

**QNAP**

# TS-hx87XU-RP

ZFS-based HDD/SSD hybrid storage with Intel Xeon E 4/6/8-core processor, 2.5GbE/10GbE speed, and PCIe Gen 4 expandability

intel.  
**XEON**

10GbE  
2.5GbE

2 x 10GBASE-T +  
2 x 2.5GbE



PCIe

PCIe Gen4 slots

ZFS

2.5" SATA SSD

2.5" NVMe/SATA SSD



TS-h987XU-RP

TS-h1887XU-RP

TS-h2287XU-RP

TS-h3087XU-RP



# High efficiency enterprise storage trend for NAS w/ SSD cache 、 PCIe Gen4 、 and 10GbE/25GbE

Decreasing (8~13%) SSD price trend enables high-performance NAS for business storage agility

“High-performance metadata databases, database engines, and NVMe SSDs deliver the performance needed... Additionally, beyond compression, .... PCI-Express 4.0 specification for bandwidth improvements...and significant price declines, has made it economically feasible to deploy at large scale”

<https://www.networkworld.com/article/3666956/8-enterprise-storage-trends-to-watch.html>

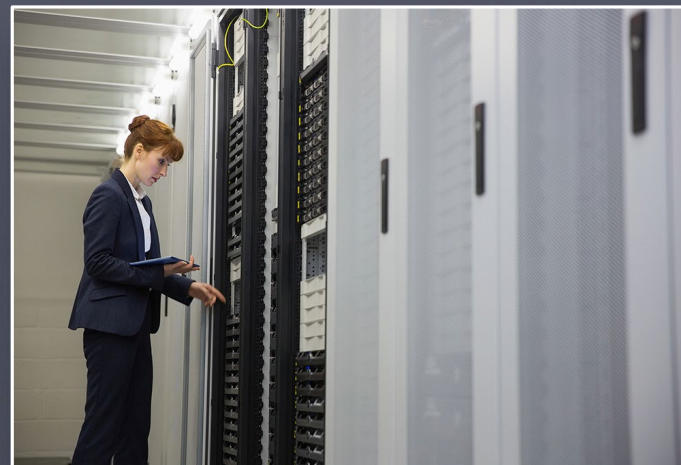
“TrendForce predicts NAND flash prices will decline 8-13 percent in the third quarter of 2022, and may continue into the fourth quarter”

[https://www.theregister.com/2022/07/19/nand\\_flash\\_decline/](https://www.theregister.com/2022/07/19/nand_flash_decline/)

