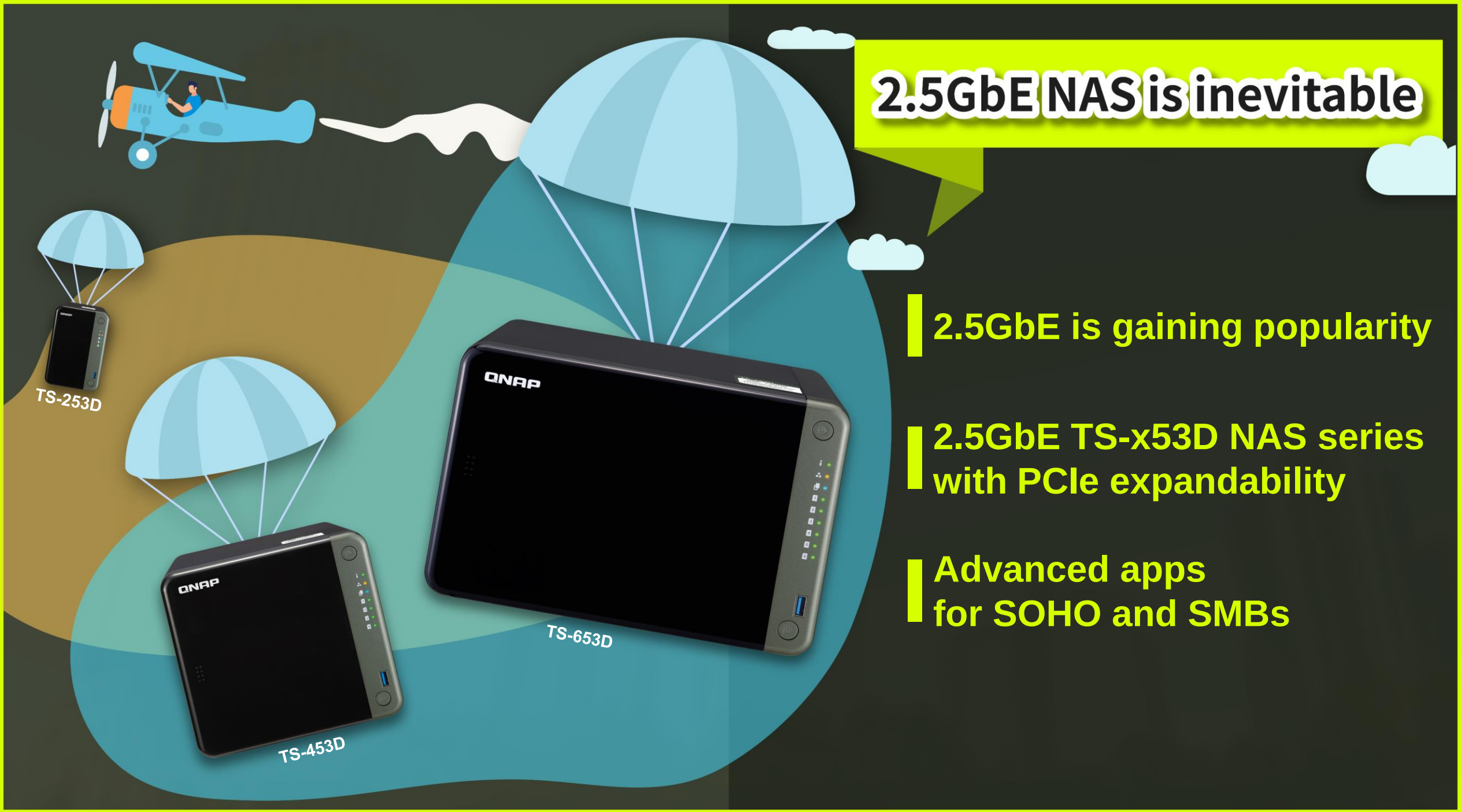
intel CELERON inside

J4125 4-core 2.0 GHz, up to 2.7 GHz

HDMI 2.0

TS-653D

TS-253D


2.5GbE NAS is inevitable
2.5GbE is gaining popularity
2.5GbE TS-x53D NAS series with PCIe expandability
Advanced apps for SOHO and SMBs
TS-253D
TS-453D
TS-653D
QNAP

The 20-year-old 1GbE is getting slow. Now newer motherboards are equipped with 2.5GbE!

- Asus ROG MAXIMUS XII EXTREME

- Gigabyte Z490 AORUS MASTER

- MSI MEG Z490 ACE

- Asrock Z490 Taichi

Wi-Fi 6 routers with 2.5GbE WAN/LAN port

When you upgrade to a Wi-Fi 6 router with 2.5GbE WAN/LAN, and if the router's 2.5GbE interface is set to a LAN port, a 2.5GbE NAS is best for the multiple clients of Wi-Fi 6 wireless and GbE wired access to efficiently utilize the full 2.5GbE bandwidth!

TP-Link
TL-XDR6060

Asus
AX6600M

Netgear
RAX120

With the same LAN cable, 2.5GbE switch for multi-device environment

Multiple QNAP switches supporting 2.5GbE

Coming 2020 Q3!

QSW-1105-5T (Unmanaged)
5 x 2.5G
RJ45 Multi-Gig
Fanless & metal housing

QSW-1208-8C (Unmanaged)
8 x 10G/5G/2.5G
RJ45 Multi-Gig

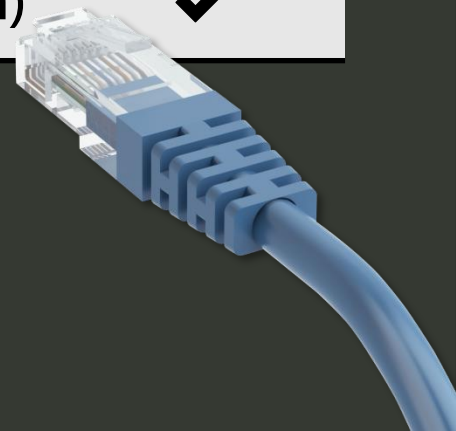
QSW-308-1C (Unmanaged)
1 x 10G/5G/2.5G
RJ45 Multi-Gig

QSW-M408-4C (Managed)
4 x 10G/5G/2.5G
RJ45 Multi-Gig

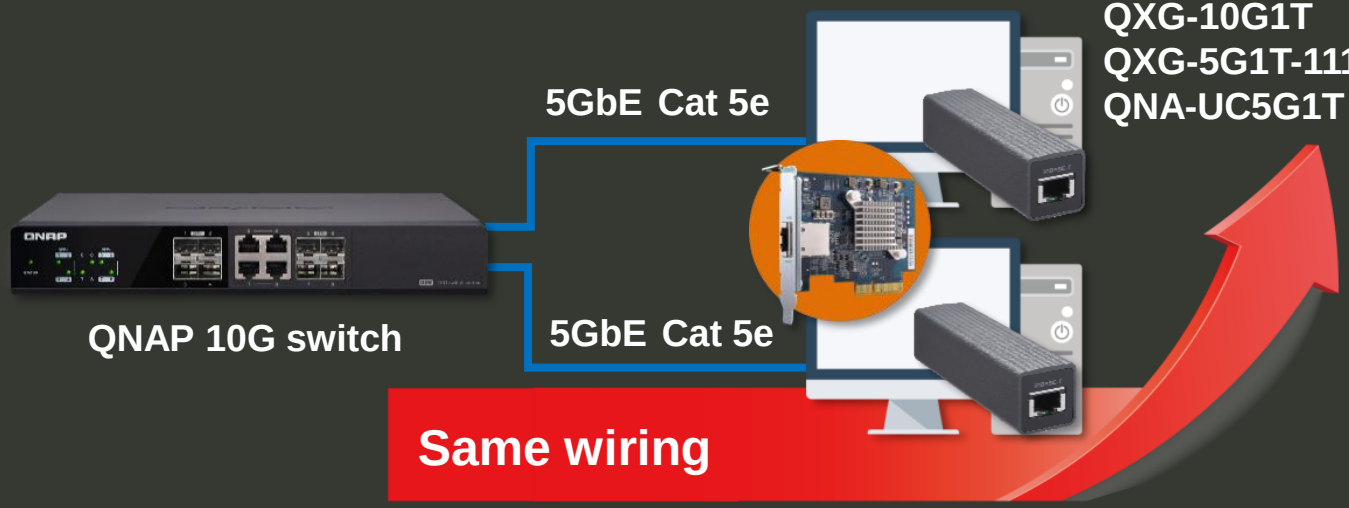
QSW-M408-2C (Managed)
2 x 10G/5G/2.5G
RJ45 Multi-Gig

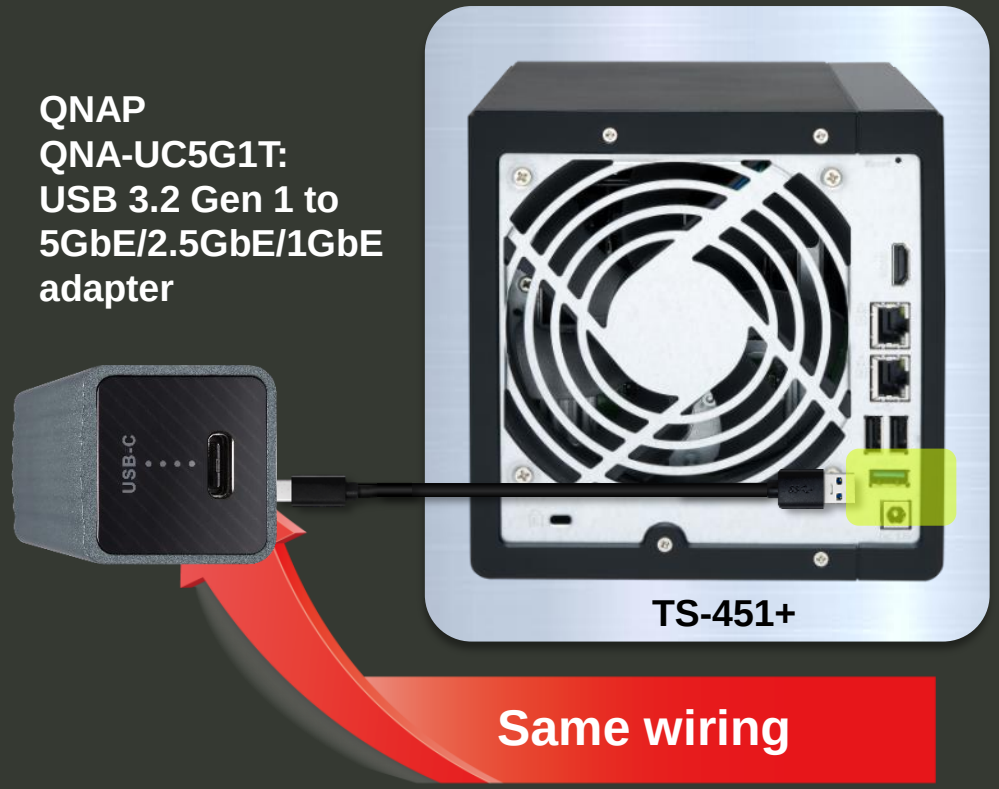
Use the existing wiring infrastructure to support 2.5GbE

	CAT 5e	CAT 6	CAT 6A
100M	✔	✔	✔
1G	✔	✔	✔
2.5G	✔	✔	✔
5G	✔	✔	✔
10G	X	✔(55m)	✔



QNAP 10GbE/5GbE accessories for PC / Server / NAS to get 10GbE/5GbE/2.5GbE via PCIe or USB

