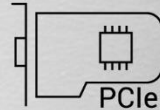


**QNAP**

# TS-x32PXU

Quad-core 1.7GHz rackmount NAS  
with 10GbE SFP+ & 2.5GbE ports  
for hybrid cloud environment

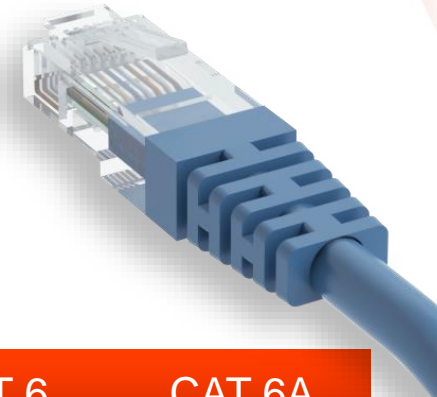


# Upgrade to 2.5GbE+ to unlock the business networking potentials and remove bottlenecks

- Increasing wireless devices, video and audio contents, large data backup, file access and real-time communication and video conferences all can

cause the existing 1GbE network to be congested, thus slowing down the network speed or having jitters or pauses in video conferences.

- Businesses can leverage the current CAT 5e cable infrastructure with the right switches and adapters for 2.5GbE & 5GbE upgrade!



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

# QNAP 10/5/2.5GbE networking and storage solutions are here to solve slow network issues

2.5G/5G/10GbE NAS  
(integrated or optional upgrade)



PCs/Servers upgrade to  
2.5G/5G/10GbE



Laptops upgrade to 5GbE



QNA-UC5G1T

Rackmount NAS/Server  
in the server room



SFP+



QNAP switches supporting  
10GbE/5GbE/2.5GbE/1GbE

Mac upgrade to 10GbE



QNA-T310G1T

QNA-T310G1S

Base-T/SFP+

Base-T

Base-T

Base-T

# TS-x32PXU NAS front view

4/8/12 x 3.5-inch/2.5-inch  
SATA 6Gb/s drive bays

Drive status LED



TS-1232PXU-RP



Power  
button

LEDs:  
Status,  
Network,  
Expansion



TS-832PXU, TS-832PXU-RP



TS-432PXU, TS-432PXU-RP

# TS-x32PXU NAS rear views

2 x 2.5GbE Multi-Gig  
(2.5G/1G/100M) RJ45 ports

1 x low-profile  
PCIe Gen2 x2 slot

Internal system  
smart fans

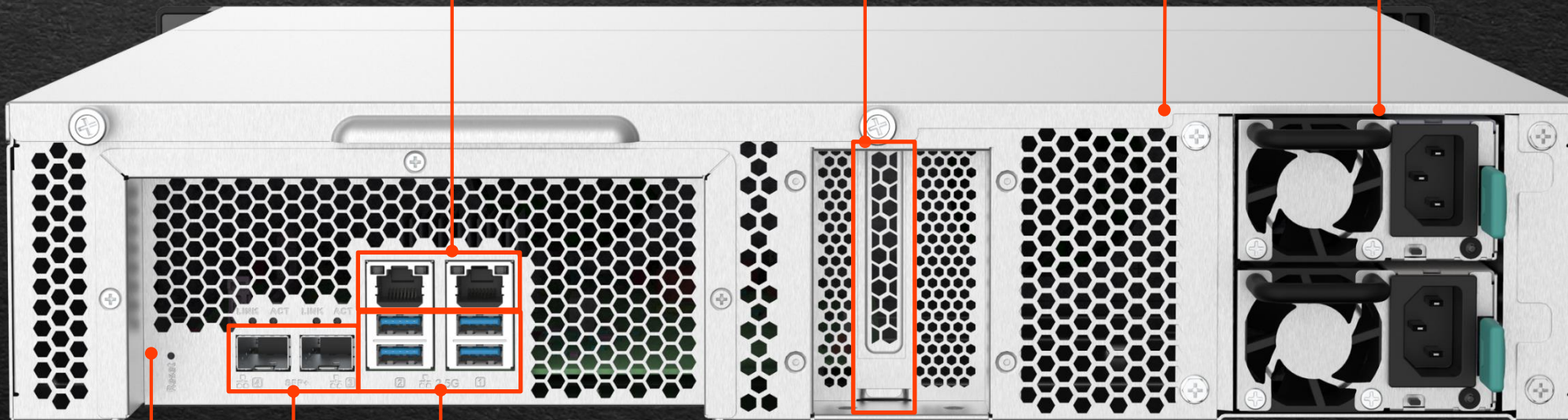
AC 100-240V power  
**Single PSU (250W)**

- TS-432PXU
- TS-832PXU



**Dual PSU (2 x 250W)**

- TS-432PXU-RP
- TS-832PXU-RP
- TS-1232PXU-RP



Reset  
button

2 x 10GbE  
SFP+ ports

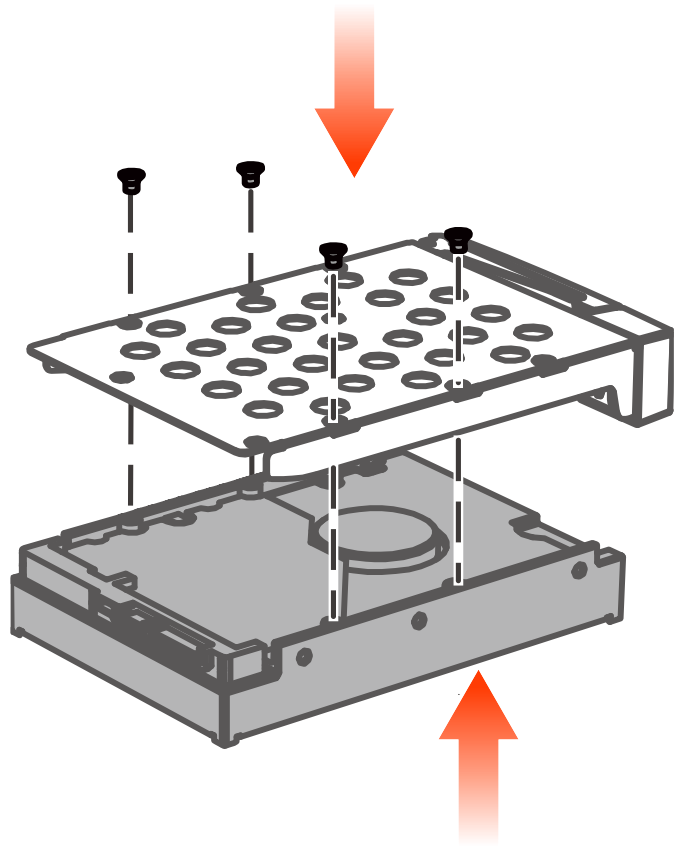
4 x USB 3.2 Gen1 port



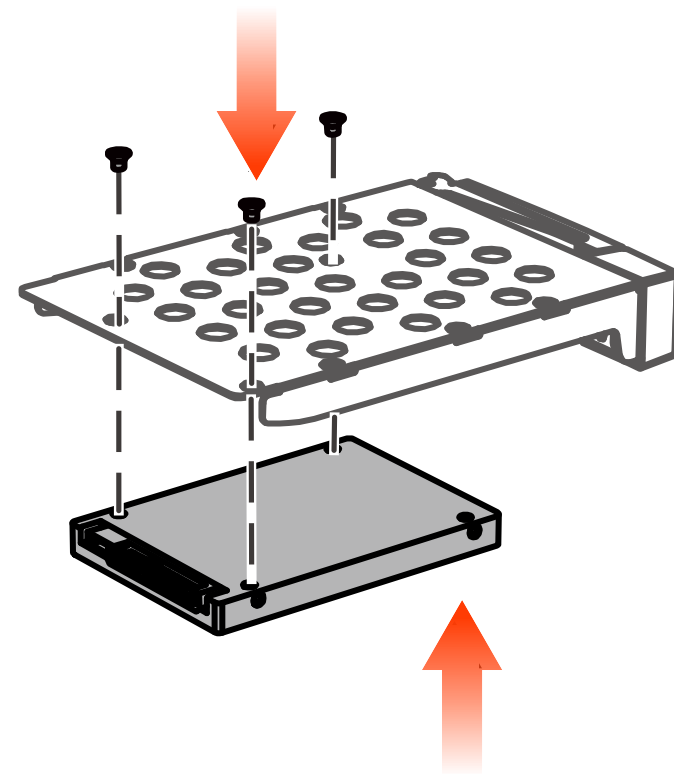
Note: Do not connect the NAS to a network port that supplies power to prevent damages to the network port surge protection function on the NAS.

# Easy to install HDDs & SSDs

**3.5-inch HDD**



**2.5-inch HDD / SSD**



# 64-bit quad-core 1.7 GHz power efficient processor crafted for storage servers

## Integrated I/O

Annapurna Labs  
SoC integrates 10GbE, SATA 6Gbps, PCIe  
lanes in a small 27 x 27 mm BGA form

## 10GbE & 2.5GbE

2 x 10GbE SFP+ and 2 x 2.5GbE RJ45 with  
enhanced floating-point operations and 31 64-bit  
registers for reduced redundant data access

## AARCH64 architecture

ARM Cortex-A57 Quad-core 1.7GHz  
AL-324 CPU with 64-bit instructions for  
high performance and energy saving

## Cryptography

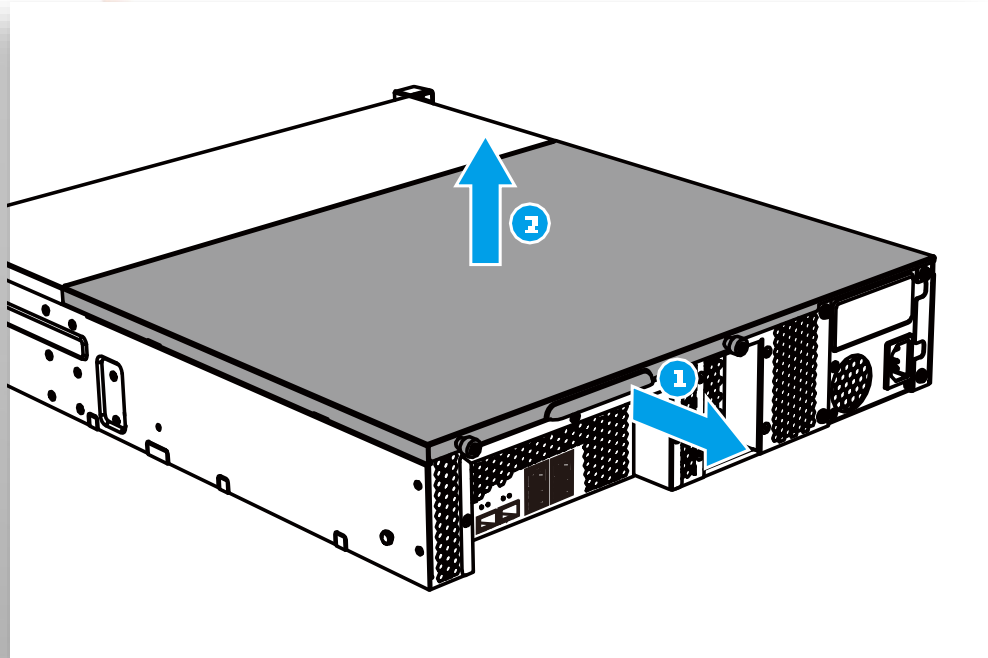
Operates with 128-bit SIMD registers  
for multiple encryption/decryption  
instructions per cycle