## Virtualization



## Database



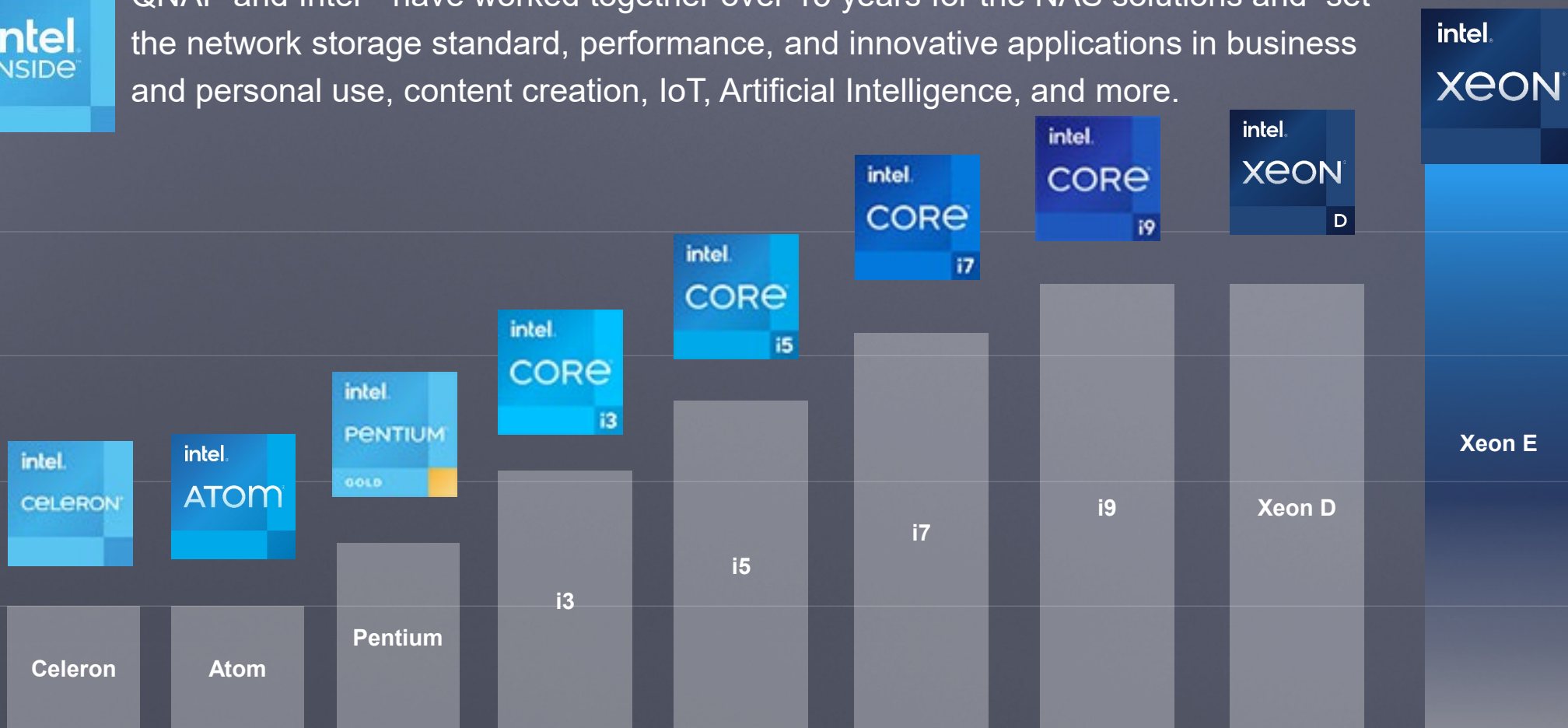
## Media & Entertainment



# From consumer to enterprise, x86-based Intel® multi-core and multi-threads processors provide excellent performance



QNAP and Intel® have worked together over 15 years for the NAS solutions and set the network storage standard, performance, and innovative applications in business and personal use, content creation, IoT, Artificial Intelligence, and more.





# TS-hx87XU-RP with flagship Intel® Xeon® E 4/6/8-core CPUs, designed for datacenter, cloud and big data applications

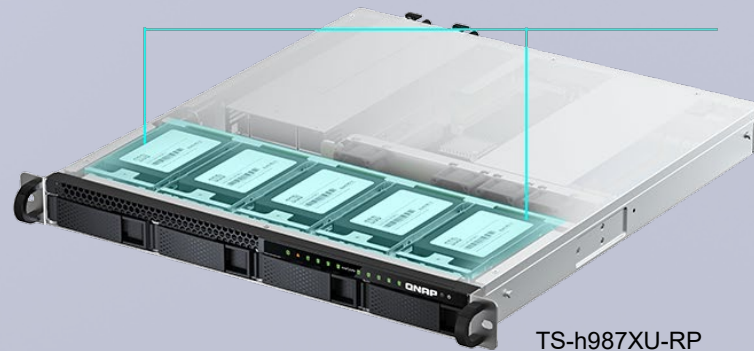
QNAP TS-hx87XU-RP series are equipped with the 3<sup>rd</sup> generation Intel Xeon E enterprise-level 4 / 6 / 8-core processors for multi-tasking and multi-users so that the NAS can tackle with datacenter heavy workloads. Up to 8-core / 16-thread processor and Intel Turbo Boost 2.0 up to 4.8 GHz Xeon E-2378 processor selection and better performance/energy consumption than the previous generation of processors.

- **Xeon E-2378 8C / 16T up to 4.8 GHz**
- **Xeon E-2336 6C / 12T up to 4.8 GHz**
- **Xeon E-2334 4C / 8T up to 4.8 GHz**
- Dual channel, 4 UDIMM DDR4 ECC memory slots, up to 128 GB total (4 x 32 GB)



# Hybrid HDD / SSD storage architecture, optimized for SSD cache acceleration

Compared with traditional storage arrays, the hybrid storage balances cost, performance, and capacity. Featuring multiple 3.5-inch SATA 6Gb/s bays for hard drives and five or six 2.5-inch SSD slots, the NAS supports SSD caching to improve IOPS-intensive workloads for accessing vital data.



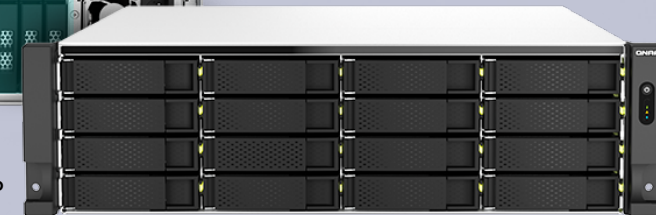
TS-h987XU-RP

U.2 NVMe PCIe Gen 4 x4 /  
SATA 6 Gbps SSD Slots



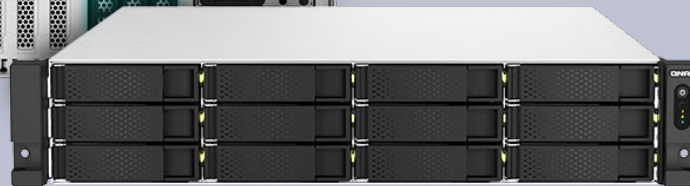
TS-h2287XU-RP

6 x SATA 6Gbps SSD Slots



TS-h1887XU-RP

6 x SATA 6Gbps SSD Slots



TS-h3087XU-RP

6 x SATA 6Gbps SSD Slots





# 1U 9-bay TS-h987XU-RP front view

5 x 2.5 吋 U.2 / U.3 NVMe PCIe or SATA 6Gb/s SSD bays

Note: supports 7mm-height SSDs, must remove the top cover to install or remove SSDs

Dimensions (H x W x D) :

43.3 x 430 x 479 mm /

1.70 x 16.93 x 18.86"

SSD #1~#3:

PCIe Gen3 x2 / SATA 6Gbps

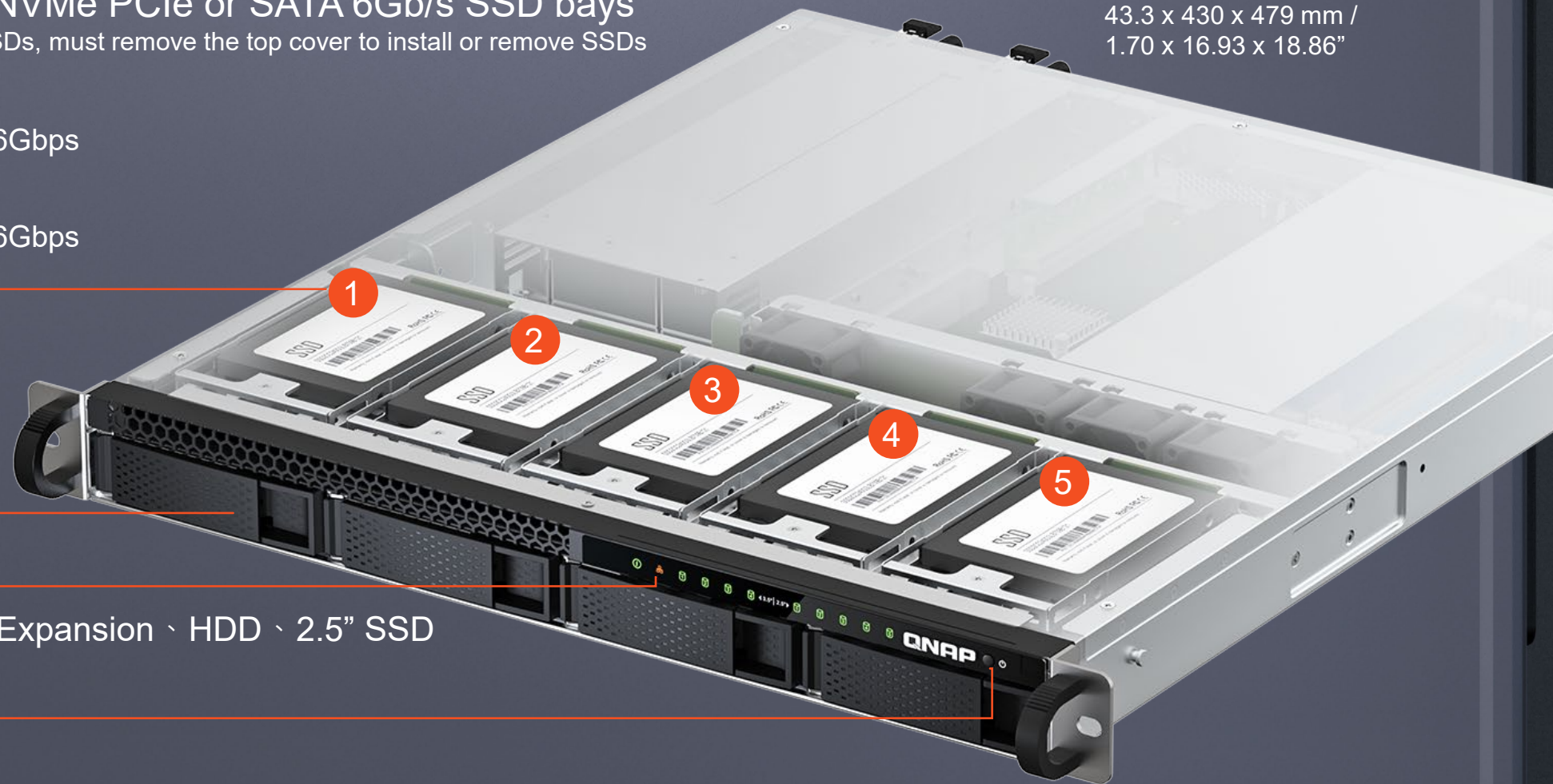
SSD #4~#5:

PCIe Gen4 x4 / SATA 6Gbps

4 x 3.5" / 2.5"  
SATA 6Gb/s HDD /  
SSD hot-  
swappable bays

LED indicators:  
Status/Power 、 LAN 、 Expansion 、 HDD 、 2.5" SSD

Power  
button



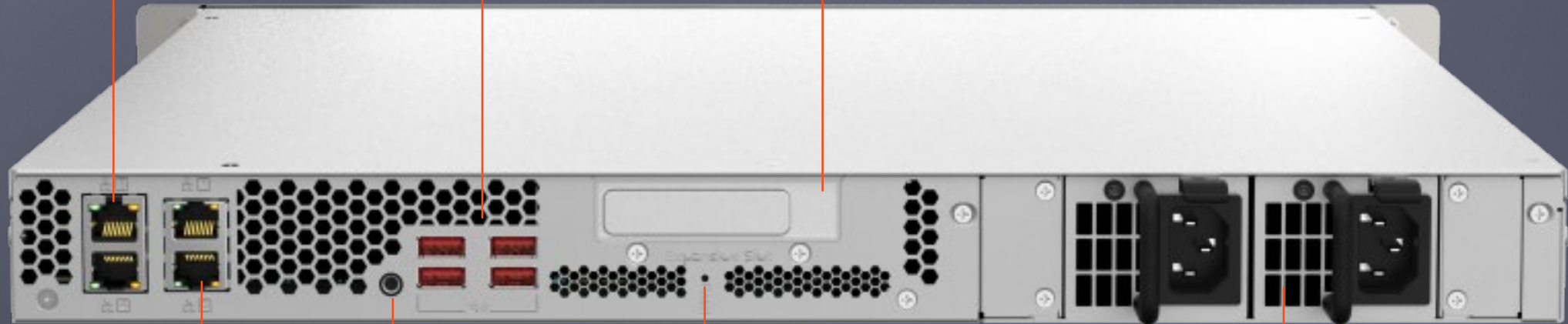


# 1U 9-bay TS-h987XU-RP rear view

2 x 10GbE RJ45 LAN ports  
(compatible w/ 5G/2.5G/1G/100M)