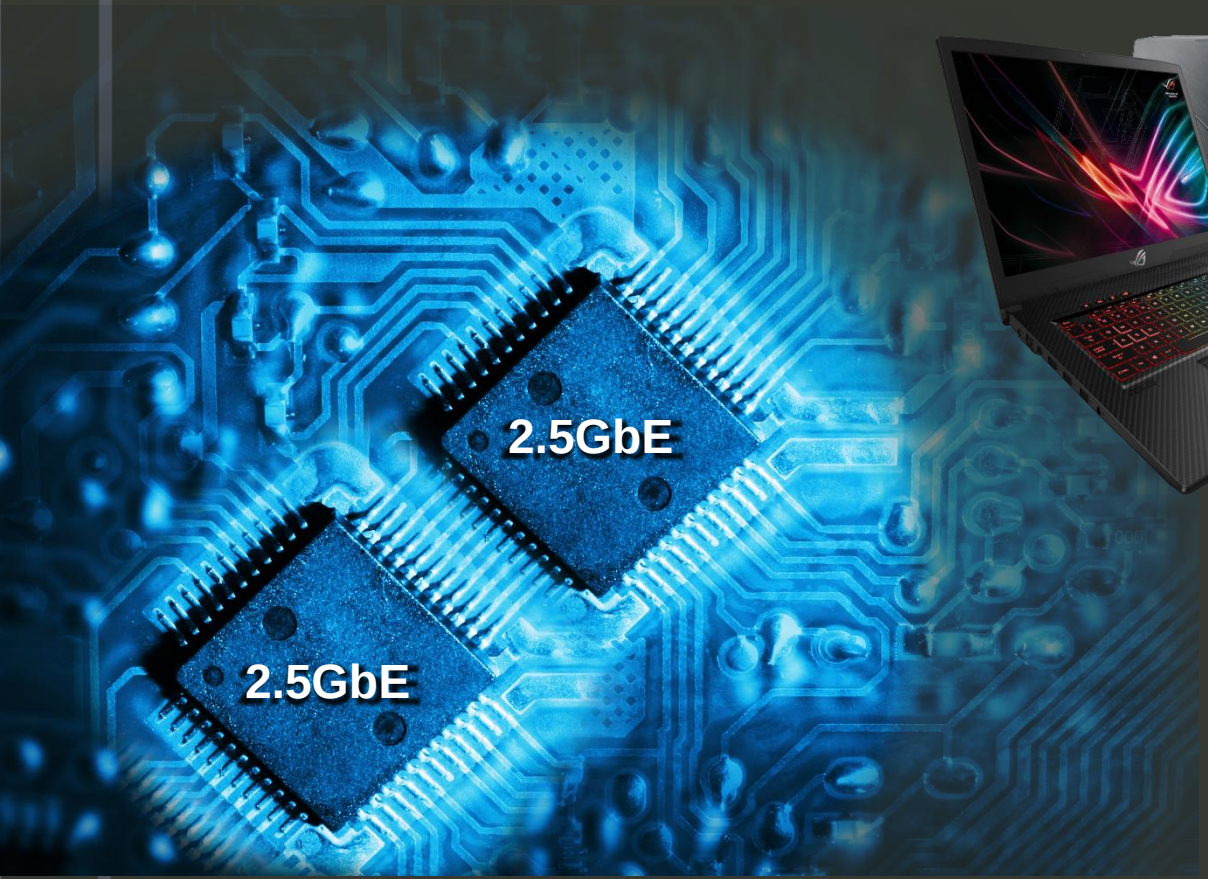




⚠ QNA adapter in QTS does not support:
Port trunking (LACP) / DHCP server
RADVD server / static route

Storage is also after higher speed! Dual 2.5GbE TS-x53D NAS for large file transfer and intensive access

No more bandwidth restriction by 1GbE interface on NAS! No more DIY to install the 2.5GbE driver to your other brand NAS!! TS-x53D NAS is built in with 2 independent 2.5GbE NICs for faster and smoother multi-device networking experience.



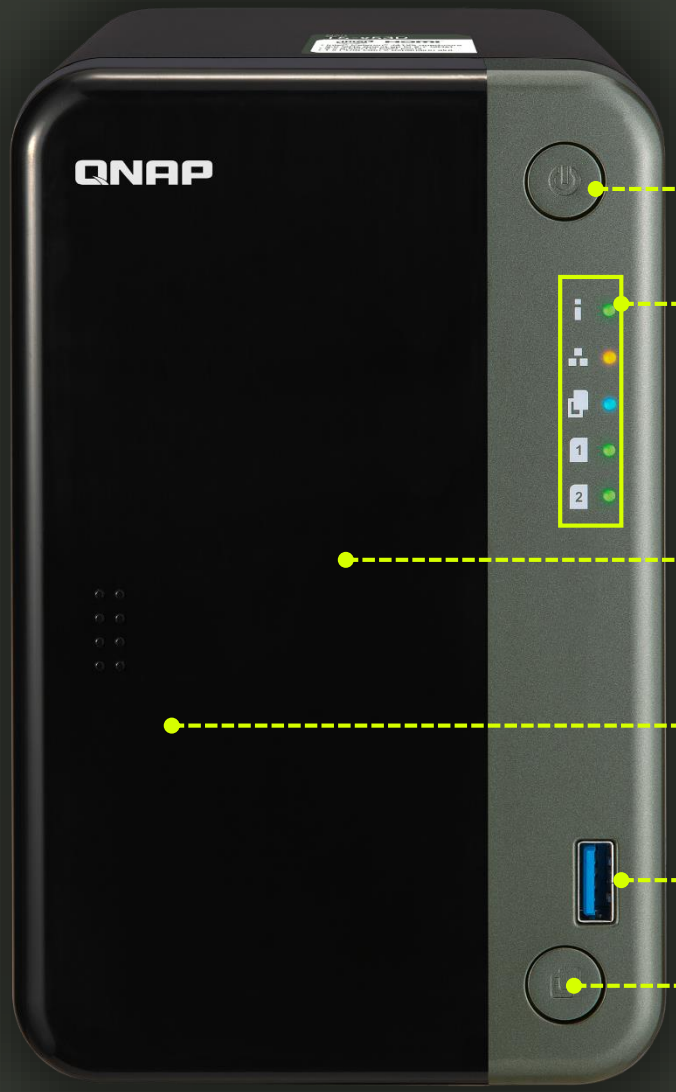
iSCSI 2.5GbE connection

Save space in your laptop with the large capacity NAS for more games and applications.

Lower NAS CPU utilization

Better TCP & UDP for more users

TS-253D, TS-453D, TS-653D front view



Power button

LED indicators with adjustable brightness:
Status, LAN, Drive, USB Copy

2/4/6 x SATA 6Gb/s

3.5”/2.5” HDD/SSD

Lockable magnetic cover

USB 3.2 Gen 1 port

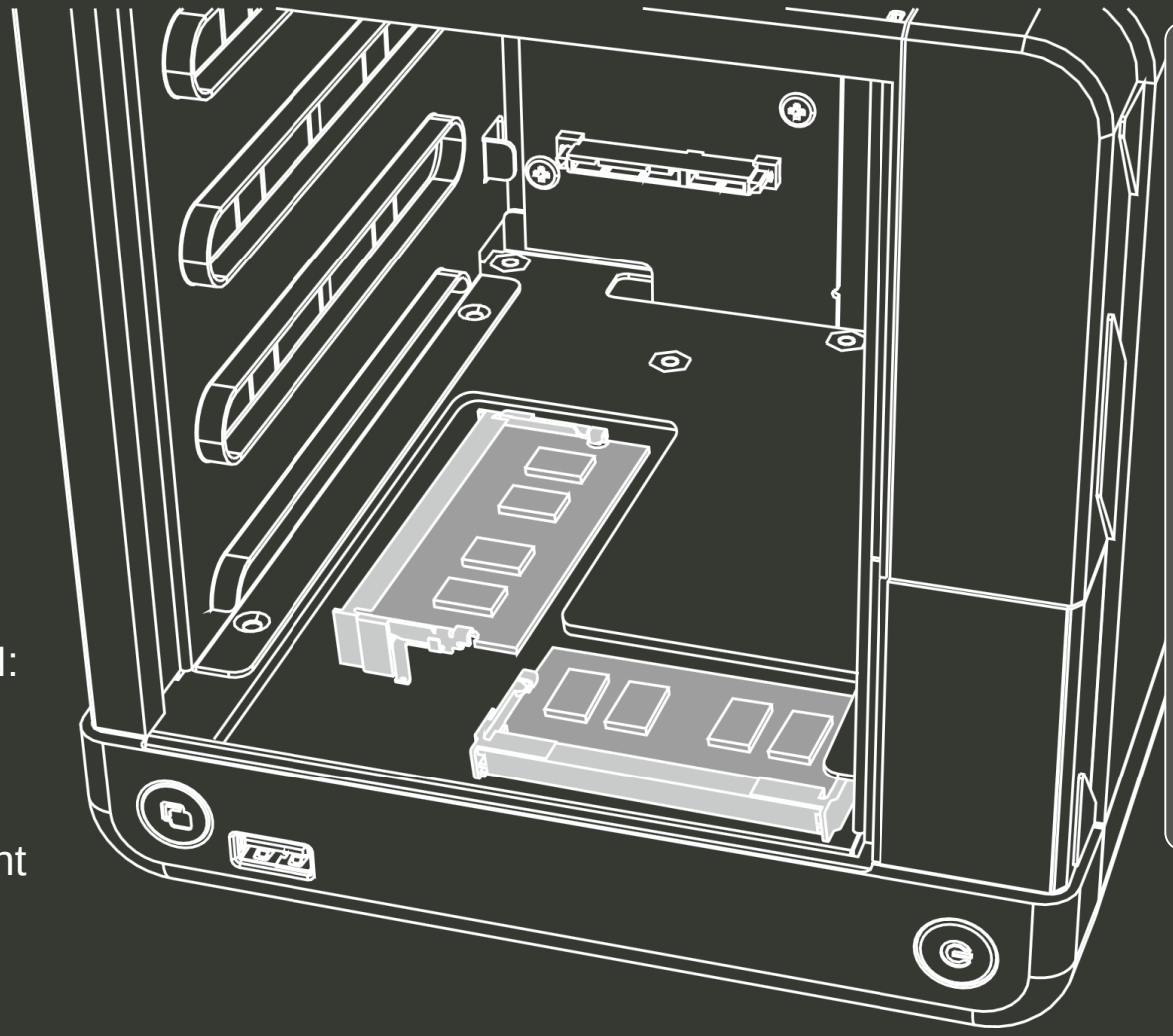
Copy button

8GB memory for multi-tasking and multi-client access

Dual channel

- 2 x DDR4 2400 MHz SO-DIMM slots for max

  8 GB (2 x 4 GB)
- Optional 4GB RAM module (P/N: RAM-4GDR4K0-SO-2666) for 4GB models to become 8GB for higher performance in multi-client and multi-app environment.