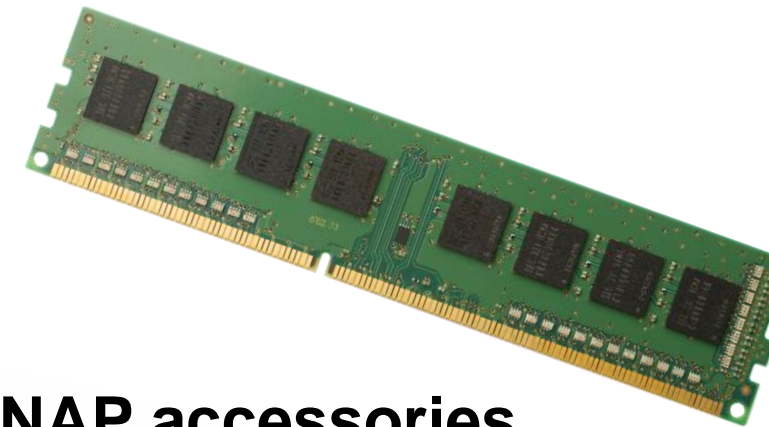
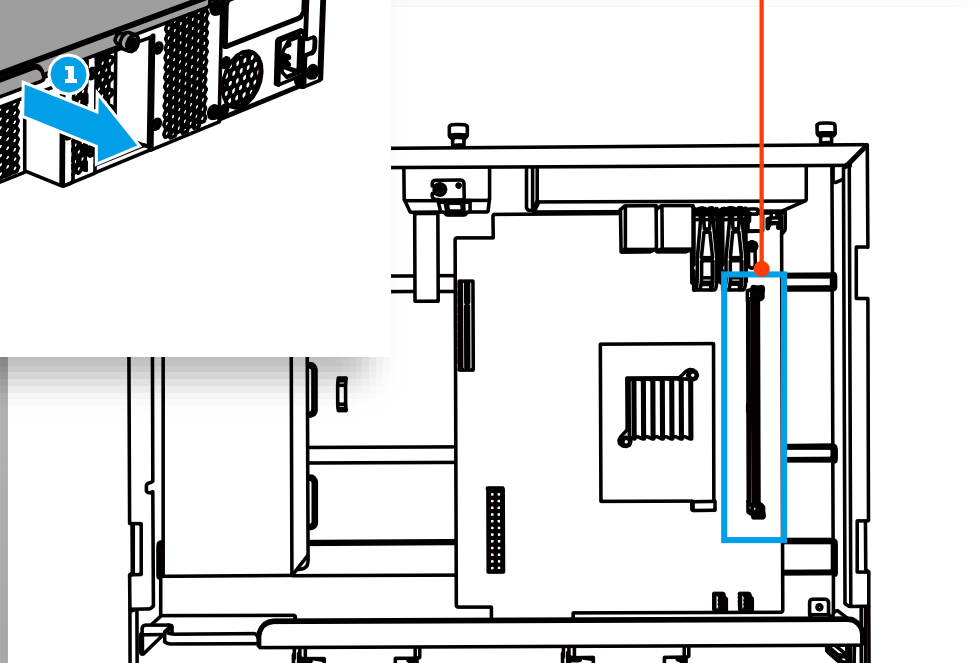
TS-1232PXU-RP

powered by  
**annapurnalabs**  
an amazon company

# Expand up to 16GB DDR4 memory easily



1 x DDR4 UDIMM slot,  
expand up to **16GB**



**QNAP accessories**  
4GB, 8GB, 16GB RAM

With 1 x 4GB DDR4 UDIMM:

- TS-432PXU-4G
- TS-432PXU-RP-4G
- TS-832PXU-4G
- TS-832PXU-RP-4G
- TS-1232PXU-RP-4G

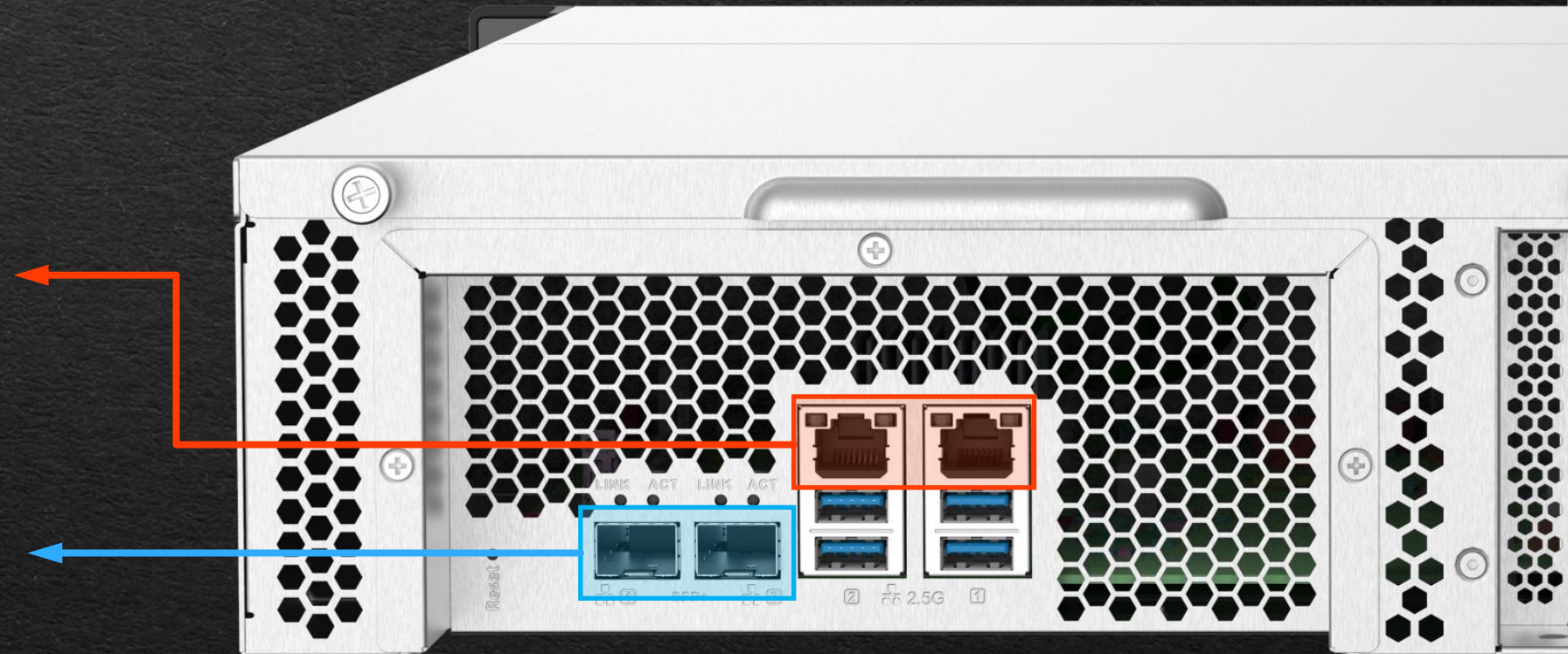


# All models are built with dual 10GbE SFP+ & 2.5GbE ports

2 x 10GbE SFP+ & 2 x 2.5GbE Multi-Gig RJ45 ports delivering a major speed increase for fast backup & restoration, large-data applications, and container application tasks.

2 x 2.5GbE  
Multi-Gig RJ45  
(2.5G/1G/100M)

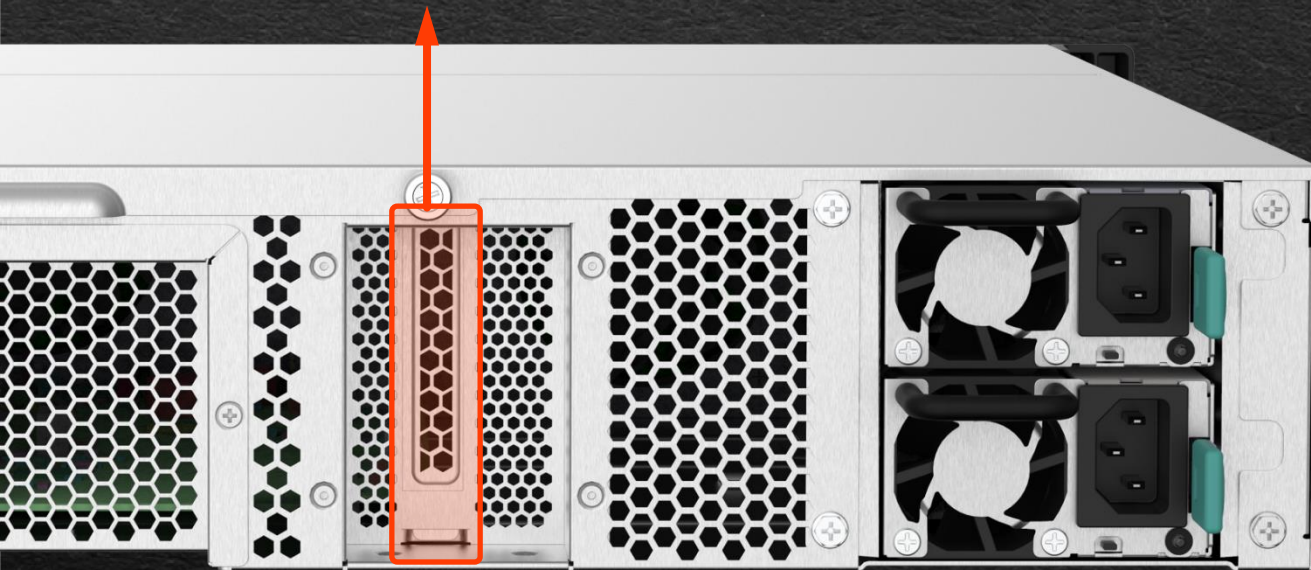
2 x 10GbE  
SFP+



# Gen2 PCIe slot for flexible network deployment and adding SSD cache

TS-x32PXU provides a low-profile PCIe Gen2 expansion slot

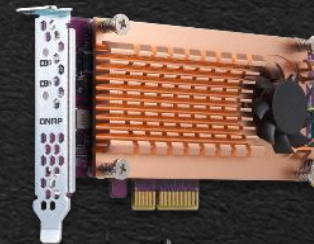
1 x PCIe Gen2 x2



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



**QXG-2G1T-I225**  
1 x 2.5G/1G/100M port

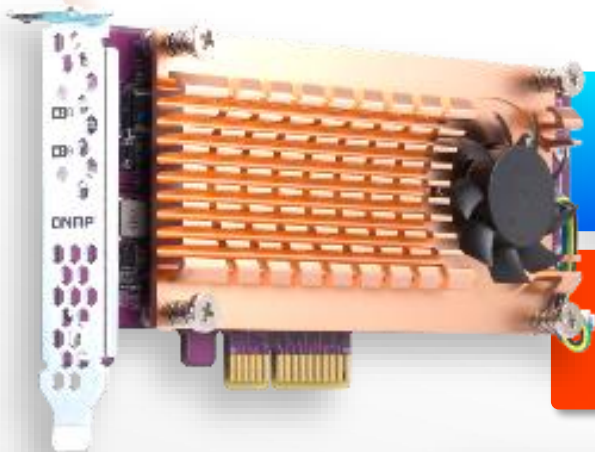


**QM2-2S-220A**  
2 x M.2 2280 SATA 6Gb/s slots



**QWA-AC2600**  
Wi-Fi 5 2.4GHz/5GHz AP function

# TS-x32PXU with a QM2 PCIe to add M.2 SSDs for SSD cache or Qtier



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

Storage & Snapshots

Storage & Snapshots

Qtier VJBOD

Cache Acceleration

Usage

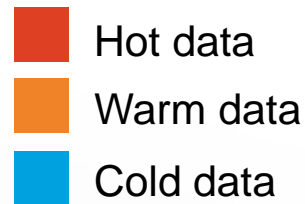
Service: Enabled  
Capacity: 108.64 GB  
Cache Type: Read-Write  
Cache RAID: RAID 1  
Read Hit Rate: 0 %  
Write Hit Rate: 97 %  
Cache Flushing: --  
Status: Ready