4 x USB-A 3.2 Gen2  
10Gbps ports

1 x PCIe Gen4 x8  
half-height



2 x 2.5GbE RJ45 ports  
(compatible w/ 1G/100M)

Console port  
(maintenance only)

Reset button

2 x 250W redundant PSU



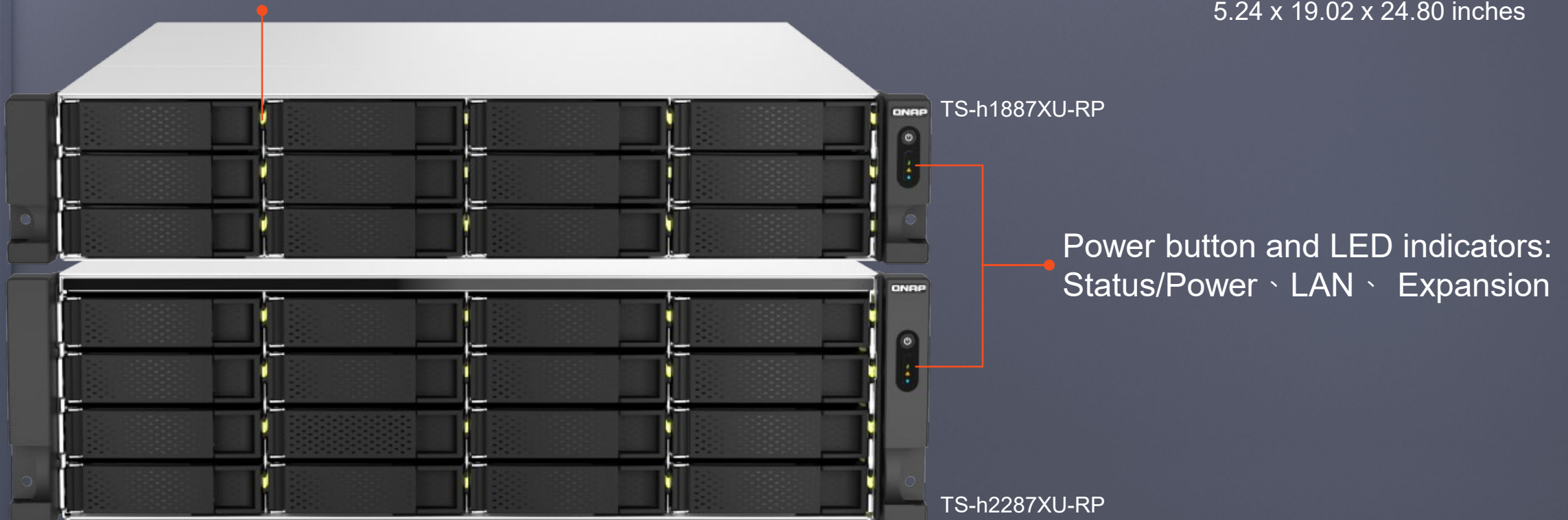
# 2U 18-bay TS-h1887XU-RP & 3U 22-bay TS-h2287XU-RP front view

3.5" / 2.5" SATA 6Gbps HDD/SSD hot-swap bays

- TS-h1887XU-RP: 12 x SATA HDD / SSD
- TS-h2287XU-RP: 16 x SATA HDD / SSD

Dimensions (H x W x D) :

- TS-h1887XU-RP: 88 x 483 x 630 mm /  
3.46 x 19.02 x 24.80 inches
- TS-h2287XU-RP: 133 x 483 x 630 mm /  
5.24 x 19.02 x 24.80 inches



# 2U 18-bay TS-h1887XU-RP rear view

SSD #4~#6 : 3 x 2.5"  
SATA 6Gbps SSD hot-  
swap bays

2 x 2.5GbE RJ45 ports  
(compatible w/ 1G/100M)

SSD #1~#3 : 3 x 2.5"  
SATA 6Gbps SSD hot-swap bays

2 x 500W  
redundant PSUs



Reset button

Console port  
(maintenance only)

2 x 10GbE RJ45 port  
(compatible w/  
5G/2.5G/1G/100M)