NAS Models

TS-253D-4G
4 GB RAM (1 x 4 GB)

TS-453D-4G
4 GB RAM (1 x 4 GB)

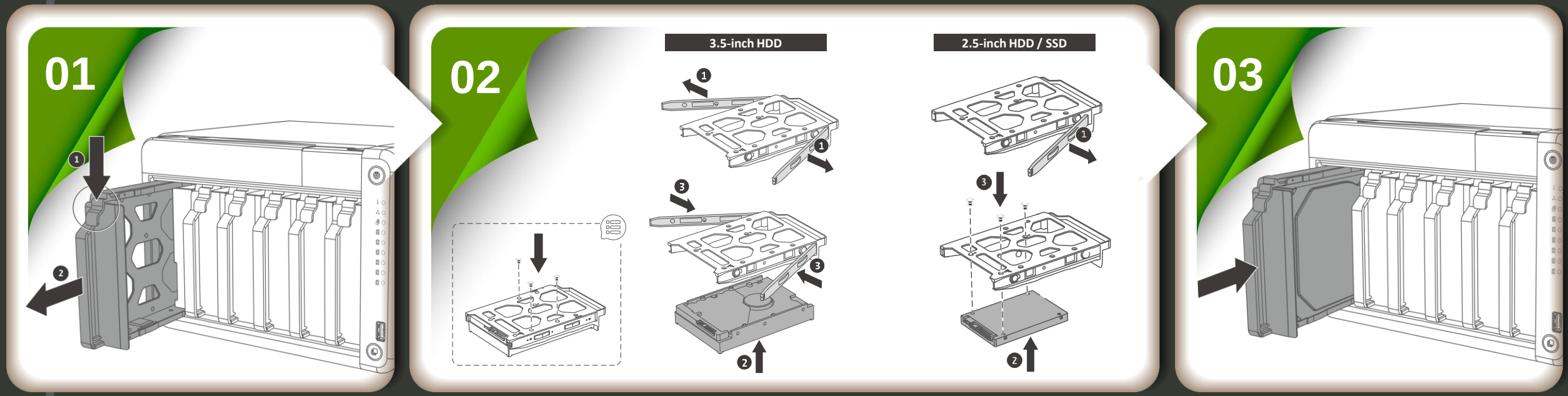
TS-453D-8G
8 GB RAM (2 x 4 GB)

TS-653D-4G
4 GB RAM (1 x 4 GB)

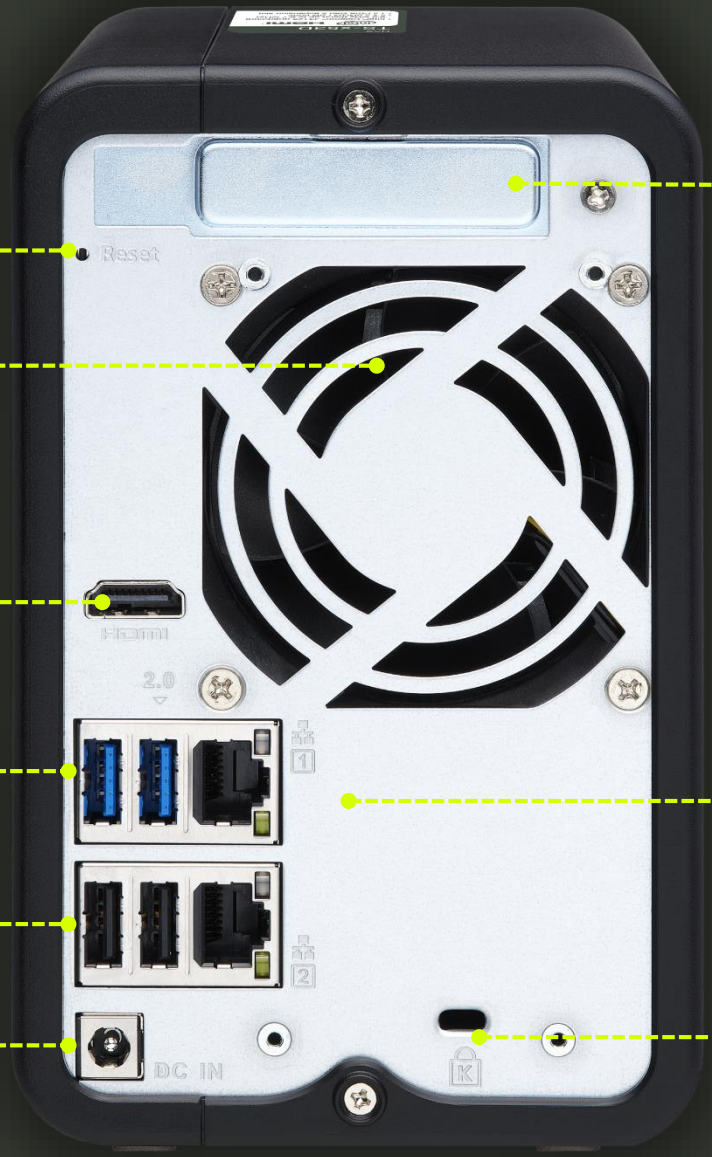
TS-653D-8G
8 GB RAM (2 x 4 GB)

Easy to install HDDs and SSDs

Install 3.5-inch drives without tools



TS-253D, TS-453D, TS-653D rear view



Reset button

Smart FAN
TS-253D: 1 x 70mm
TS-453D: 1 x 120mm
TS-653D: 2 x 90mm

HDMI 2.0 4K 60Hz

2 x USB 3.2 Gen 1 port

2 x USB 2.0 ports

DC 12V power inputs

PCIe 2.0 expansion slot
TS-253D: 2.0 x4
TS-453D: 2.0 x2
TS-653D: 2.0 x2

2 x 2.5G/1G/100M RJ45
Port trunking
Load balancing
Fail over

Kensington security slot

Latest Gen Intel J4125 4-core 2.0GHz, up to 2.7GHz

Low-power J4125

2.0 GHz base

2.7 GHz burst

Intel UHD Graphics 600

250 MHz base

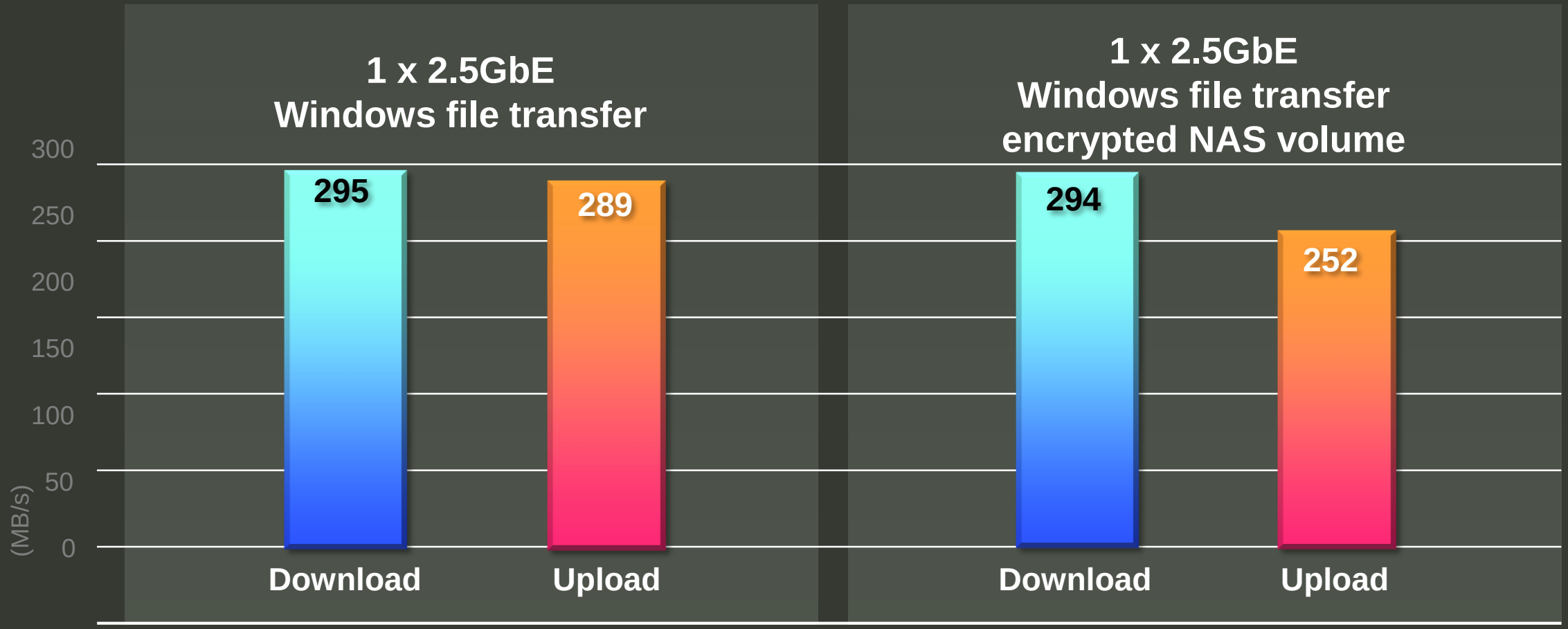
750 MHz burst

Embedded low-power 10W TDP quad-core Intel J4125 CPU

CPU model	J4125	J3455 (previous generation)
Launch date	Q4’19	Q3’16
Cores	4	4
Threads	4	4
Base frequency	2.0 GHz	1.5 GHz
Burst frequency	2.7 GHz	2.3 GHz
Cache	4 MB	2 MB
Memory	DDR4 (2400 MHz)	DDR3L (1866 MHz)
Built-in Graphics	Intel UHD Graphics 600	Intel HD Graphics 500
4K 60Hz support	60Hz (HDMI 2.0)	30Hz only

Source
https://ark.intel.com

2.5GbE accelerates large file transfer than 1GbE, suitable for a single client computer/server environment

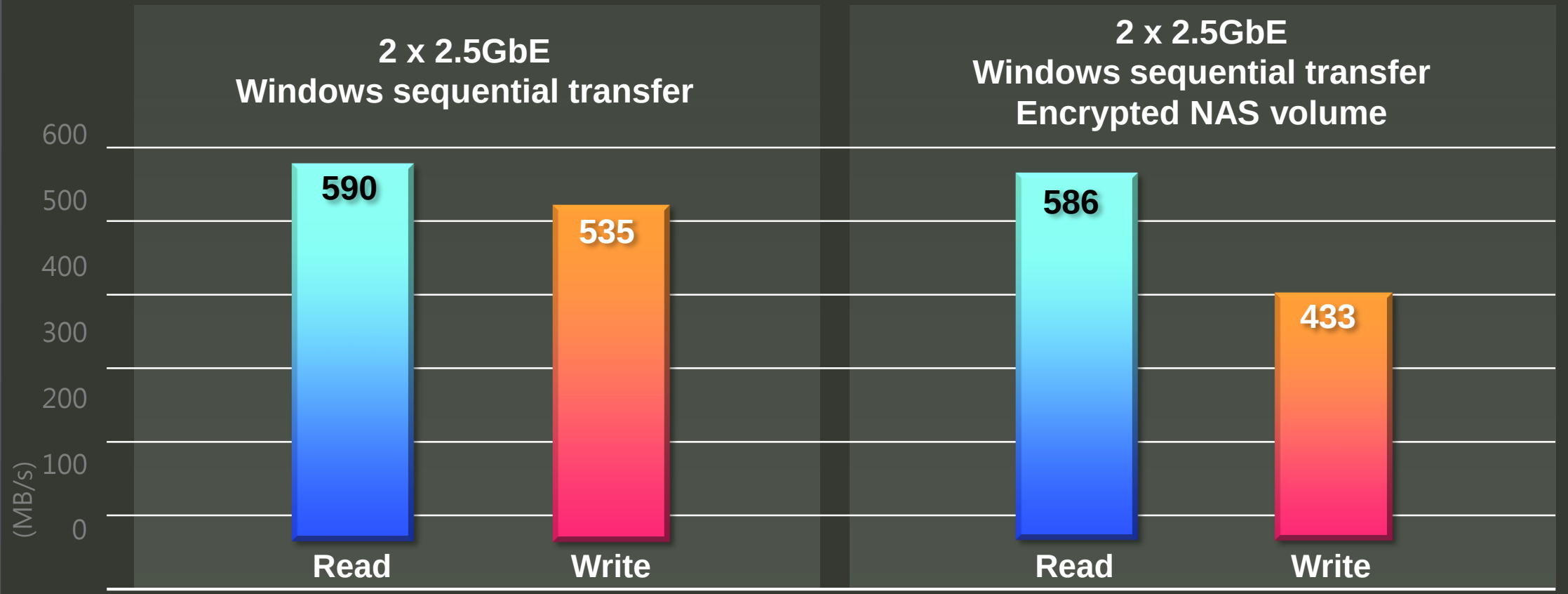


Tested in QNAP Labs. Figures may vary by environment.