Hit Rate History

Name/Alias	Capacity	Status
DataVol1	245.44 GB	Ready
DataVol2	688.37 GB	Ready
DataVol3	688.37 GB	Ready
DataVol4	693.84 GB	Ready
DataVol5	688.37 GB	Ready
DataVol6	325.27 GB	Ready

# Qtier auto-tiering for speed and capacity

## Qtier engine



- Automatically moves data between different tiers
- SSD cache capacity is not limited by RAM size

01

**Before tiering**

Frequently accessed data is not optimized



02

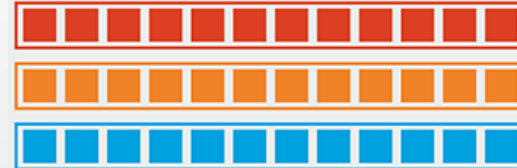
**Start tiering**



03

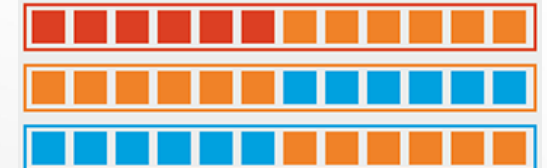
**After tiering**

Data is optimized



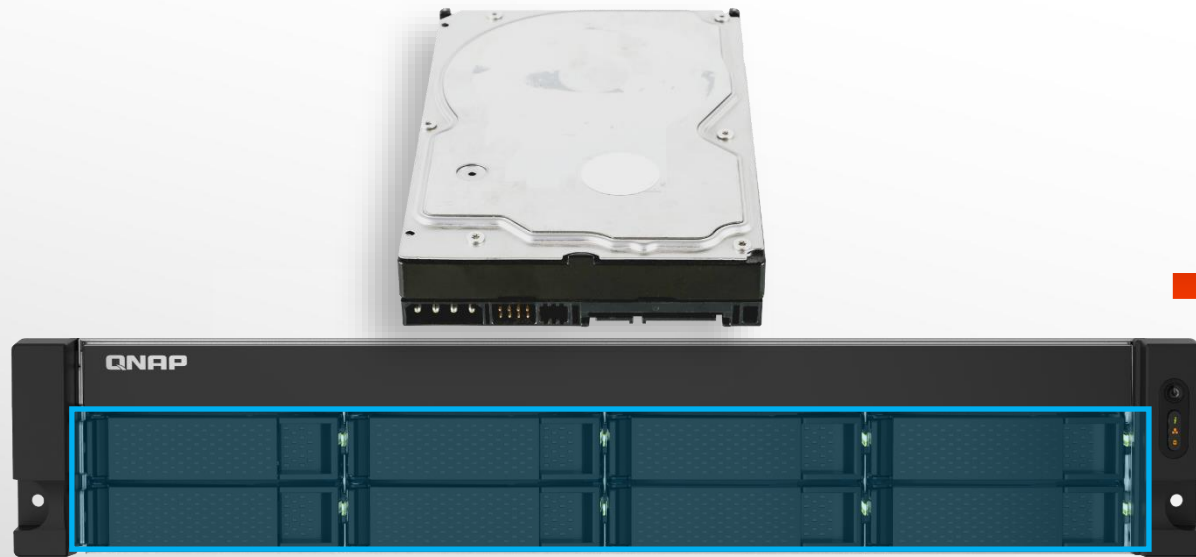
04

**Changes in data access pattern**

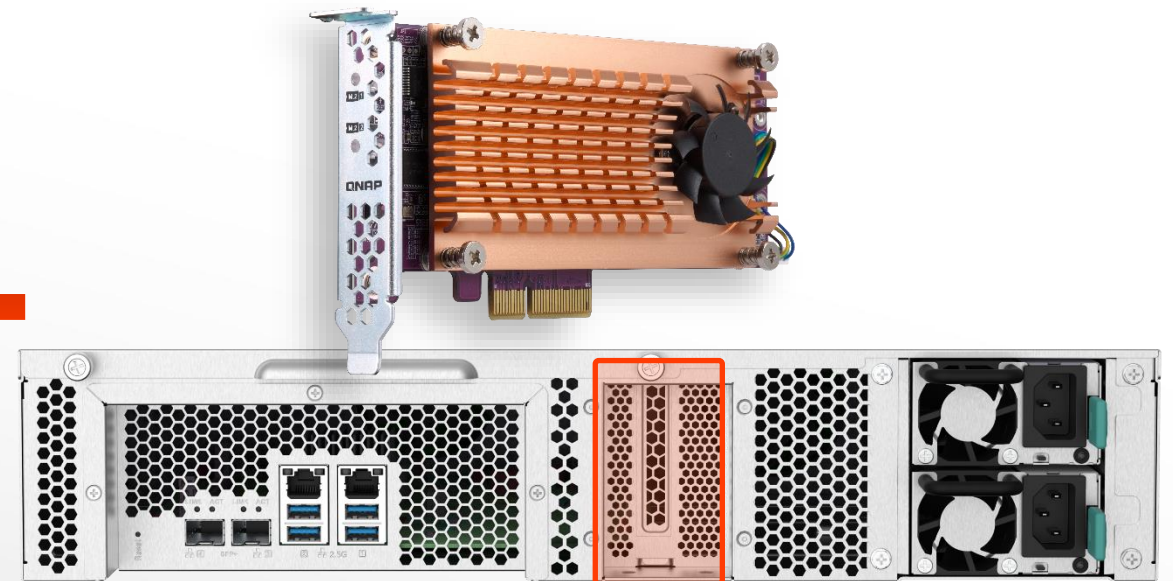


# Optimize performance and capacity with Qtier

Benefited from 8 x 14TB HDD + 2 x 1TB M.2 SSD  
capacity and performance boost!



8 x 3.5-inch HDDs  
for high-capacity storage



Install a QM2 adapter with  
dual M.2 SATA or NVMe SSDs and setup Qtier

# Upgrade to Qtier anytime when performance is needed

## Scenario

When the HDD-based storage pool cannot provide enough performance...