4 x USB-A 3.2 Gen2  
10Gbps port

3 x PCIe Gen4 expansion slots

Slot #1: PCIe Gen4 x8

Slot #2: PCIe Gen4 x4

Slot #3: PCIe Gen4 x4



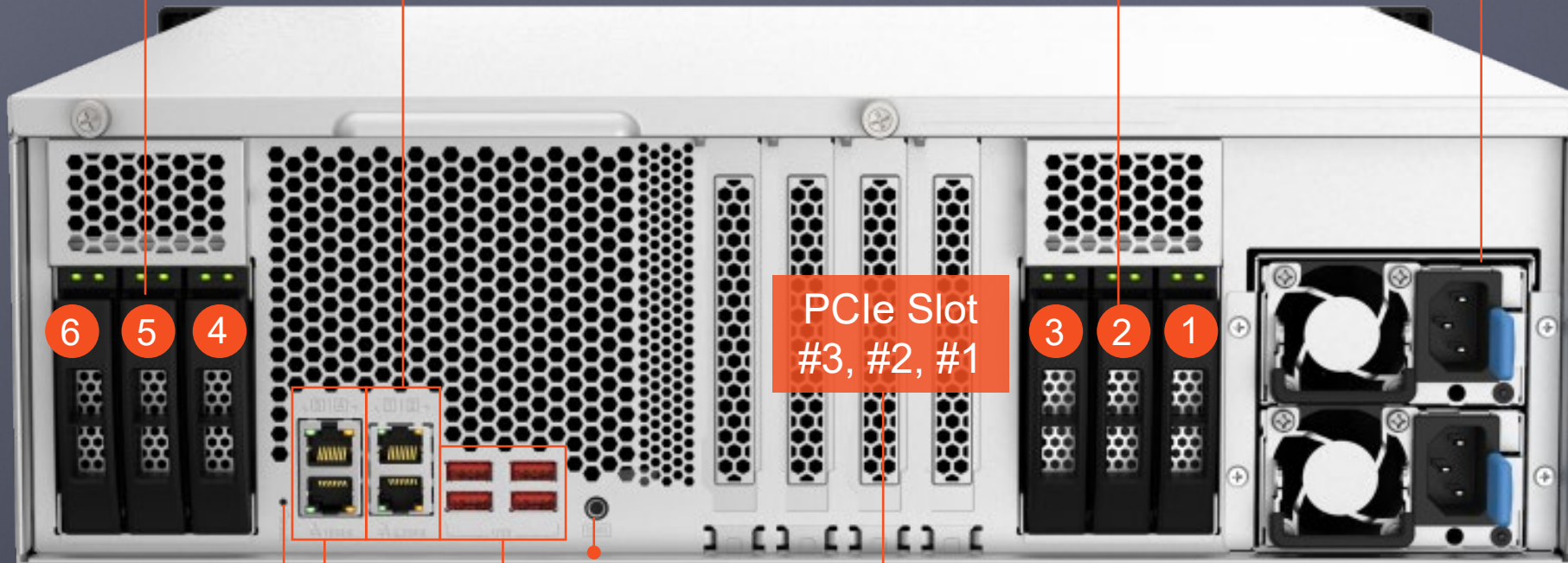
# 3U 22-bay TS-h2287XU-RP rear view

SSD #4~#6 : 3 x 2.5"  
SATA 6Gbps SSD hot-  
swap bays

2 x 2.5GbE RJ45 ports  
(compatible w/ 1G/100M)

SSD #1~#3 : 3 x 2.5"  
SATA 6Gbps SSD hot-swap bays

2 x 500W  
redundant bays



6 5 4

PCIe Slot  
#3, #2, #1

3 2 1

Reset button  
2 x 10GbE RJ45 ports  
(compatible w/  
5G/2.5G/1G/100M)

4 x USB-A 3.2  
Gen2 10Gbps port

Console port  
(maintenance only)

3 x PCIe Gen4 full-height slots  
Slot #1: PCIe Gen4 x8  
Slot #2: PCIe Gen4 x4  
Slot #3: PCIe Gen4 x4

# 4U 30-bay TS-h3087XU-RP front view

24 x 3.5" / 2.5" SATA 6Gbps HDD/SSD hot-swap bays and LED status indicators

Dimensions (H x W x D) :  
133 x 483 x 630 mm / 5.24 x 19.02 x 24.80 inches



Power button  
and LED  
indicators:  
Status/Power、  
LAN、  
Expansion



# 4U 30-bay TS-h3087XU-RP rear view

3 x PCIe Gen4 full-height slots:

Slot #1: PCIe Gen4 x8

Slot #2: PCIe Gen4 x4

Slot #3: PCIe Gen4 x4

2 x 800W  
redundant PSUs

SSD #1~#6 :

6 x 2.5"