Test environment:
NAS | TS-453D-4G, QTS 4.4.2, 4 x Samsung 850 Pro 1TB SSDs, RAID 5, thick volume
Client PC | Windows 10 Pro, Intel Core i7-6700 3.4 GHz, 32GB RAM
IOmeter | RAM*4, 30-sec ramp up time, 3-min seq. run time, 2 workers, 64-outstanding

2 x 2.5GbE for the multi-user/device environment for the future growth

In addition to Jumbo Frame support, port trunking / link aggregation provides enhanced performance.



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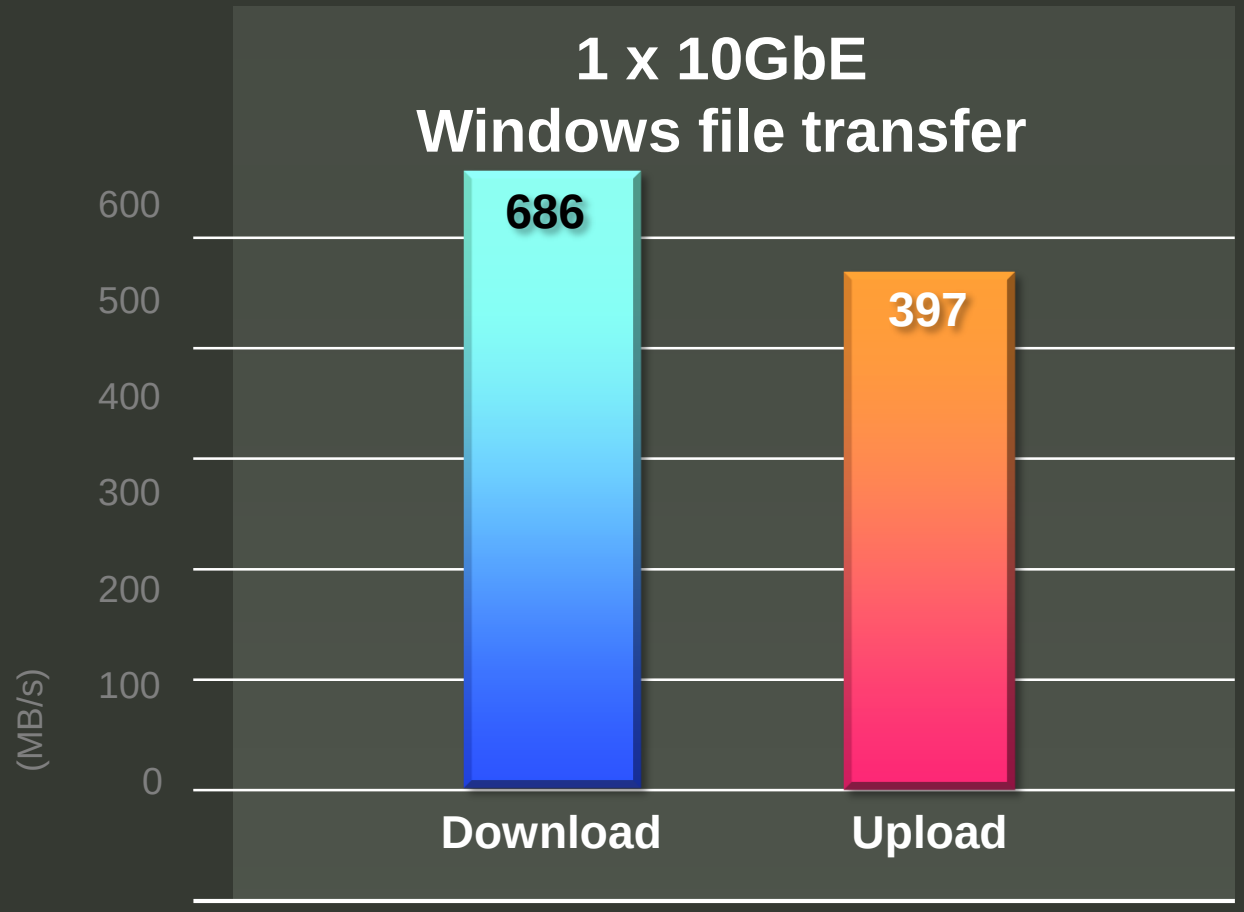
PCIe 2.0 slot for various 5GbE & 10GbE PCIe NICs



QXG-5G1T-111C
1 x 5G/2.5G/1G/100M

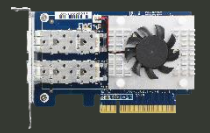
QXG-5G2T-111C
2 x 5G/2.5G/1G/100M

QXG-5G4T-111C
4 x 5G/2.5G/1G/100M

QXG-10G1T
1 x 10G/5G/2.5G/1G/100M

QXG-10G2T-107
2 x 10G/5G/2.5G/1G/100M

QXG-10G2SF-CX4
2 x 10G SFP+



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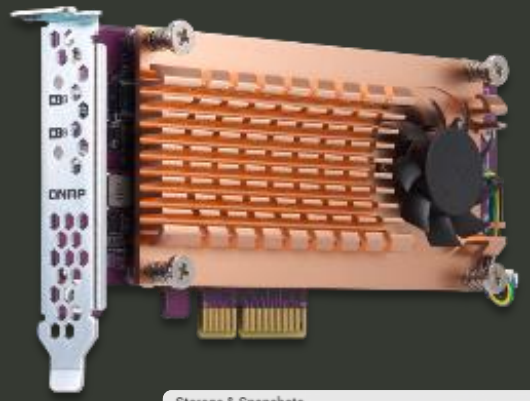
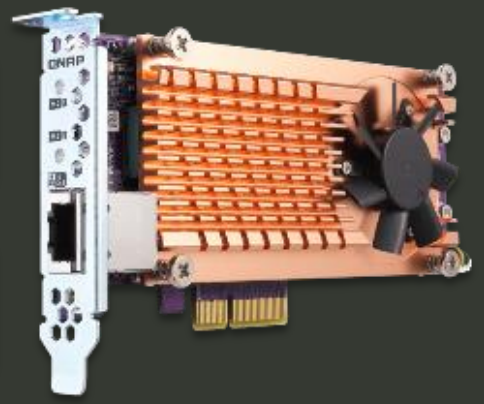
NAS | TS-453D-4G, QTS 4.4.2, 4 x Samsung 850 Pro 1TB SSDs, RAID 5, thick volume
Client PC | Windows 10 Pro, Intel Core i7-6700 3.4 GHz, 32GB RAM
IOmeter | RAM*4, 30-sec ramp up time, 3-min seq. run time, 2 workers, 64-outstanding

Add two M.2 SSDs with a QM2 PCIe adapter and use SSD cache to enhance IOPS and performance of processing small files