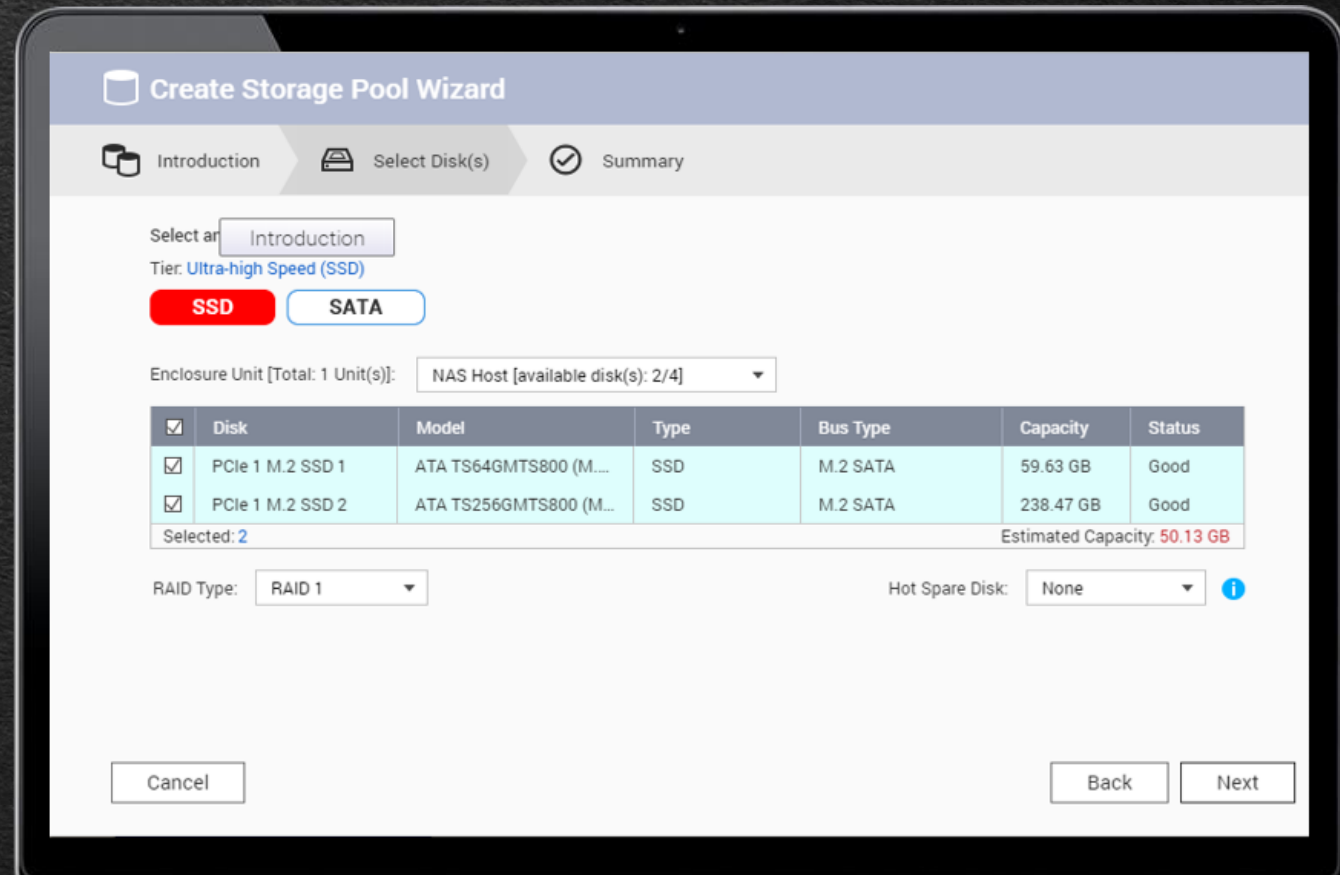


## STEP 1

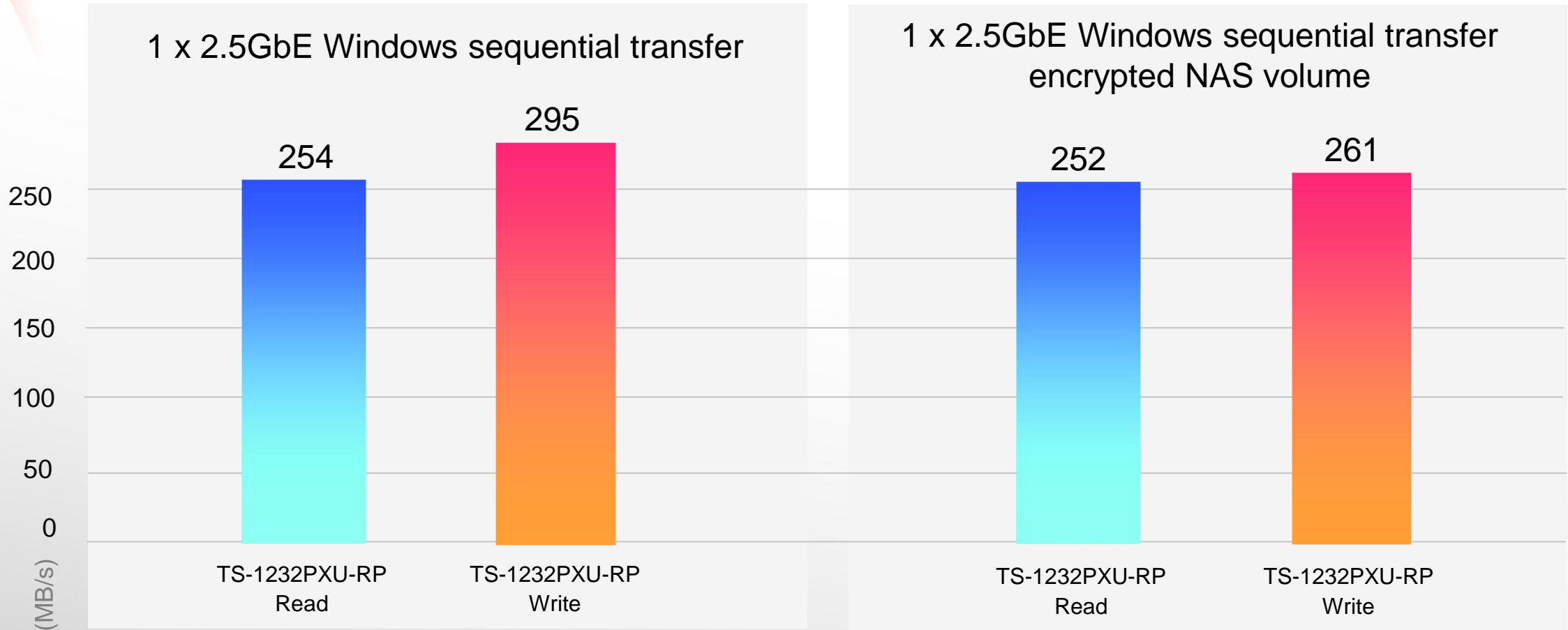
Install a QM2 adapter and M.2 SSD

## STEP 2

Select SSDs and upgrade to Qtier pool



# 2.5GbE provides twice more speed over 1GbE for a single client

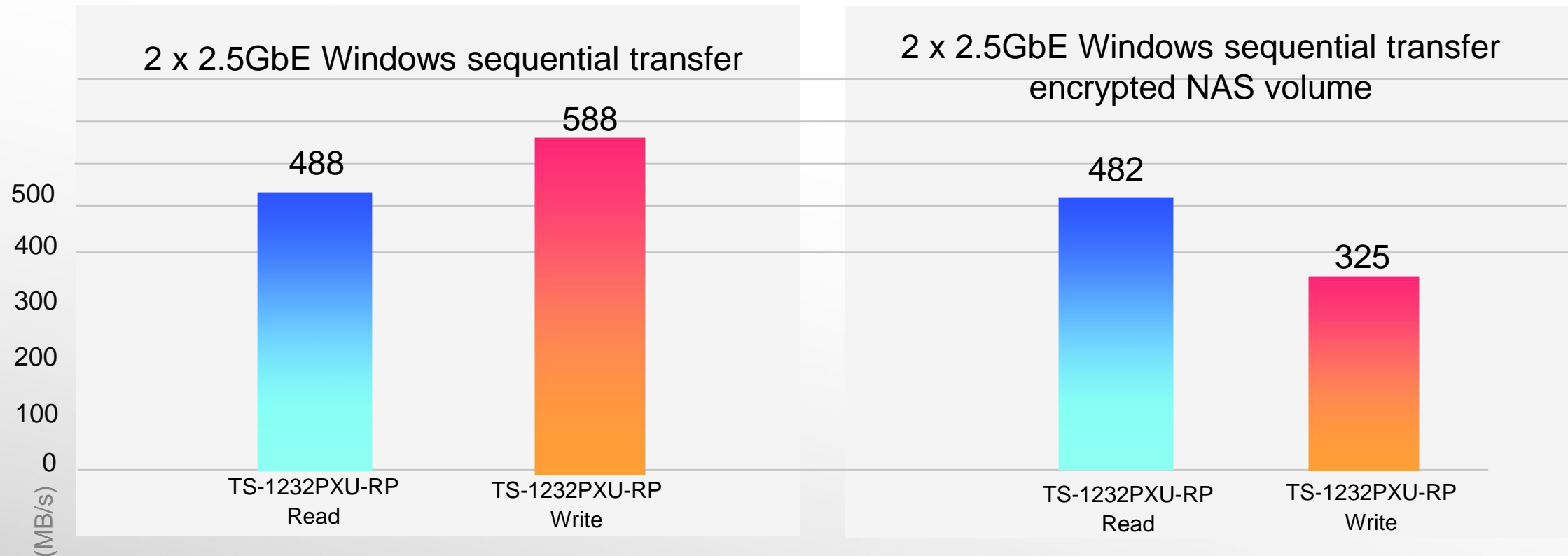


Test environment  
NAS | TS-1232PXU-RP, QTS 4.4.2, 12 x Samsung 850 Pro 512GB, RAID 5, thick volume  
Client PC | Windows 10 Pro, Intel Core i7-6700 3.4 GHz, 32GB RAM  
IOmeter | RAM\*4, 30-sec ramp up time, 3-min seq. run time, 2 workers, 64-outstanding, 1MB

\* Tested in QNAP Labs. Figures may vary by environment.

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

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

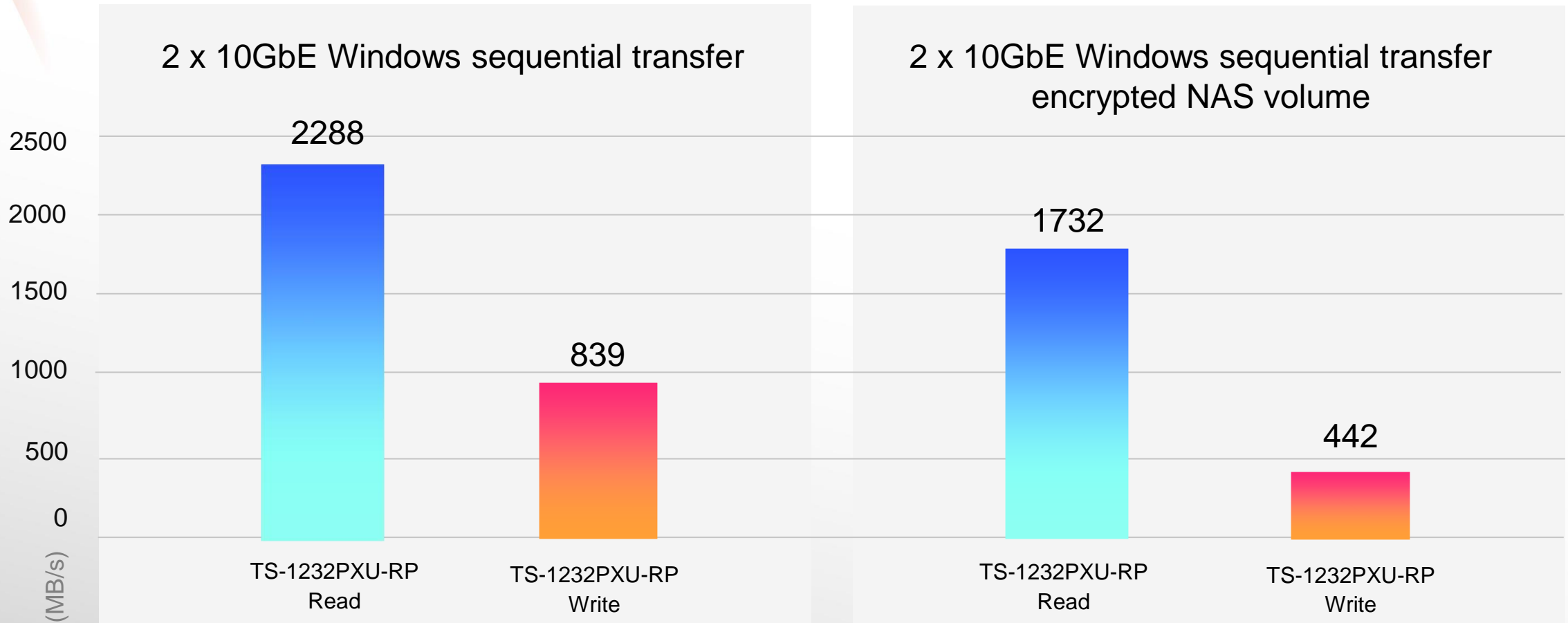


Test environment  
NAS | TS-1232PXU-RP, QTS 4.4.2, 12 x Samsung 850 Pro 512GB, RAID 5, thick volume  
Client PC | Windows 10 Pro, Intel Core i7-6700 3.4 GHz, 32GB RAM  
IOmeter | RAM\*4, 30-sec ramp up time, 3-min seq. run time, 2 workers, 64-outstanding, 1MB

\* Tested in QNAP Labs. Figures may vary by environment.



# Achieve the best performance with the integrated 2 x 10GbE SFP+



#### Test environment

NAS | TS-1232PXU-RP, QTS 4.4.2, 12 x Samsung 850 Pro 512GB, 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, 1MB

\* Tested in QNAP Labs. Figures may vary by environment.