SATA 6Gbps

SSD hot-  
swap bays

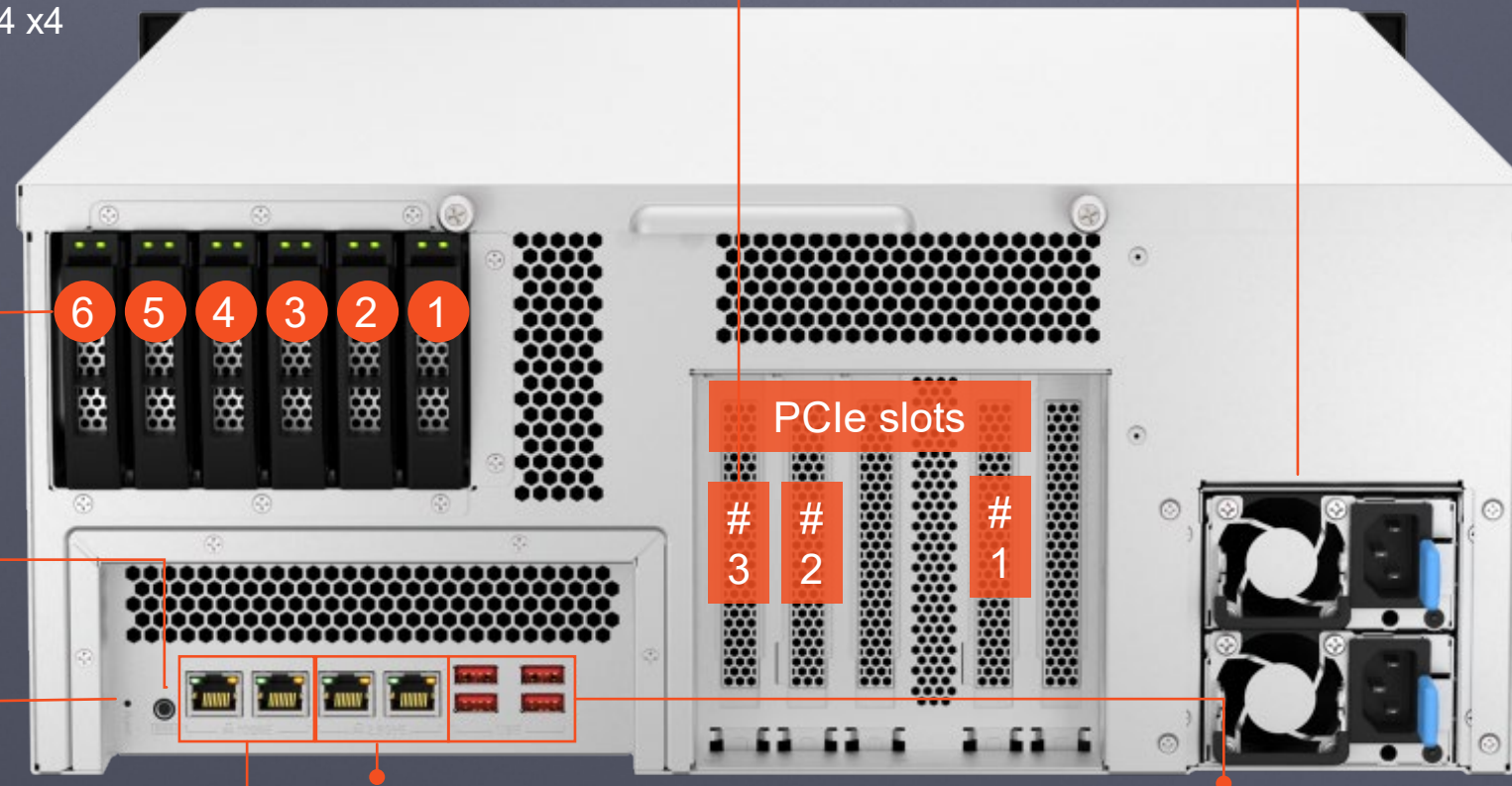
Console port  
(maintenance only)

Reset button

2 x 10GbE RJ45 port  
(compatible w/  
5G/2.5G/1G/100M)

2 x 2.5GbE RJ45 port  
(compatible w/ 1G/100M)