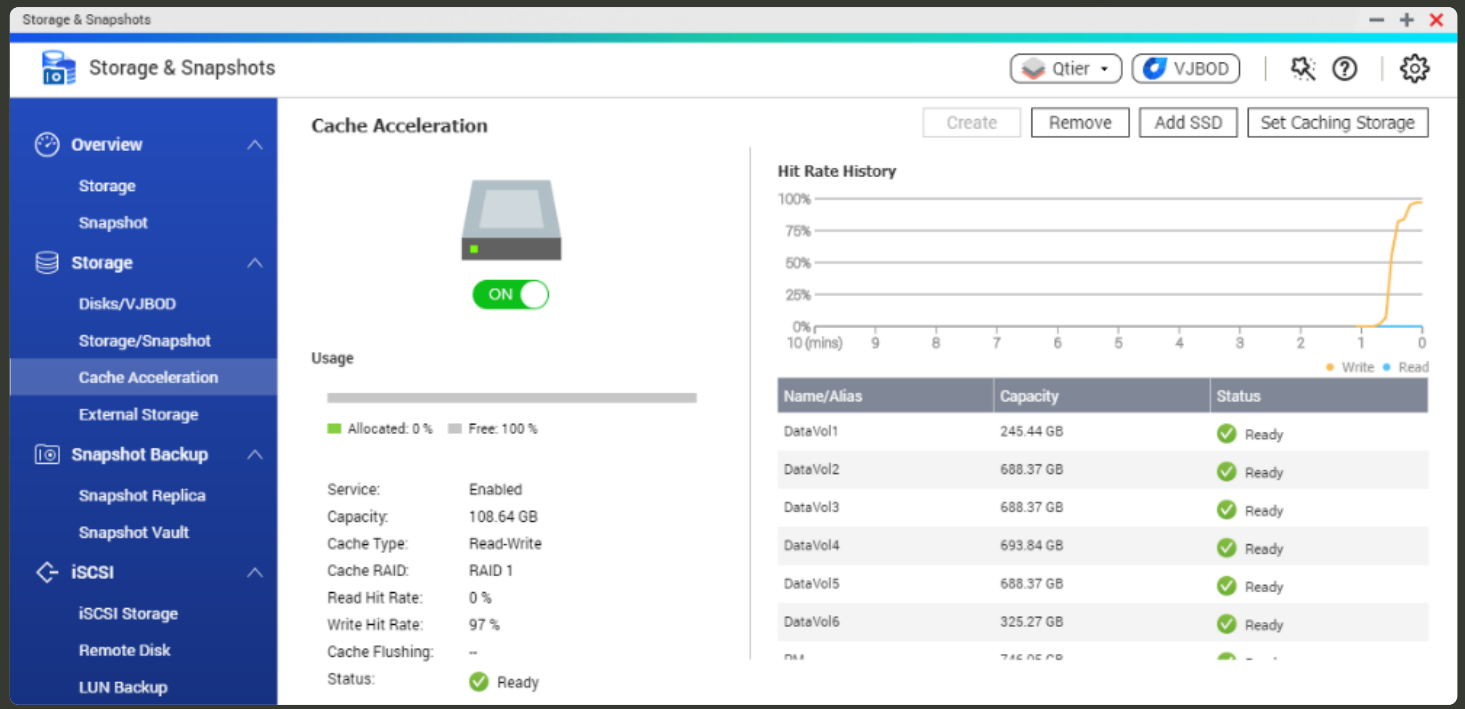
QM2-2S-220A
2 x M.2 SATA 6Gb/s

QM2-2P-244A
2 x M.2 NVMe PCIe Gen2



QM2-2S-10G1TA
2 x M.2 SATA 6Gb/s
1 x 10G/5G/2.5G/1G

QM2-2P10G1TA
2 x M.2 NVMe PCIe Gen2
1 x 10G/5G/2.5G/1G



Wi-Fi 6 enhances wireless network speed and density

AP

Ruckus
R750

Aruba
550

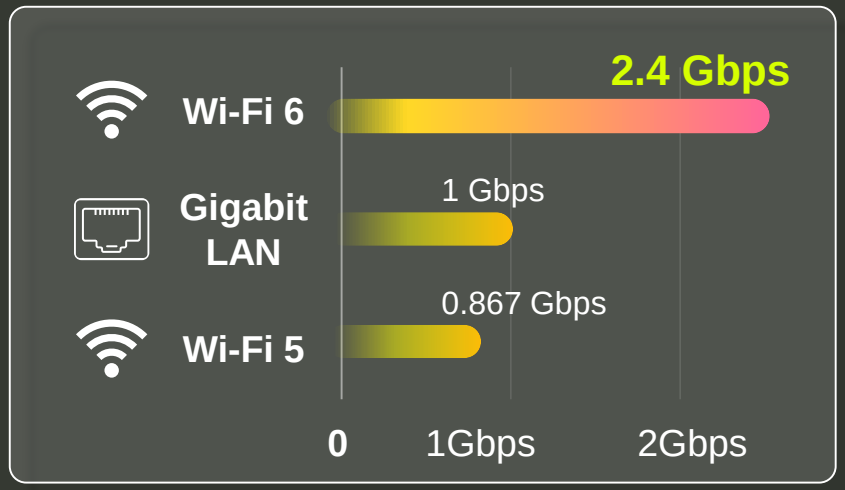
Extreme Networks
AP305C

Computers

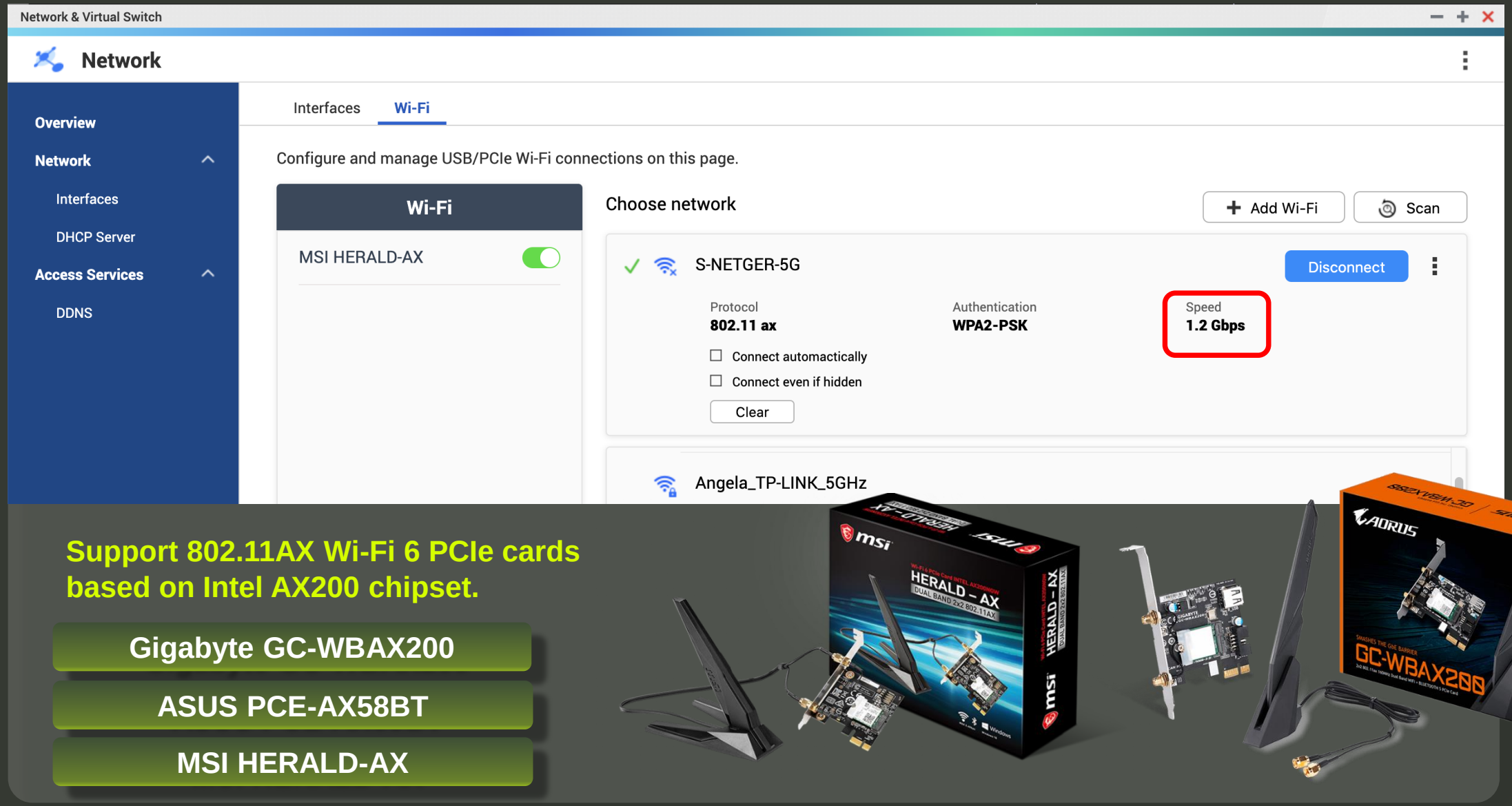
PCIe & CNVi NICs

Mobile

iPad Pro, iPhone 11, Galaxy S20 series



NAS supporting Wi-Fi 6 PCIe NIC to gain fast wireless transfer speed for anywhere placement



DEMO

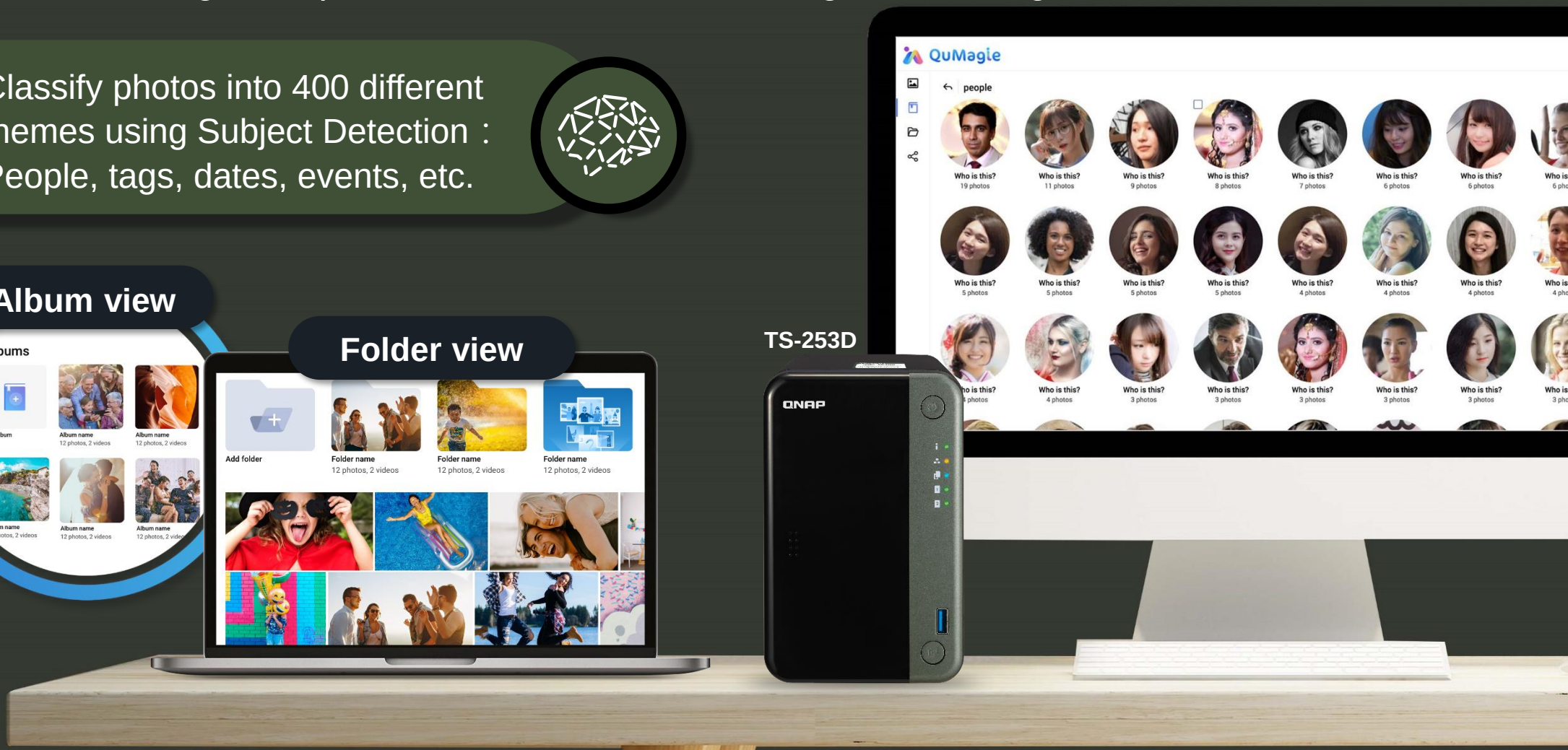
TS-X53D

Backup, share, and VM applications all-in-one NAS for professionals and businesses

QuMagie smart albums and accelerated AI classification

Organize photos with similar faces using facial recognition

Classify photos into 400 different themes using Subject Detection : People, tags, dates, events, etc.