# Short-distance 10GbE SFP+ DAC cable for direct connection without a transceiver

1.5M SFP+ 10GbE  
direct attached  
copper (DAC) cable

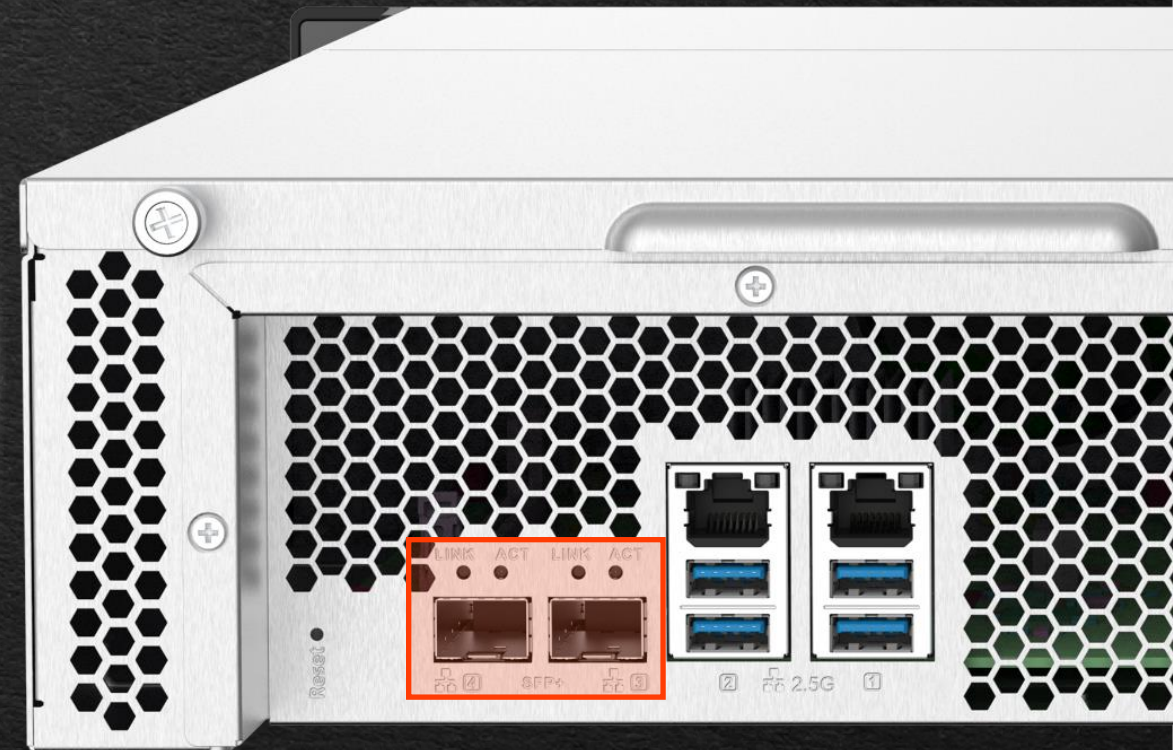


Part number:  
CAB-DAC15M-SFPP

3.0M SFP+ 10GbE  
direct attached copper  
(DAC) cable



Part number:  
CAB-DAC30M-SFPP



QNAP

01

Memory  
Upgrade

Live  
Demo

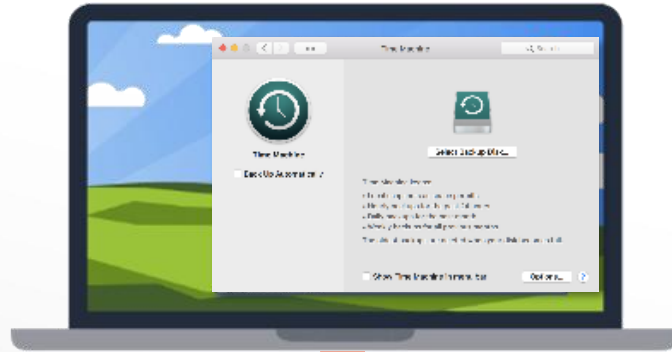
02

2.5GbE & 10GbE  
Performance



# Backup the data from your computers against viruses and ransomware

macOS



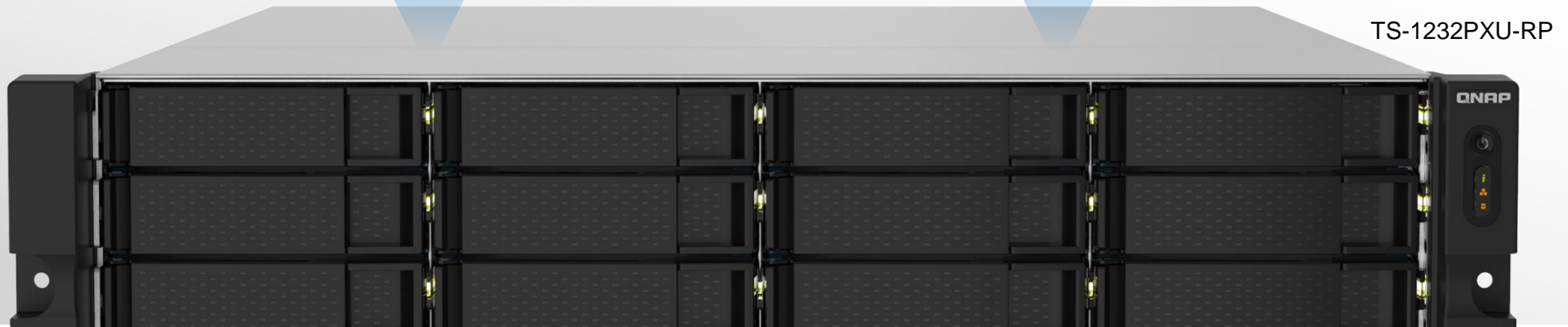
Time  
Machine

Scheduled or instant backup  
to counter against viruses  
and ransomware

Windows

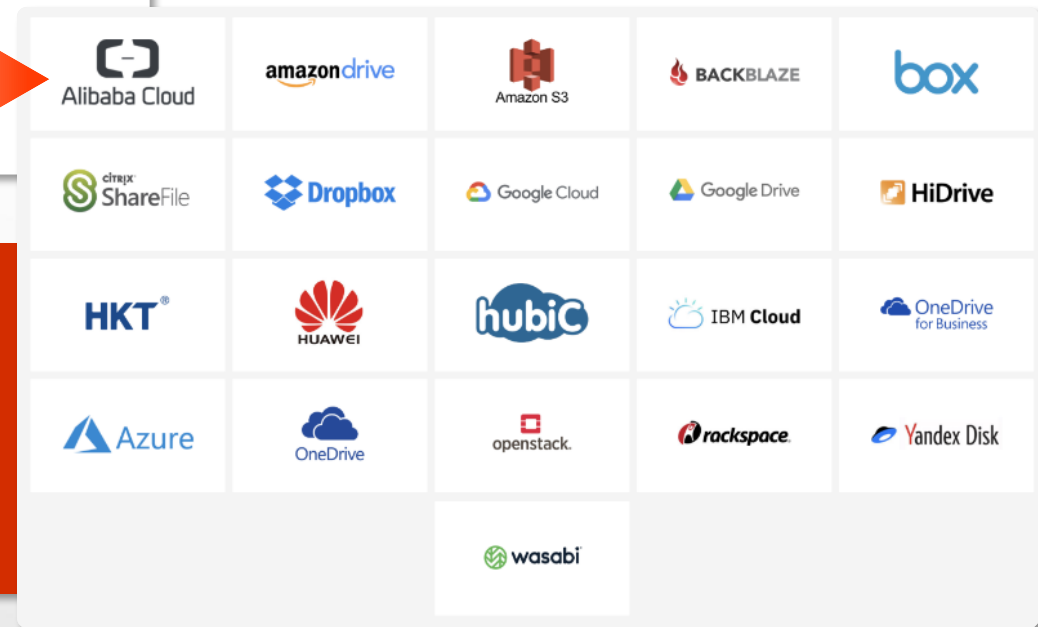
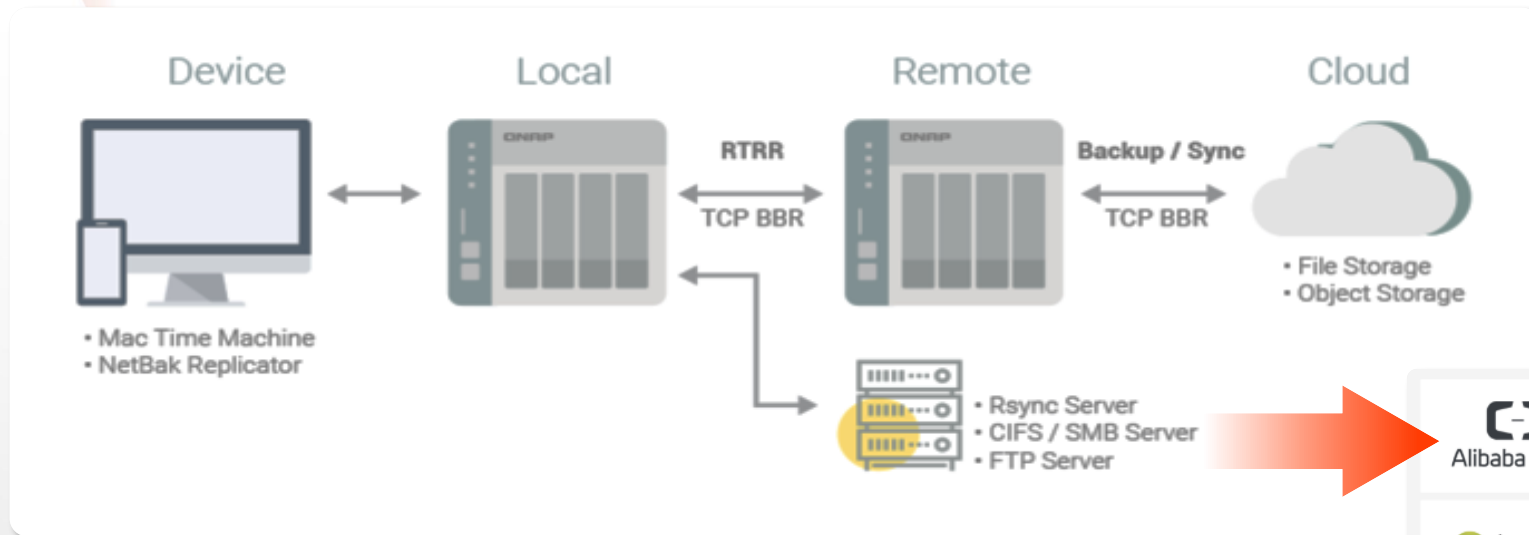


NetBak  
Replicator



TS-1232PXU-RP

# HBS 3 (Hybrid Backup Sync 3) for NAS data backup and recovery



Use HBS 3 (Hybrid Backup Sync 3) to easily transfer your data to local, remote and cloud storage spaces as a comprehensive data storage and disaster recovery plan.

# QNAP snapshot for file recovery, up to 256 versions

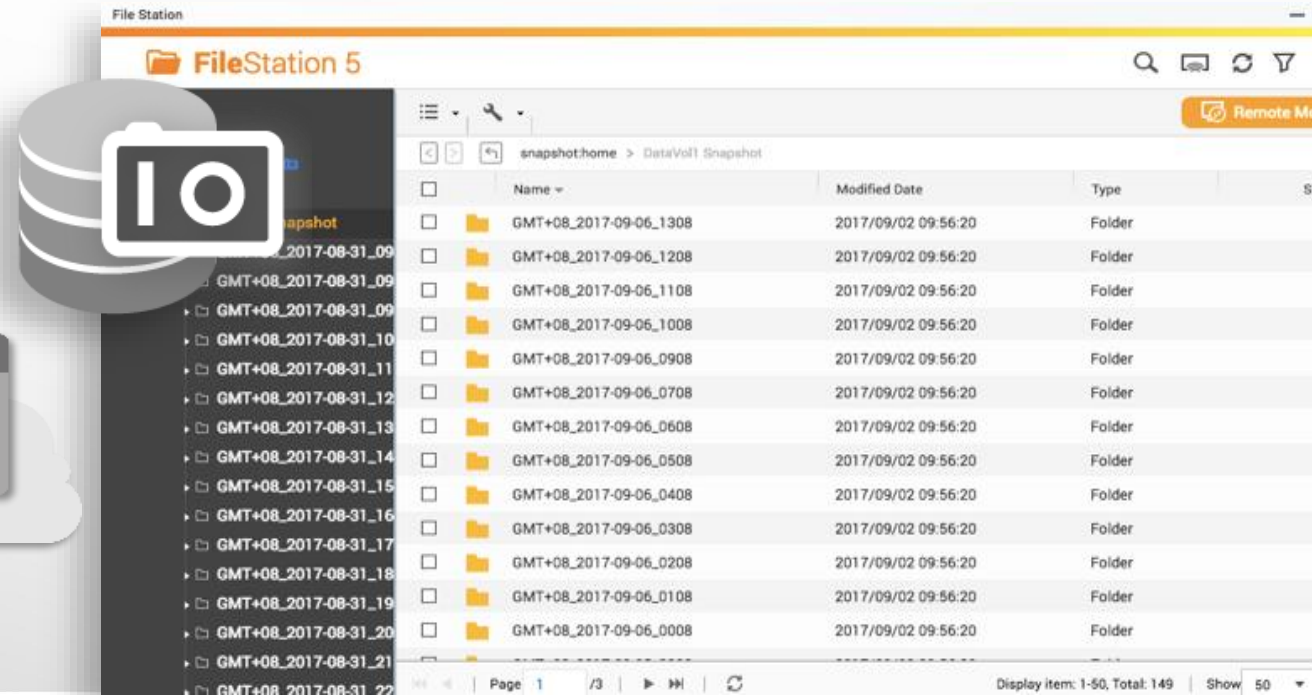
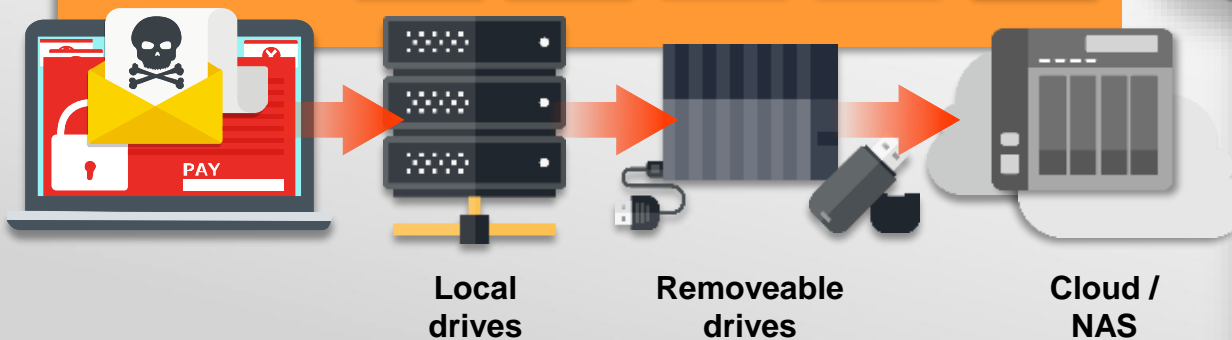
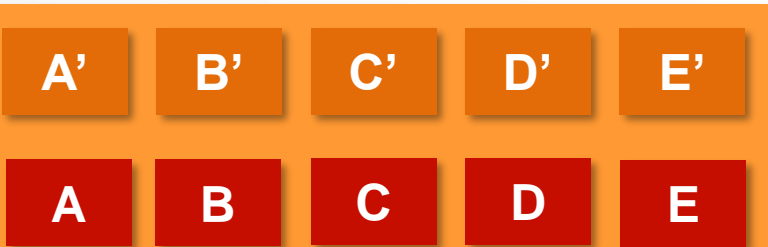
RAM size	Maximum total snapshot numbers per NAS	Maximum snapshot number per volume/LUN
4GB and above	256	64