4 x USB-A 3.2 Gen2 10Gbps port



6 5 4 3 2 1

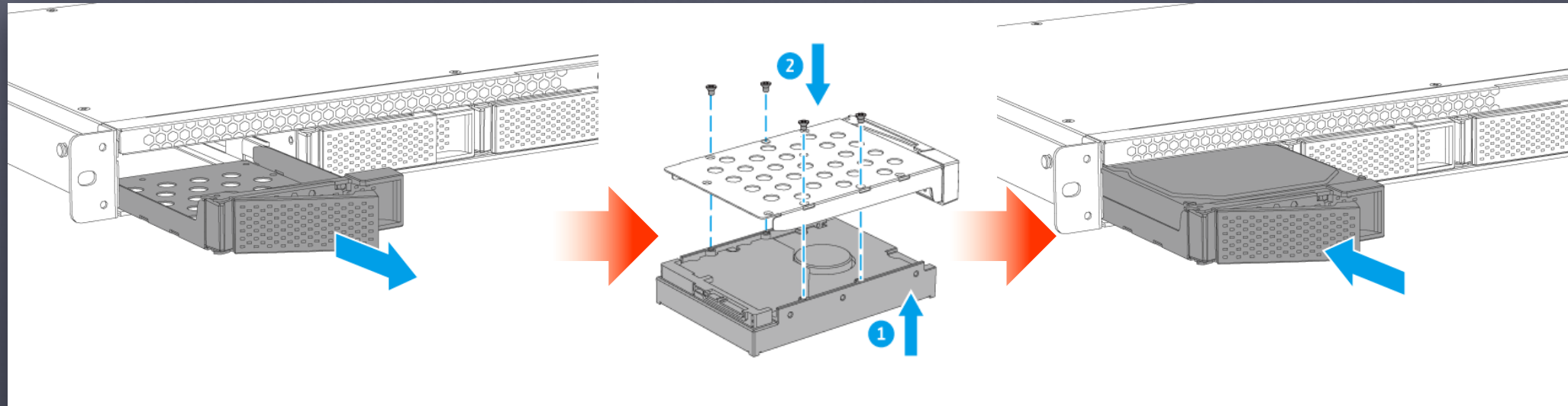
PCIe slots  
# 3 # 2 # 1

# TS-h987XU-RP, TS-h1887XU-RP, TS-h2287XU-RP : 3.5" HDD tray for SATA 6Gbps HDD

1. Remove the tray

2. Install the HDD w/ screws

3. Insert the tray



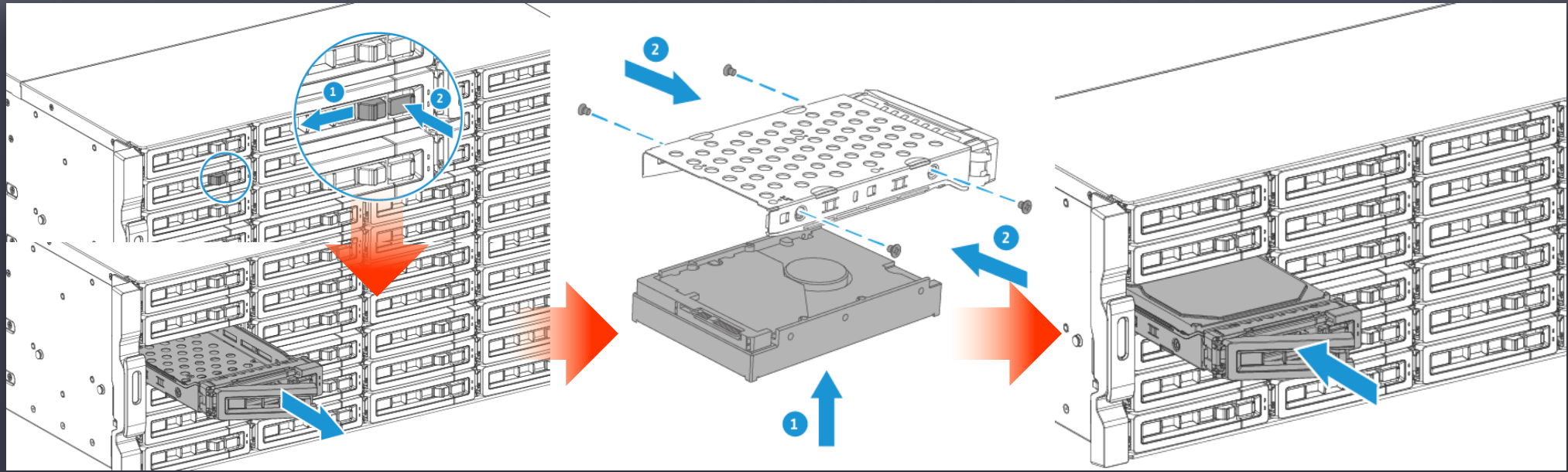


# TS-h3087XU-RP : 3.5" HDD tray for SATA 6Gbps HDD

1. Remove the tray

2. Install the HDD w/ screws

3. Insert the tray

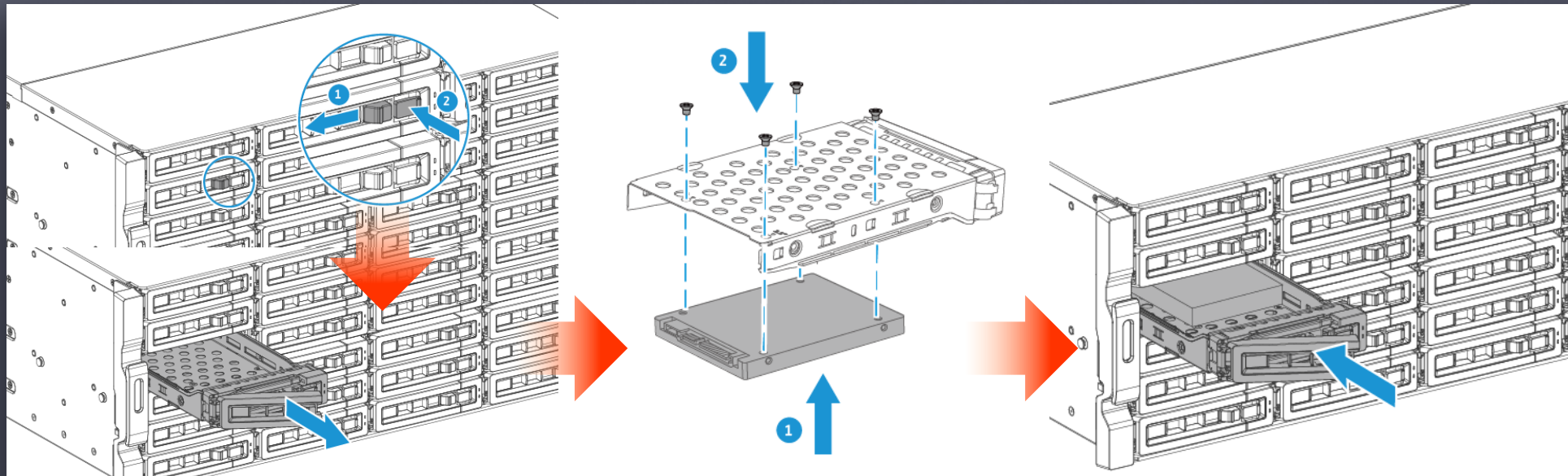


# TS-h3087XU-RP : 3.5" HDD tray for 2.5" SATA 6Gbps SSD

1. Remove the tray