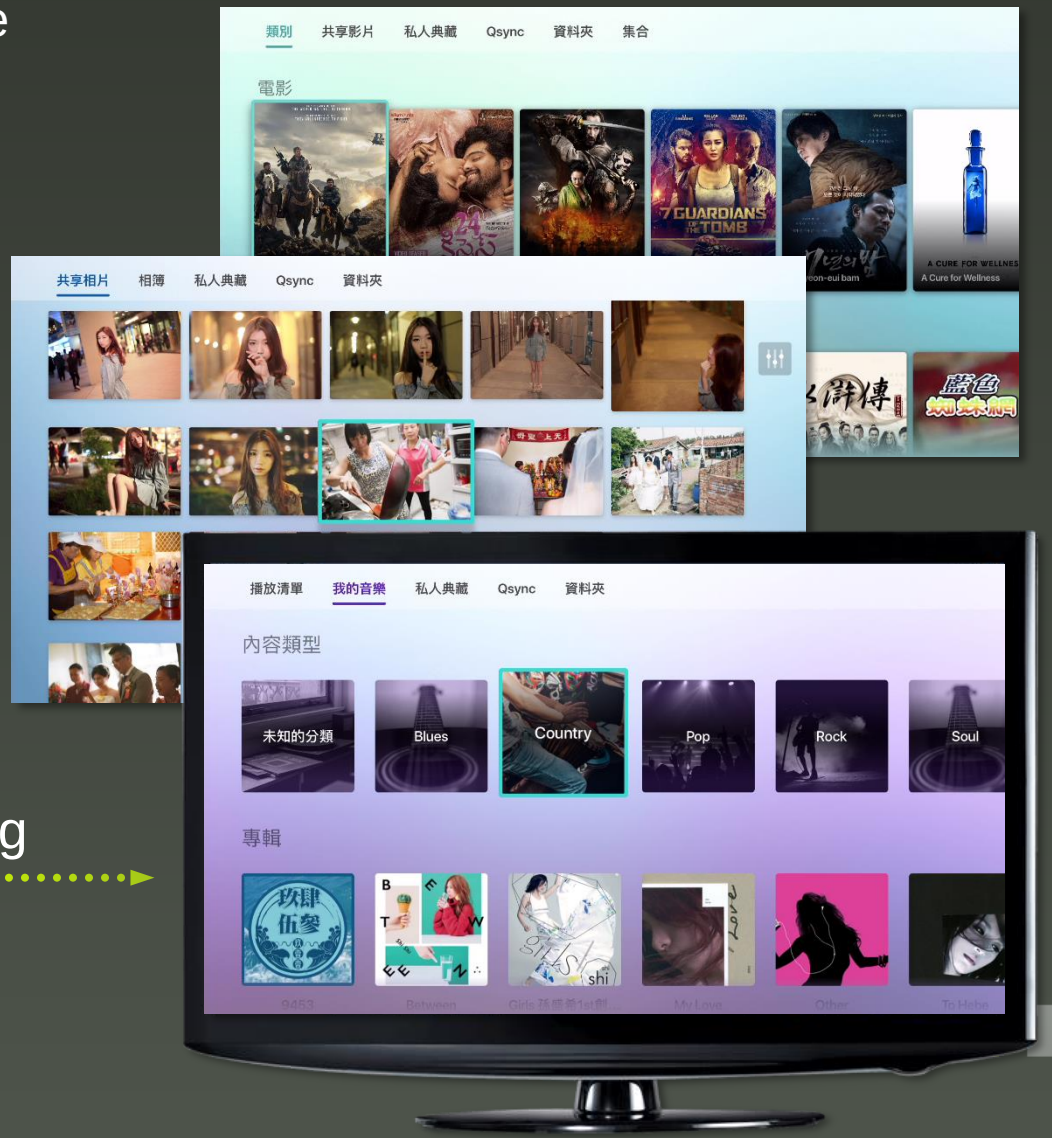
Stream to Smart TV, Apple TV, Chromecast, Fire TV & Roku

- Use the remote control of your media player to navigate
- Categorization and multiple sorting methods to enjoy your media content
- Filters and keyword searches to locate a file quickly

Qmedia

TS-453D

DLNA, network streaming

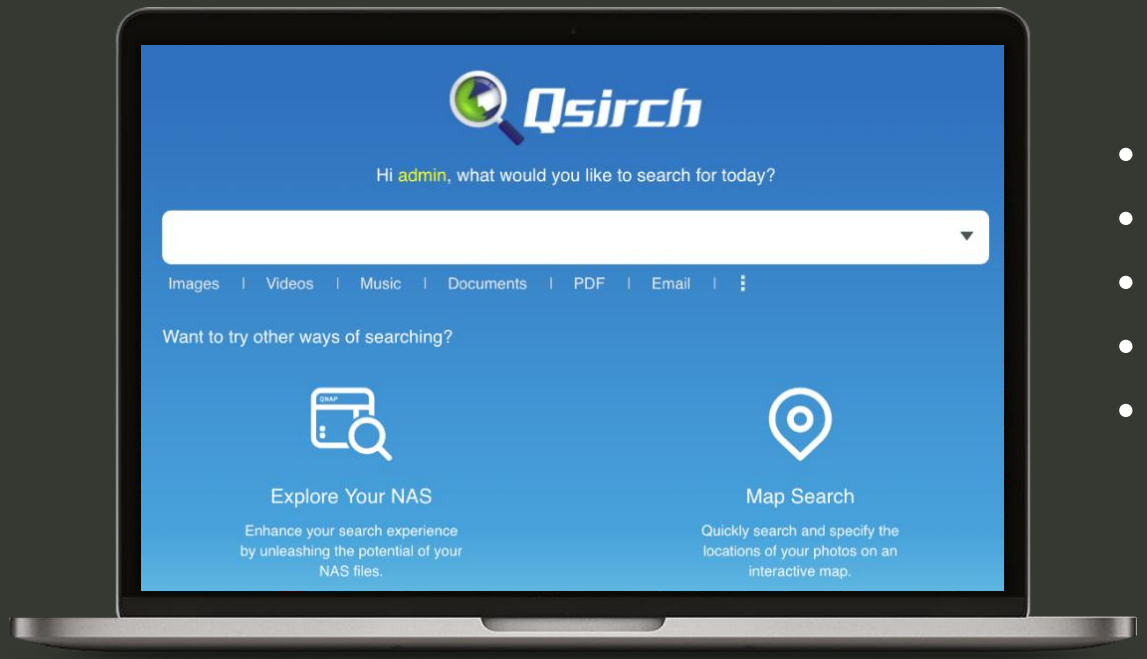


Full 4K UHD multimedia experiences

- 4K HDMI 2.0 60Hz output
- Plex streaming & transcoding
- Use Cinema28 for multi-room streaming

With optional RM-IR004 IR remote control or USB wireless keyboard and mouse

Qsirch 4.0 makes it easy to search for files



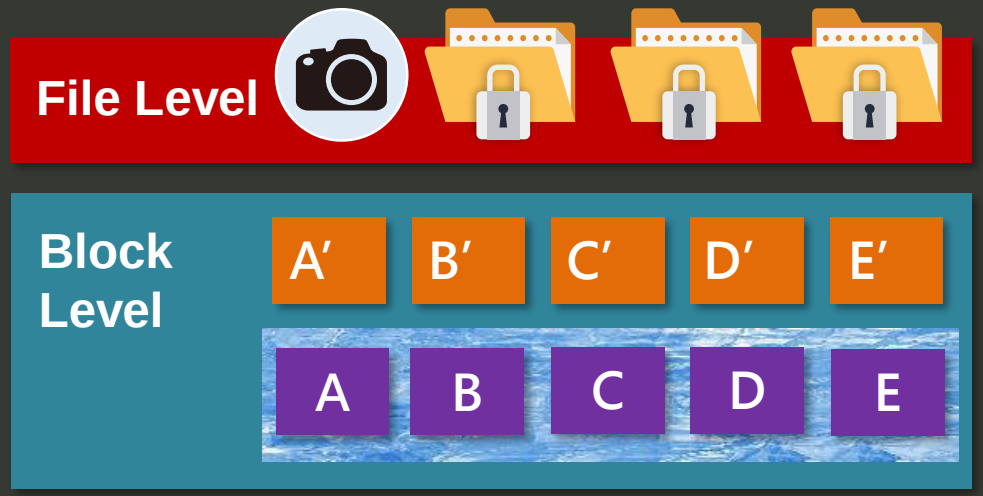
- Search within NAS and on the Internet
- Large file preview pane
- Advanced search for complex keyword search
- 35+ powerful filter conditions
- Easy steps from previewing to sharing

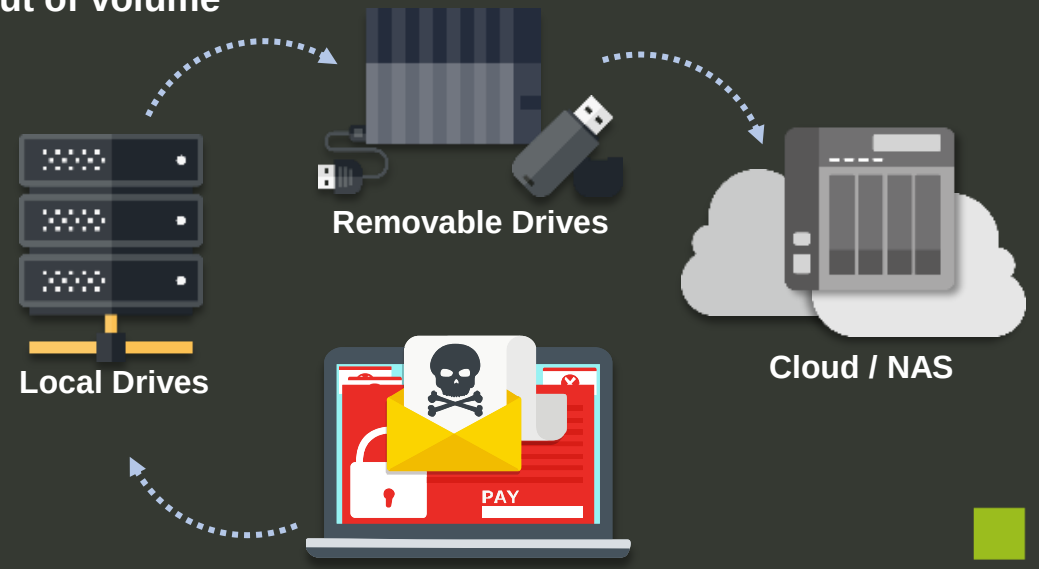
QNAP snapshot features for file recovery

1. Fully supports all storage configurations at the storage pool level.
2. Easily take, manage and restore snapshots.
3. Using the mature Ext4 file system for “out of volume” snapshots

RAM Size	Maximum Total Snapshot Number	Maximum Snapshot Number per Volume/LUN
4GB and more	1024	256

- Ransomware cannot overwrite snapshots which are stored out of volume





Free macOS Time Machine backup

Copy Time Machine Backup file to NAS via HBS 3, and then synchronize the data from NAS to an external device or the cloud, eg. TR-004 USB RAID DAS