- Fully supports all storage configurations at the storage pool level.
- Easily take, manage and restore snapshots.
- Using the mature Ext4 file system for "out of volume" snapshots.

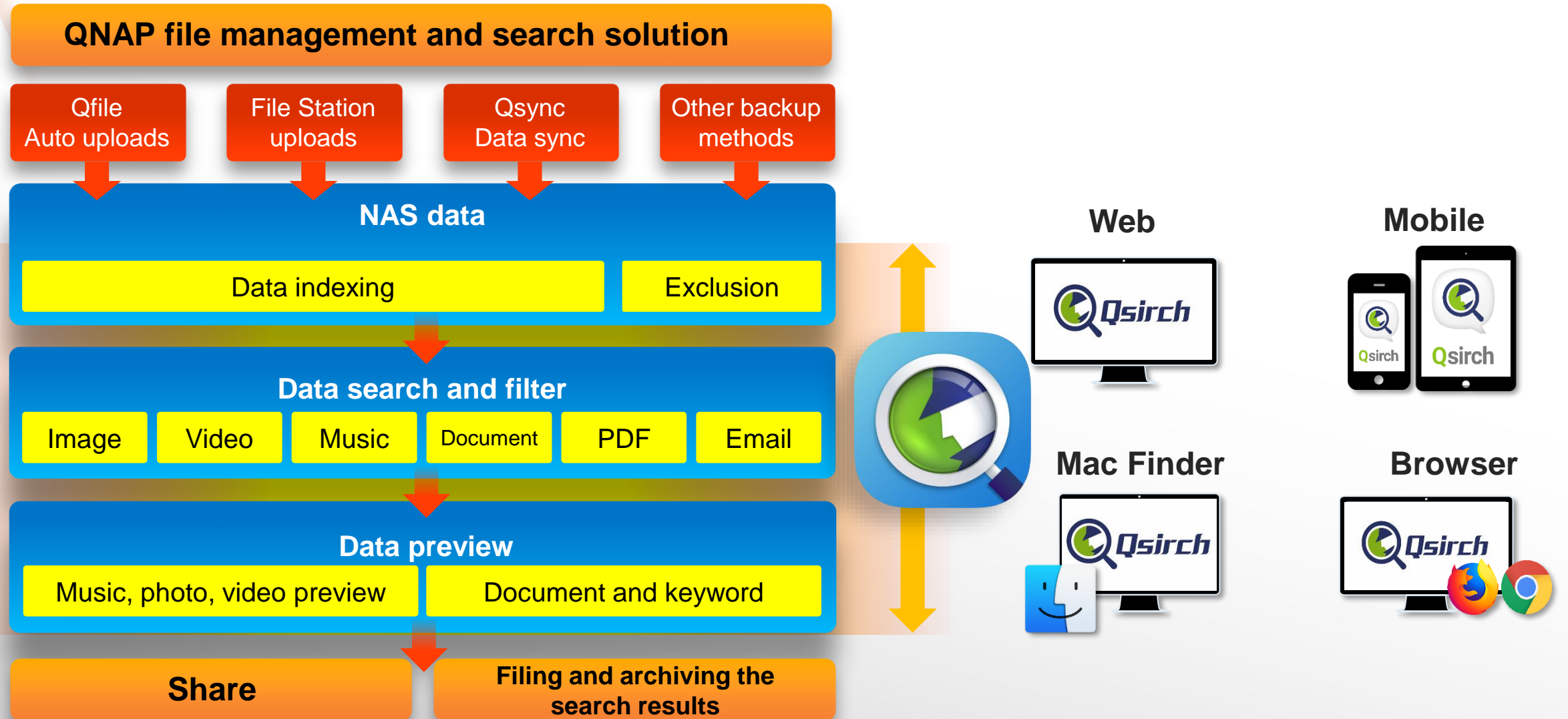
File level



Block level



# Qsirch 5.0 for NAS advanced file search and management



# QuMagie photo management with object and face auto-classification

## Album view

Albums and Smart Albums

## Folder view

The screenshot displays the QuMagie photo management application interface. At the top left is the QuMagie logo. The main content area shows a grid of photo thumbnails organized by date. A sidebar on the left contains navigation icons for gallery, folders, mobile devices, and sharing. A vertical timeline on the right side shows years from 2015 to 2018, with a callout for '2016/08'. A floating window on the right shows a large, colorful version of the QuMagie logo.

**All Photo** 6,356 photos, 163 videos

2018/06/16 12 photos, 2 videos

2018/06/02 2 photos, 1 videos

2018/04/01 2 photos

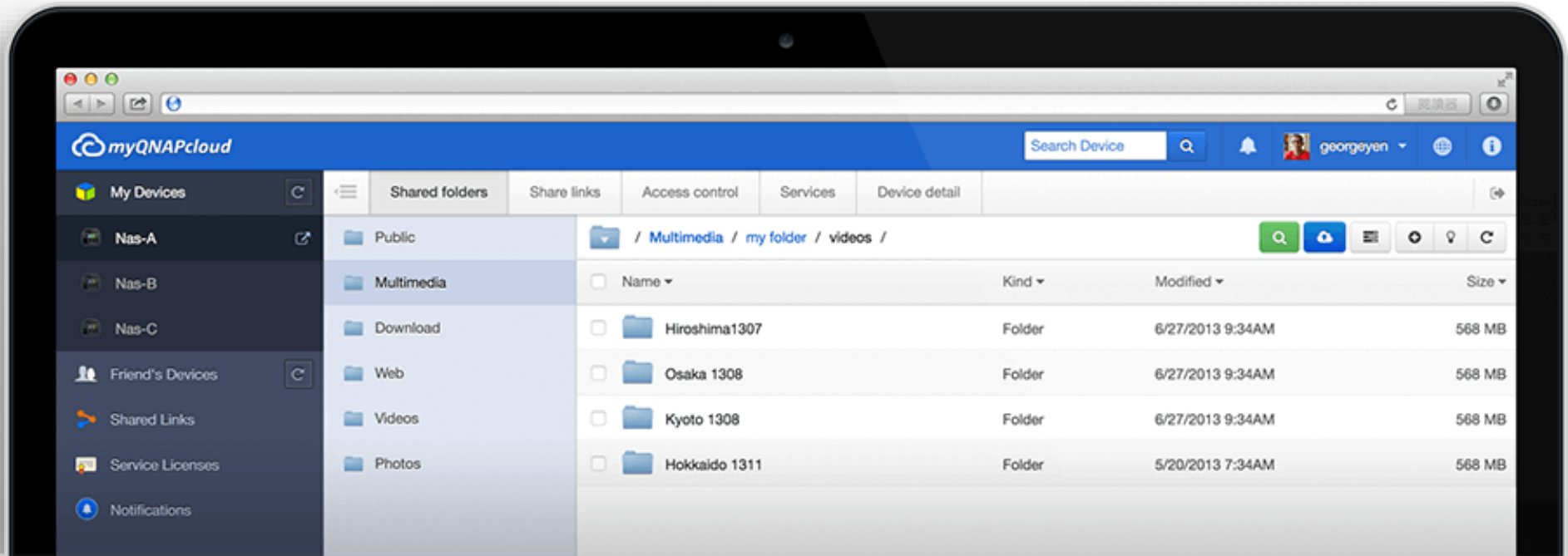
2016/08



# Connect to home or office NAS with myQNAPcloud and QNAP ID (QID)

## Anytime / Anywhere

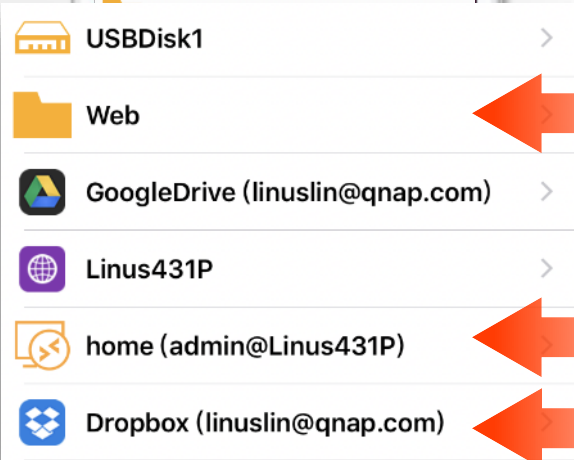
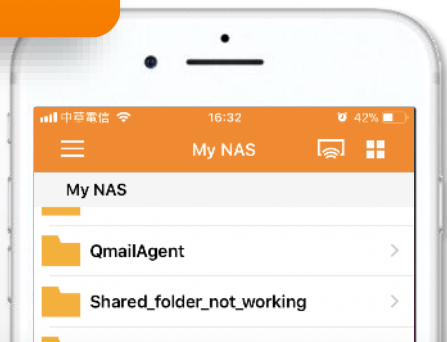
Register and login with Email or phone number