Create the backup job：

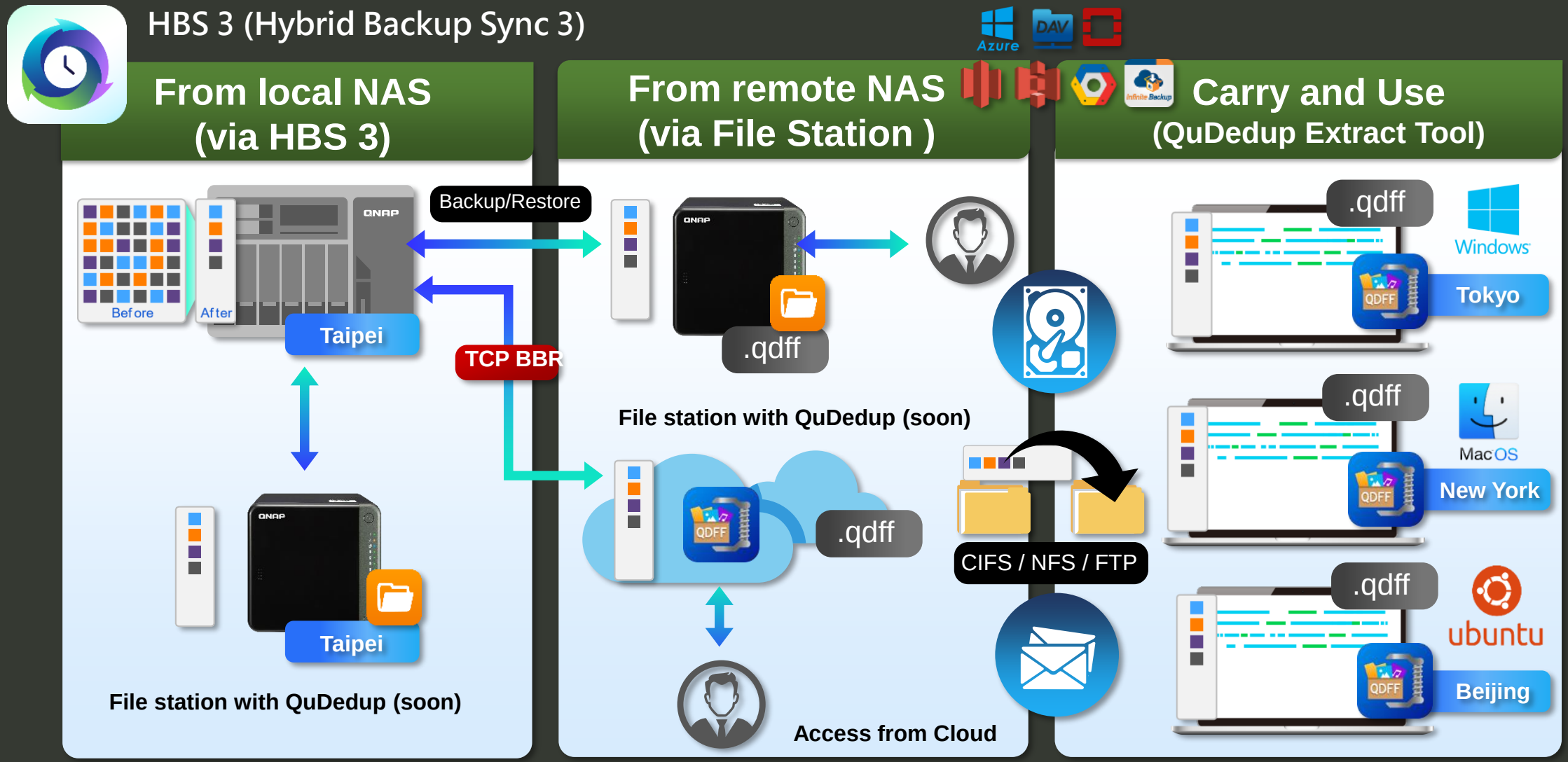
1. Select Time Machine Backup as Source
2. Select TR-004 as Destination
3. - Set up Schedule
   - Enable QuDedup

Mac Time Machine

TS-453D

TR-004

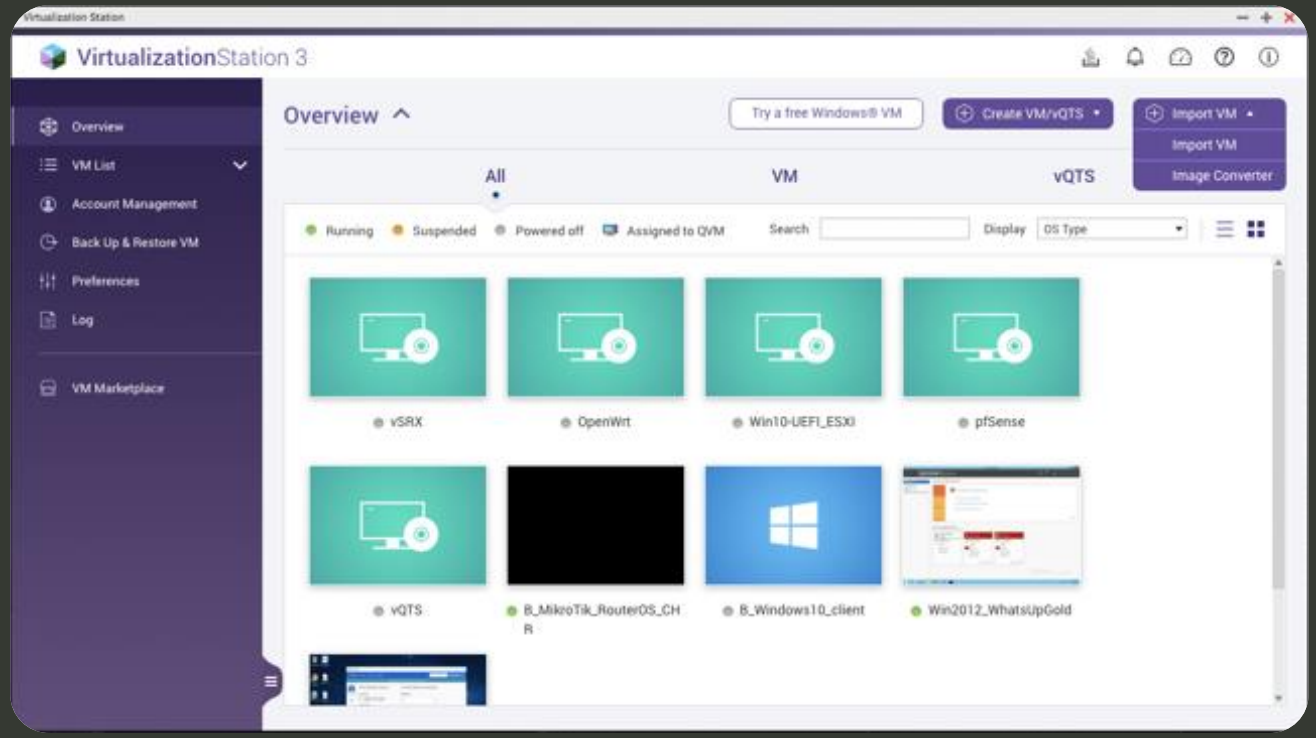
Backup data with deduplication



Virtualization Station

With Virtualization Station, you can create multiple virtual machines to run various operating systems such as Windows, Linux, UNIX and Android on a QNAP NAS.

- Operate VM via remote desktop or HDMI output with a USB keyboard and a mouse
- VM Import/Export
- VM backup and snapshot
- Virtual switch: support multiple network modes
- Support USB device connection

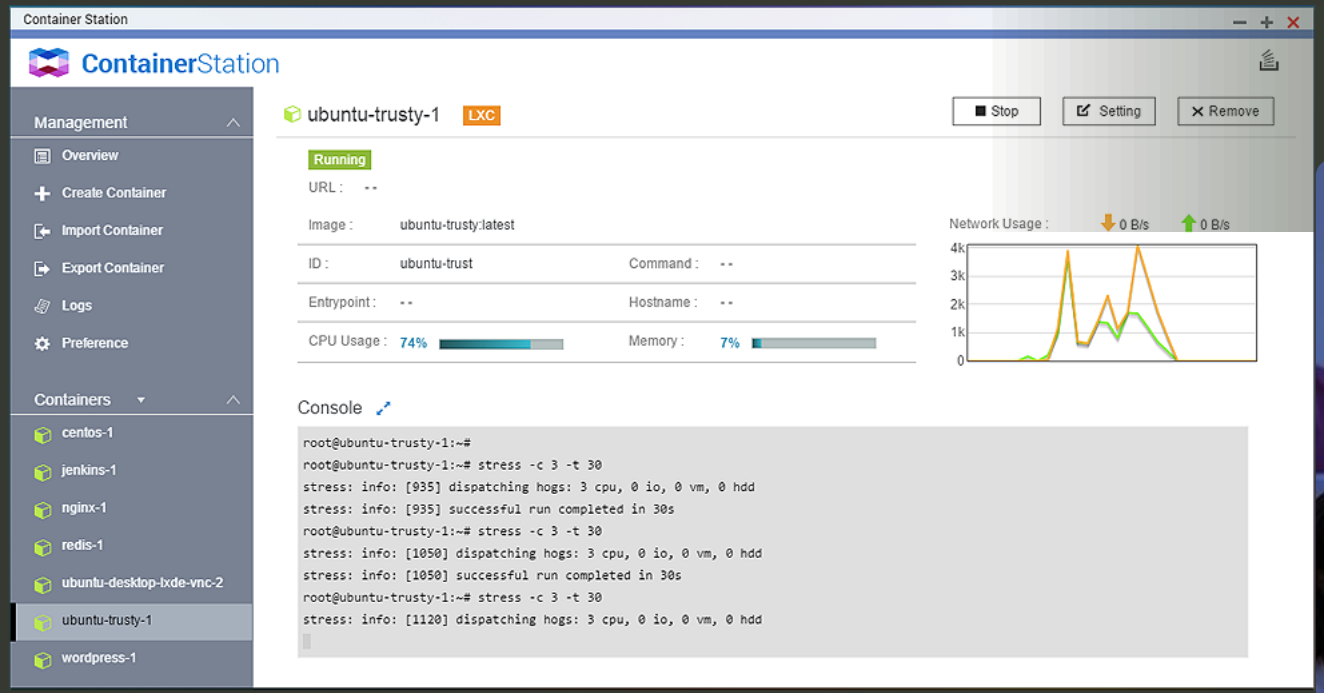


Q vPC
Technology

Go beyond your creativity with Container Station for a x86 Quad-core NAS with up to 8GB RAM

AI, IoT, Commonly-used Container Recommendation
- One-click installation wizard helps you quickly setup
- Supports Docker Compose YAML format to create applications

Easily import/export containers
- Imports images or containers from PC or NAS
- Exports images or containers to NAS as backup



Built-in Docker Hub Marketplace
- Easily downloadable tools

QVR Pro surveillance solution

QVR Pro

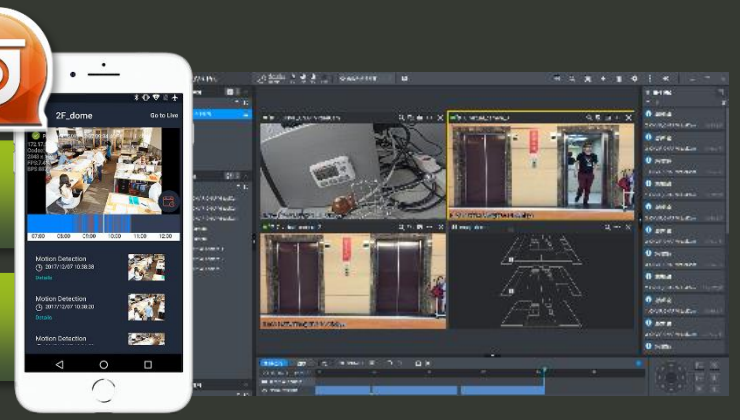
- 5,000+ compatible IP cameras
- 8 free camera channels
- **Expandable channels via license**
  TS-653D & TS-453D: max. 24 recommended
  TS-253D: max. 16 recommended
- QUSBCam2 for webcam recording

Surveillance Station 5.1

- 2 free channels
- 40 channels max. (optional license)

QVR Pro Client

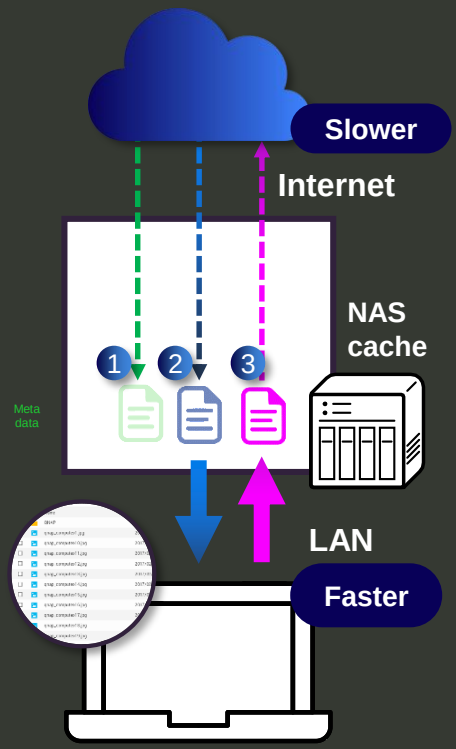
- Monitor feeds with iOS& Android mobile devices
- NAS HDMI output with USB mouse/ keyboard control



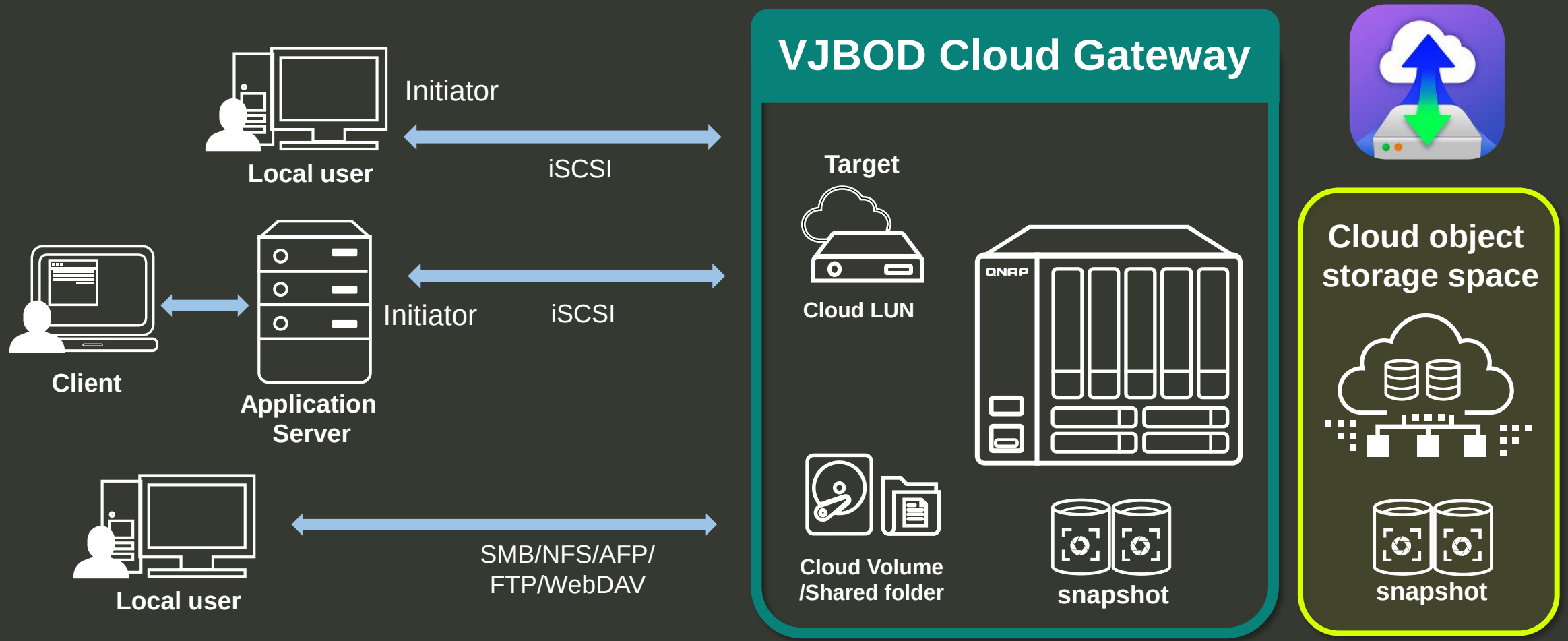
HybridMount provides two modes for file-based cloud storage gateway

	File Station Mount	File Cloud Gateway
Setup Method	Mount cloud drives	Select “File Cloud Gateway” mode and create a dedicated cache space
Connections	No limit	2 free and perpetual connections. Purchase license for more connections
Access Performance	Depends on network speed	High performance thanks to caching
Access in File Station	Supported	Supported
Access through SMB / NFS / AFP	Not supported	Supported
Sync with the cloud	Sync only when browsing	Sync constantly for quick access
Integration with QTS Apps	Not supported	Supported ...

- Online collaboration
- File data analysis



Enterprise LUN backup: VJBOD Cloud block-based gateway



Follow the trend and choose a newer technology over the old eSATA

Popularity	Interface	Theoretical speed
★	eSATA	3 Gb/s
		6 Gb/s
★★★★★	USB 3.2 Gen 1	5 Gb/s
	USB 3.2 Gen 2	10 Gb/s
	USB 3.2 Gen 2 x2	20 Gb/s
★★★★	Thunderbolt 3	40 Gb/s
★★★	SAS 6Gb/s	48 Gb/s
	SAS 12Gb/s	96 Gb/s

Economical and flexible QNAP expansion enclosures

QNAP TR RAID and TL JBOD enclosures have many advantages compared to the eSATA JBOD enclosures in the market for NAS capacity expansion.

- **Bigger capacity**
  - 2, 4, 8, 16-bay choices
  - NAS can support up to two expansion enclosures
- **Higher speed**
  - USB 3.2 Gen 1 5Gb/s, USB 3.2 Gen 2 10Gb/s or up to 64Gb/s with multiple miniSAS cables
- **Better compatibility: NAS or PC/server applications**
  - Expand NAS or PC/server storage capacity or data migration between different hosts
  - QNAP External RAID Manager and JBOD Manager for monitoring JBOD status

USB interface

TR-002 TR-004 TL-D800C

SFF-8088 multiple SATA interface

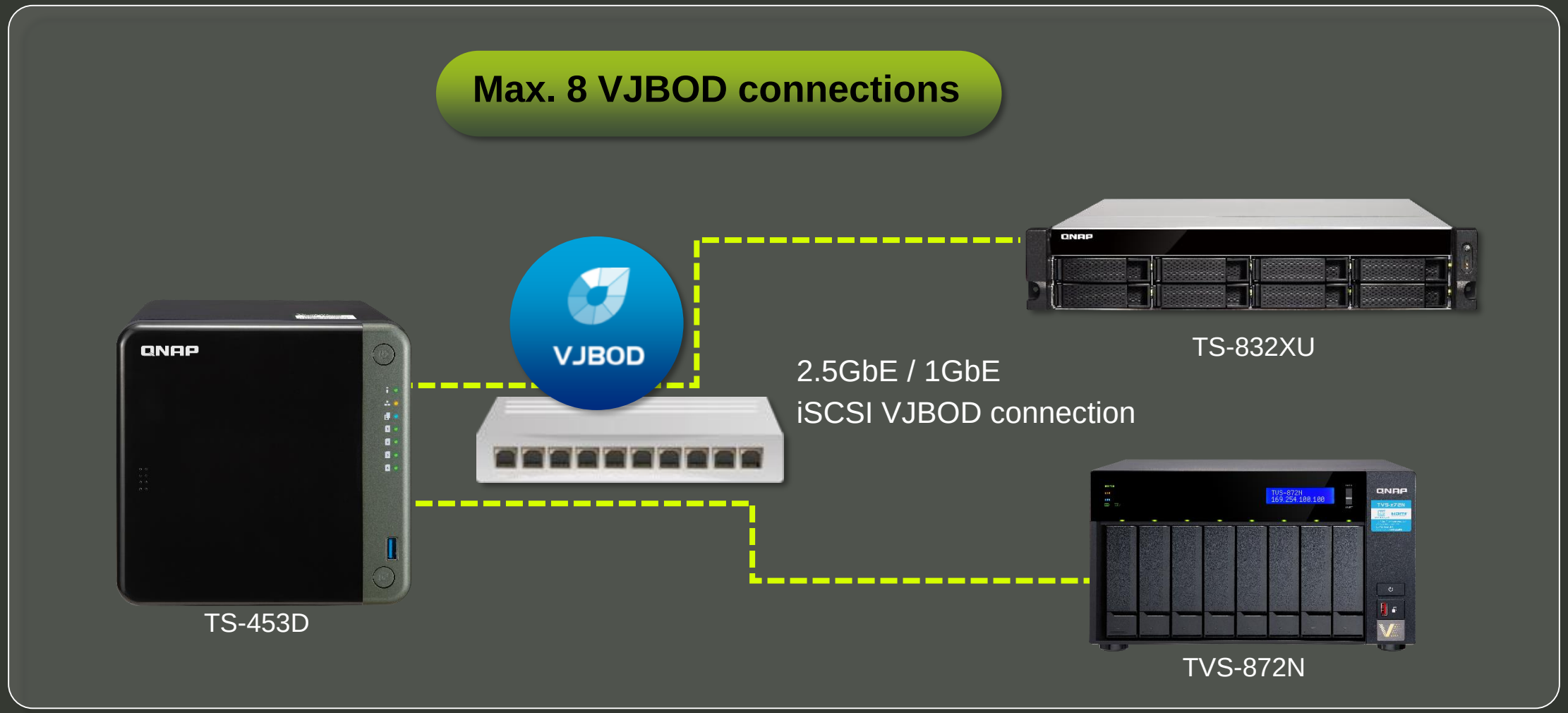
TL-R400S TL-R800S TL-R1600S

* TS-x53D can be installed with a QNAP USB 3.2 Gen2 PCIe expansion card, which supports USB 3.2 Gen2 10Gbps.
TS-253D PCIe slot supports Gen2 x4 = 16Gbps while TS-453D & TS-653D PCIe slot support PCIe Gen2 x2 = 8Gbps.

QNAP TR RAID enclosure supports 2 modes on NAS

- TS-x53D supports up to two QNAP TR or TL enclosures.
- Internal mode with storage pool support or external mode with cross-platform compatibility with Windows/Mac computers.

Use Virtual JBOD to expand NAS capacity



Future-proof 2.5GbE NAS saves money in the long run

Brand	QNAP			Other vendor 2020 models	
Model	TS-253D	TS-453D	TS-653D	2-bay	4-bay
Processor	Intel x86 Celeron J4125 quad-core 2.0 GHz, burst up to 2.7 GHz				
RAM	4GB	4GB or 8GB		2GB	4GB
RAM slots	2 (max 8GB)			1 (max 6GB)	1 (max 8GB)
Networking	2 x 2.5GbE (Read 590 MB/s, Write 535 MB/s)			2 x 1GbE (Read 225.99 MB/s, Write 225.90 MB/s)	
HDMI	4K HDMI v2.0 60Hz			---	
PCIe slot	PCIe 2.0 x4	PCIe 2.0 x2		---	
USB	3 x USB 3.2 Gen 1 + 2 x USB 2.0			2 x USB 3.2 Gen 1	
M.2 SSD	2 x M.2 NVMe or SATA SSD via optional QNAP QM2 PCIe adapters			2 x M.2 NVMe SSD (expected to be Gen2 x1)	
10GbE/5GbE	10Gbe or 5GbE via optional QNAP QXG PCIe adapters			---	
Expansion	Up to 2 (or max 16 drives) USB 3.2 Gen 2 10Gb/s or multi-ch SATA TR & TL expansion enclosures			1 x (5 drives) eSATA 6Gb/s expansion enclosure	
Warranty	3-year limited hardware warranty				

TS-x53D

Maximize your NAS investment; every penny counts!

- **Intel J4125 4-core 2.0 GHz, burst up to 2.7 GHz**
- **Built-in 2 x 2.5GbE for up to 590 MB/s read speed**
- **PCIe expansion slot for M.2 SSDs or 10GbE**

TS-453D

intel CELERON inside

HDMI

2.5GbE x 2

TS-653D

TS-253D

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