# Connect to Dropbox, OneDrive, Google Drive and more



Qfile



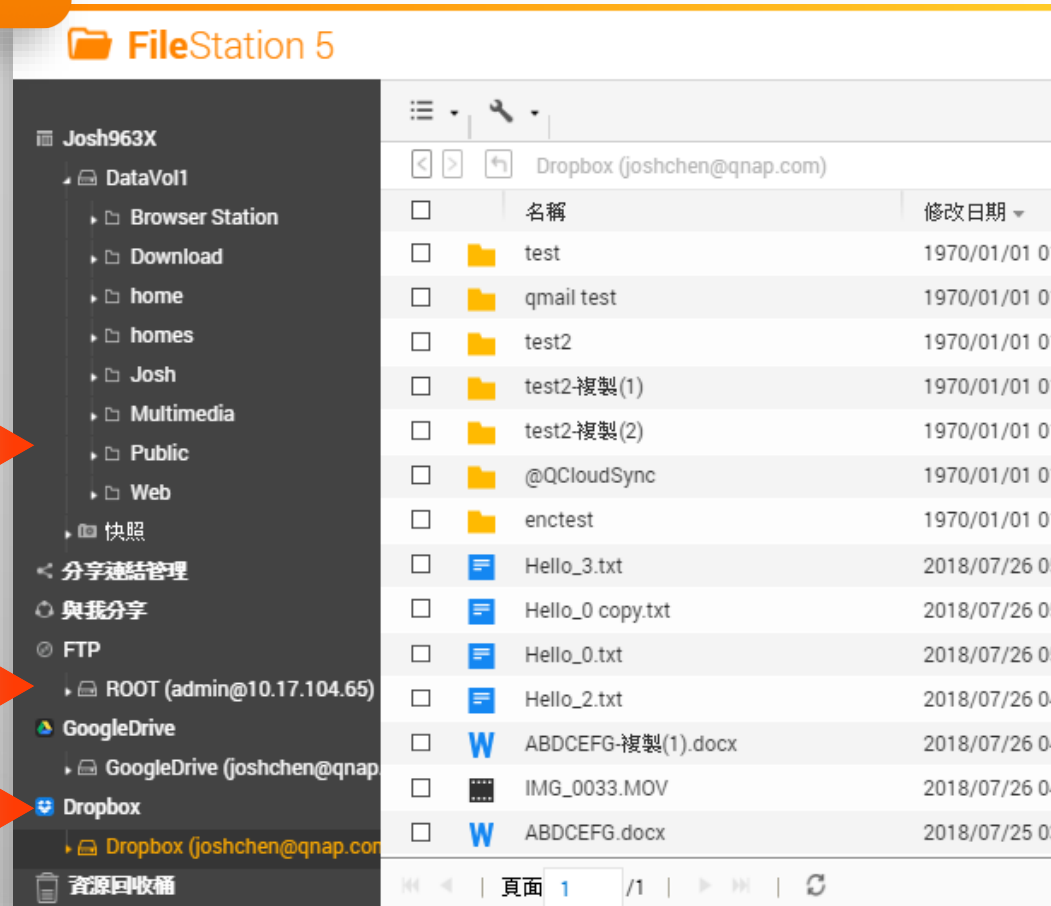
Local NAS

Remote NAS

Cloud storage



File Station



# QNAP QVPN and QBelt protocol for anywhere access

The image displays the QVPN Service 2 dashboard and mobile app interface. The dashboard shows a network diagram with 'Connected VPN Users (4)', 'Active Local VPN Servers (4/4)', and 'Outgoing Interface (Network interface :5 / VPN Client :1)'. The mobile app interface shows a 'Connected to USA' screen with a map and a 'Dashboard' screen with a map of Asia and connection details.

Connected VPN Users (4)	Active Local VPN Servers (4/4)	Outgoing Interface (Network interface :5 / VPN Client :1)
Sam8825No2 admin 172.17.46.41 1:25	Adapter 3 (Office) 146.75B   ± 21.11KB 172.17.46.89	Container_Network (docker0) 199B   ± 132.75B 10.0.5.1
Computex-435 admin 172.17.22.68 1:25	Container_Network (xcbr0) 31.5B   ± 0B 10.2.3.1	USB WIFI 336.75B   ± 15.73KB
MHA_L29 admin 172.17.32.19 0:47	Virtual Switch 3 82.6KB   ± 122.62KB 172.17.46.12	Remote VPN Server (L2TP/IPSec) Noeman1 35B   ± 123B 122.148.88.200 Destination : TW
admin 172.17.46.71 39:41		



**Secure Encrypted Connection:**  
DTLS + SSL +  
AES-256 encryption



**New VPN protocol:**  
Decreases the  
chance of being  
detected



**Works on desktop & mobile devices:**  
Windows, macOS,  
Android, iOS

# Active notifications and centralized settings with Notification Center



## Centralized setting

One interface to integrate all notification settings and operations



## Support multiple notification methods

Meet your various notification scenarios



## Highly flexible rule setting

Easily filter important messages you want to receive



## Multi-language support

Support 23 language & composed by professionals



## Double insurance

Notification history and test function ensure you don't miss one message

**Notification Center**

In Overview, you can view the number of messages sent over a specific period of time. You can also view the settings of notification rules, accounts, and device pairing.

**System Notification Rules** More **Service Account and Device Pairing**

Event Notifications	Alert Notifications	E-mail	SMS	Instant Messaging	Push Service
3	2	3	4	3	5
Active	Active	Active	Active	Active	Active

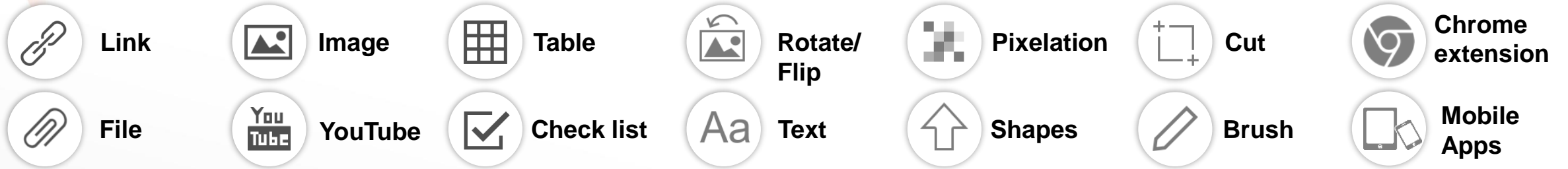
**System Logs** Last 50 Logs last 30 days: Warning:348 Error:6 More

S...	Date and ...	Users	Source IP	Application	Category	Content	Action
ⓘ	2018/11/... 04:05:37	System	127.0.0.1	myQNAPcloud	CloudLink	[myQNAPcloud] CloudLink service for myQNAPcloud website is ready.	Settings
ⓘ	2018/11/... 00:47:13	System	127.0.0.1	Antivirus	Settings	[Antivirus] Updated virus definitions.	Settings
	2018/11/...					[myQNAPcloud] CloudLink service	

[View the System Logs](#)



# Enhance efficiency with online collaboration



## Note taking

Josh's notes > Default Section

QTS 4.4.1

Backup Data Can Be Restored in Different Places and Taken Anywhere

Restore via HBS Access from remote Carry and use

TCP BBR TCP BBR TCP BBR

Access from remote NAS

Access from cloud

CIFS / NFS / FTP

New York Beijing Tokyo

QTS 4.4.1

## Image editing

Notes Station 3

Backup Data Can Be Restored in Different Places and Taken Anywhere

Restore via HBS Access from remote Carry and use

TCP BBR TCP BBR TCP BBR

Access from remote NAS

Access from cloud

CIFS / NFS / FTP

New York Beijing Tokyo

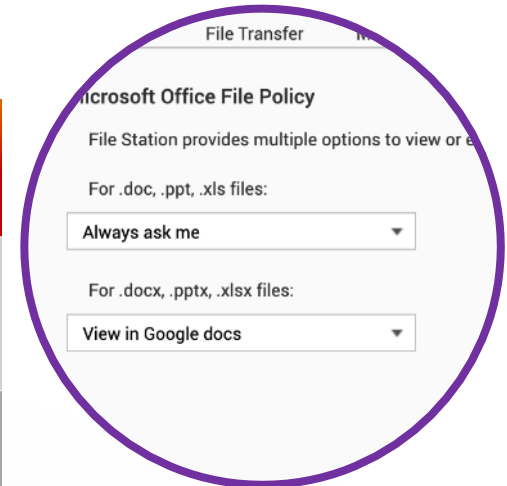
QDedup Extract Tool

Bottleneck Bandwidth and Round-Trip Time

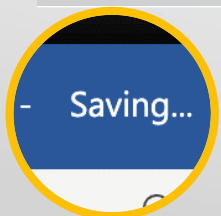
# Make NAS your team workspace central and easily collaborate with File Station



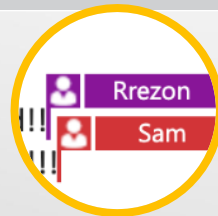
	Edit with Office Online	View in Google Docs	Open with Chrome Extension
<b>Requirement</b>	CloudLink needs to be enabled	CloudLink needs to be enabled	Use Chrome with extension "Office Editing for Docs, Sheets & Slides" to open
<b>Supported formats</b>	.docx, .pptx, .xlsx	.doc, .ppt, .xls .docx, .pptx, .xlsx	.doc, .ppt, .xls .docx, .pptx, .xlsx
<b>Capabilities</b>	<ul style="list-style-type: none"> <li>File collaboration</li> <li>Auto save to NAS in real time</li> </ul>	<ul style="list-style-type: none"> <li>Document preview</li> <li>Convert to Google docs for editing &amp; saving in your Google Drive</li> </ul>	<ul style="list-style-type: none"> <li>Document preview</li> <li>Convert to Google docs for editing &amp; saving in your Google Drive</li> </ul>



In File Station, go to **Settings > Documents** to set the default file opening policy

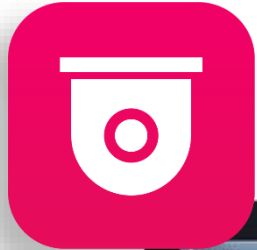


Save to NAS in real time



Multi-user online editing

# Surveillance Station 24x7 monitoring with IP cameras



## Surveillance Station 5.1



Vmobile

## Recording channels

Free: **2**

Max\*: **16**

\*Additional license purchase.

TS-1232PXU-RP



# Quad-core 1.7GHz w/ max 16GB RAM, best for Container Station to show your creativity

## 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

The screenshot displays the ContainerStation web interface. On the left is a navigation sidebar with sections for Management (Overview, Create, Import, Export, Logs, Preferences) and Resource (Images, Volume, Containers). The main area shows an Overview dashboard with metrics for Container amount (0 Running, 4 Stopped), NAS States (Alfred1277), CPU Usage (10%), and Memory Usage (33%). Below these are tabs for All, Running, and Stopped containers, a search bar, and a table of containers.

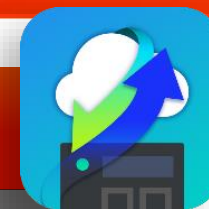
Status	Name	CPU	RAM	Upload	Download	Actions
APP	wordpress					
DOCKER	redis-1 redis:4.0					
LXC	ubuntu-trusty-1 ubuntu-trusty:latest					

**Built-in Docker®  
Hub marketplace**  
Easy to download




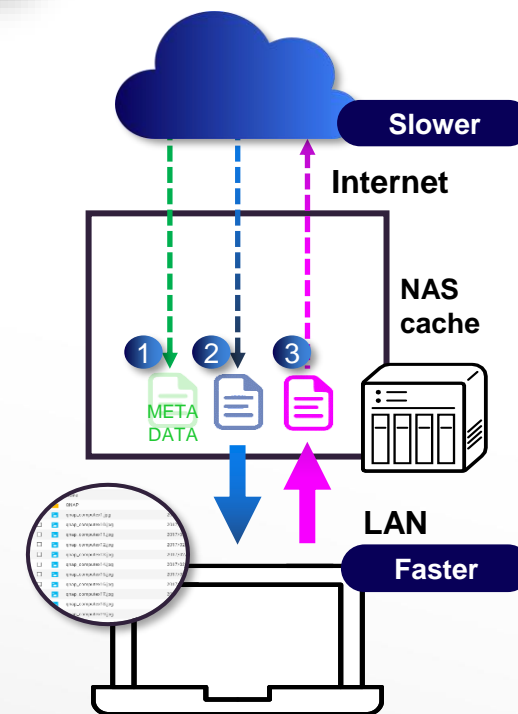


# HybridMount provides two modes for file-based cloud storage gateway

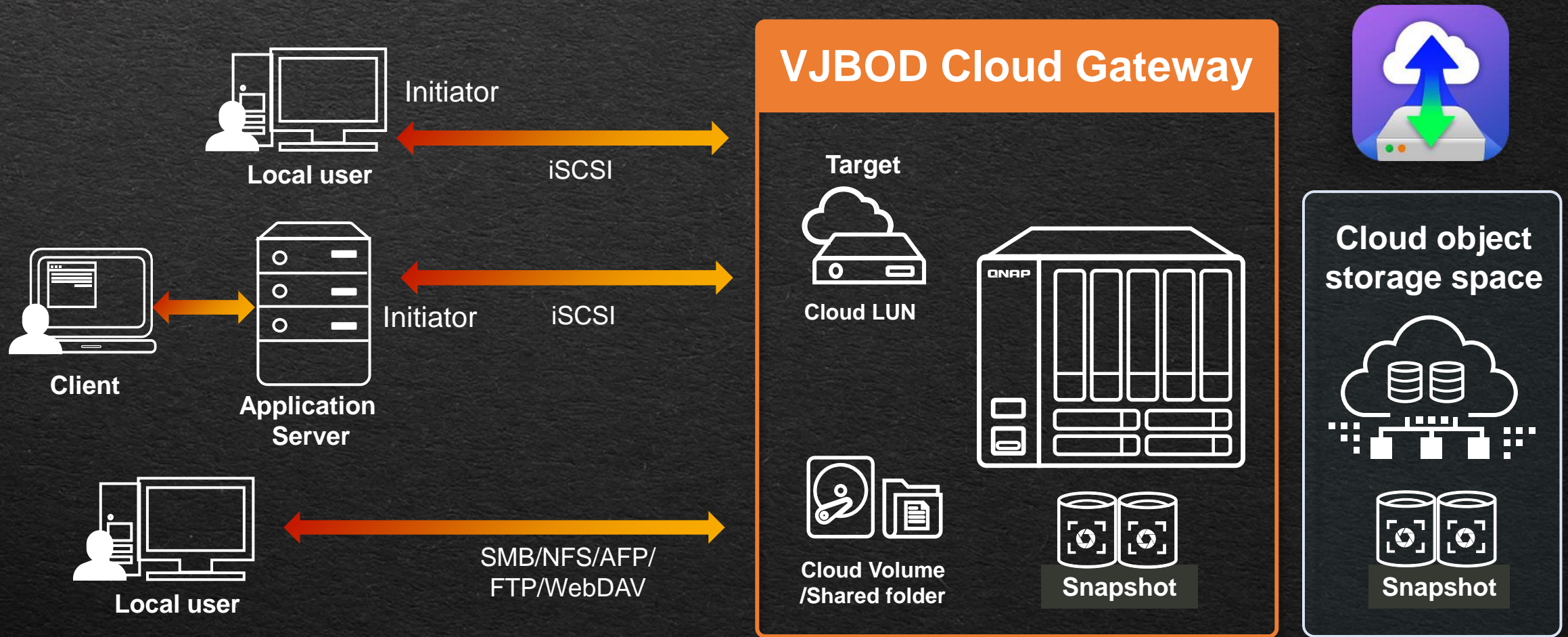


- Online collaboration
- File data analysis

	Network drive mount	File Cloud Gateway
Setup Method	Mount cloud drives and file servers	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	Partially supported	Supported
Sync with the cloud	Sync only when browsing	Sync constantly for quick access
Integration with QTS Apps	Not supported	Supported 



# Business-class LUN backup: VJBOD Cloud block-based gateway



# Use network-based VJBOD to expand other NAS capacity

Setup free space for multiple QNAP NAS devices to connect



TS-451DeU  
QNAP x86 NAS (Intel/AMD processor)



TS-1232PXU-RP

# Various NAS accessories for installation or expansion

## RAIL-B02

Optional rail-kit that is compliant with ANSI/EIA-RS-310-D.



## QDA-A2AR

2 x 2.5-inch SATA 6Gb/s to 1 x 3.5-inch SATA 6Gb/s hardware RAID 0/1 adapter



## TR & TL expansion enclosures

Flexibly use USB or PCIe to multi-channel SATA to expand NAS storage space



TR-004U



TL-R1200C-RP



TL-R400S



TL-R1200S-RP

# Economical and flexible QNAP expansion enclosures for multi-platform usage

**QNAP TR RAID and TL JBOD enclosures have many advantages for NAS capacity expansion.**

## **Bigger capacity**

- 4 & 12-bay choices
- NAS may support up to two 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 SFF-8088 6Gb/s cables

## **USB Interface**



TR-004U



TL-R1200C-RP

## **Better compatibility: NAS or PC/Server**

- Expand NAS or server storage capacity or data migration between different hosts
- QNAP External RAID Manager and JBOD Manager for monitoring the JBOD status

## **PCIe to SFF-8088 multi-channel SATA interface**



TL-R400S



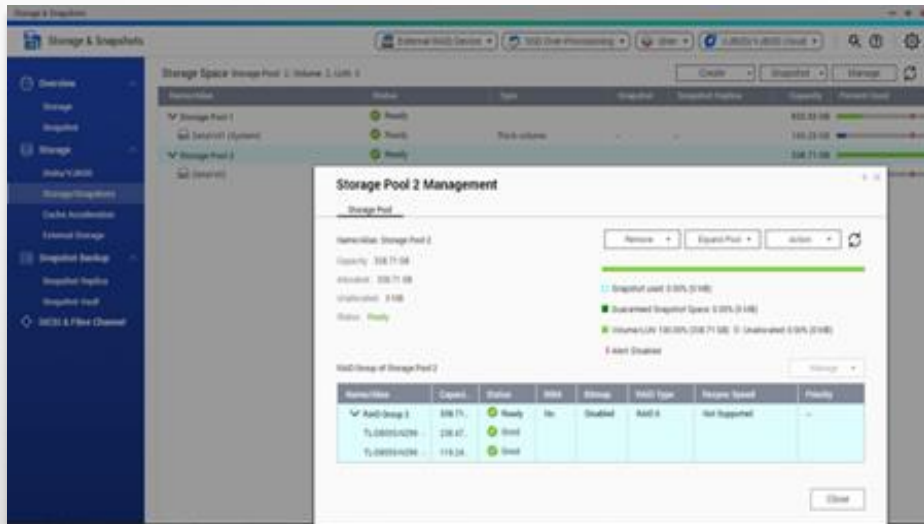
TL-R1200S-RP

\*TS-x32PXU can be installed with an USB 3.2 Gen 2 PCIe expansion adapter (QXP-10G2U3A) for dual USB 3.2 Gen 2 10Gbps ports.

# One enclosure for two different uses: internal expansion or external disk mode

## RAID & Storage Pool

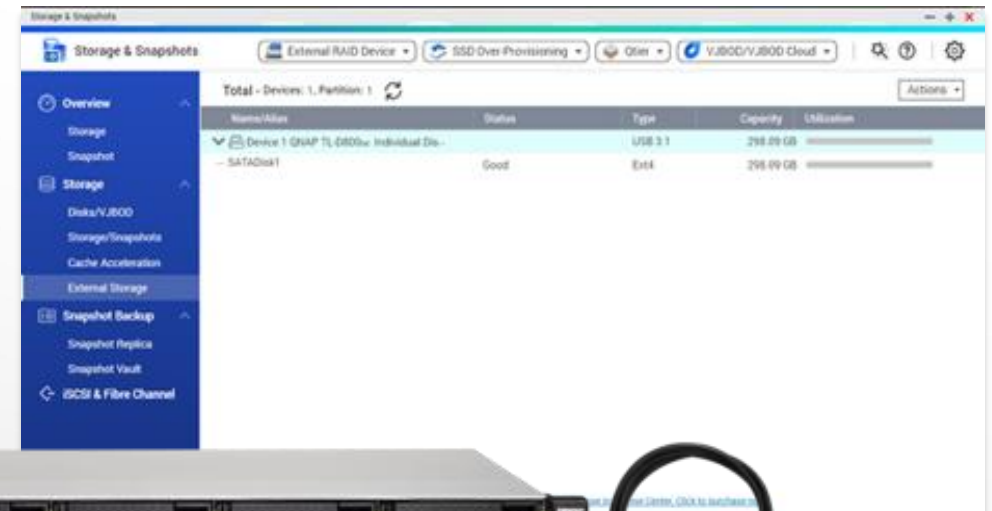
All disks of TR & TL expansion units would be identified by Storage & Snapshot manager, then configure as a RAID of storage pool.



- TL & TR units cannot be configured as a RAID group with those internal disks from NAS.
- TR units can only support RAID 0/1/5/10 and JBOD modes.

## External Disk Mode

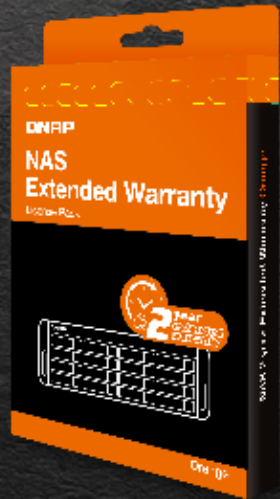
The storage is individual for each disk, it will show 8 independent external disks with TL JBOD or as a single disk with IR RAID unit. This mode is also for cross-platform compatibility among various O.S.



TL-R1200C-RP

# Two-year extended warranty option for the worry-free coverage

Provide up to 5 years of warranty coverage



Part number:  
EXTW-ORANGE-2Y



## 3-year Standard Warranty

- 3-year standard warranty service that comes in effect at the time of purchase.
- Free repair and part replacement for products under normal use during warranty period. (Spare parts and consumables are excluded)



## Optional 2-year Extended Warranty

- Extending your warranty with this paid service, available within 90 days of the initial unit purchase.
- Offers identical service to standard warranty.

# The upgraded x32PXU with dual 2.5GbE ports for a more agile business

NAS Model	<b>NEW</b>	TS-x32PXU	TS-x32XU
<b>Processor</b>		64-bit Annapurna Labs AL-324 4-core 1.7 GHz	
<b>Memory</b>		4GB DDR4 (1 x UDIMM, expandable to 16 GB)	
<b>PCIe Slot</b>		1 x PCIe 2.0 x2 slot	
<b>1GbE LAN</b>		---	2
<b>2.5GbE LAN</b>	<b>Upgrade</b>	<b>2</b>	---
<b>10GbE LAN</b>		2 x 10GbE SFP+	
<b>USB Port</b>		4 x USB 3.2 Gen 1 Type-A	
<b>SSD Cache</b>		Yes (also supports PCIe QM2 M.2 SSD expansion card)	
<b>Ordering SKUs</b>		<ul style="list-style-type: none"> <li>• TS-432PXU-4G</li> <li>• TS-432PXU-RP-4G</li> <li>• TS-832PXU-4G</li> <li>• TS-832PXU-RP-4G</li> <li>• TS-1232PXU-RP-4G</li> </ul>	<ul style="list-style-type: none"> <li>• TS-432XU-4G</li> <li>• TS-432XU-RP-4G</li> <li>• TS-832XU-4G</li> <li>• TS-832XU-RP-4G</li> <li>• TS-1232XU-4G</li> <li>• TS-1232XU-RP-4G</li> </ul>





**QNAP**

# TS-x32PXU

Made for the future  
business growth

Quad-core 1.7GHz,  
Dual 10GbE SFP+ & 2.5GbE ports

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