2. Install the HDD w/ screws

3. Insert the tray





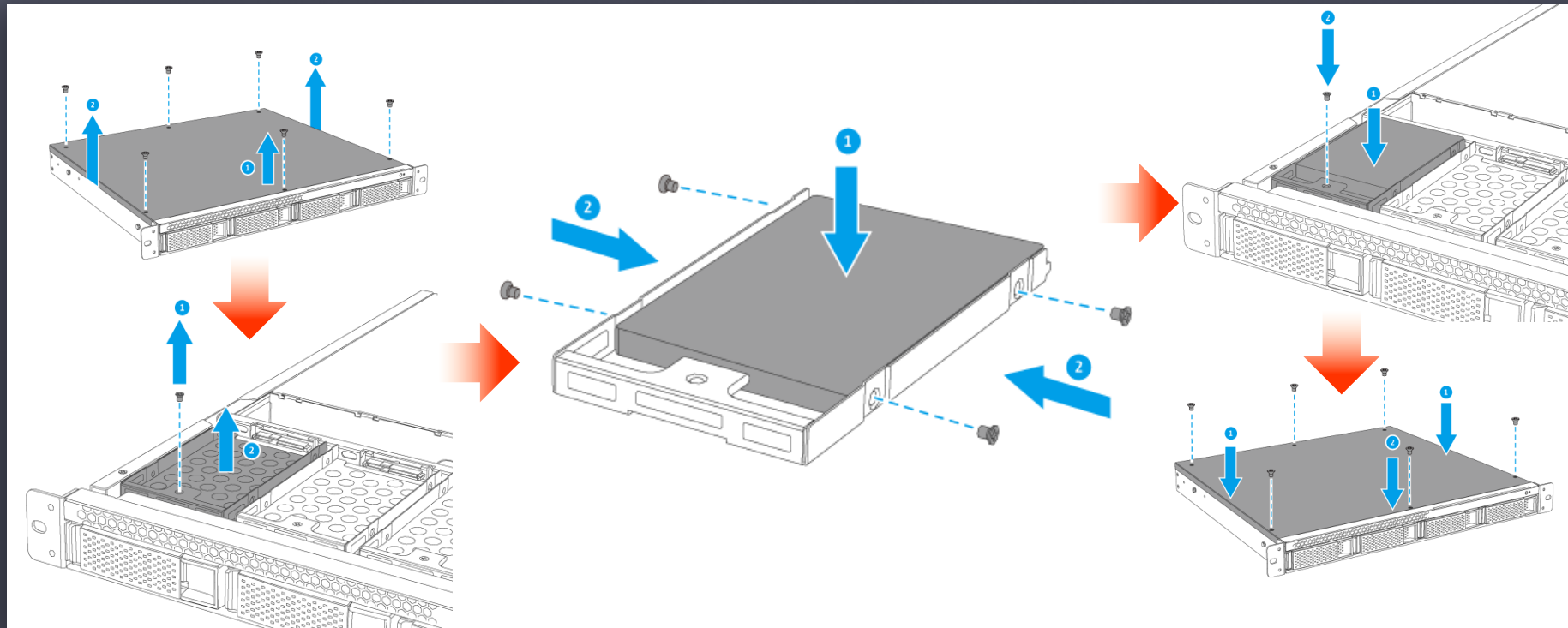
# TS-h987XU-RP: 2.5" SSD tray for 2.5" NVMe / SATA SSD

TS-h987XU-RP: 5 x 2.5" U.2/U.3 NVMe PCIe SSD or SATA SSD bays

1. Remove the top cover and the tray with a screw driver

2. Install the SSD with screws

3. Install the tray and top cover with screws



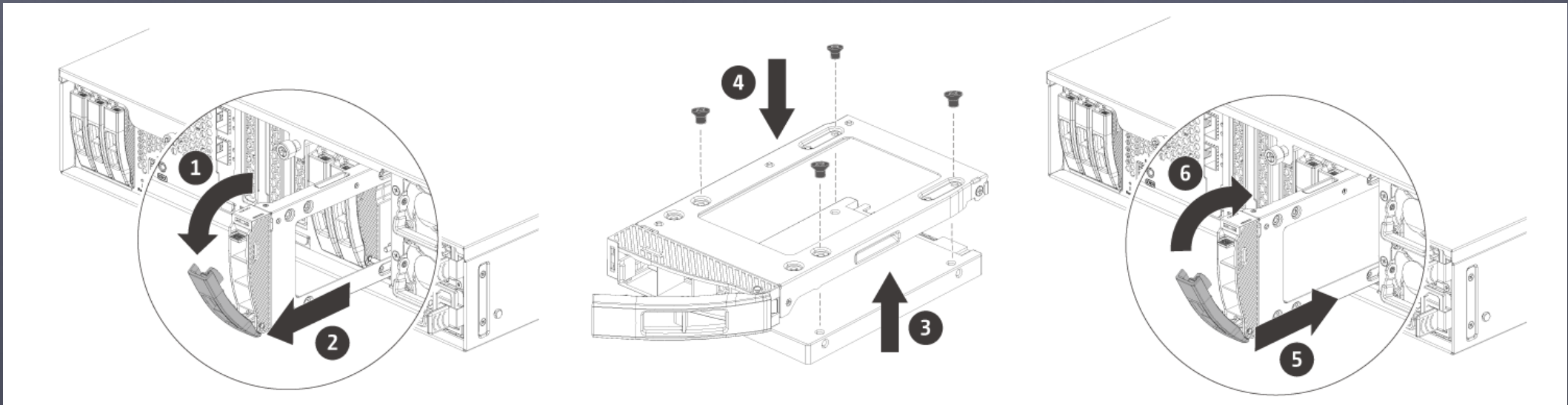
# TS-h1887XU-RP, TS-h2287XU-RP, TS-h3087XU-RP: 2.5" SSD bays for 2.5" SATA SSD

How-swap 6 x 2.5" SATA 6Gbps SSD bays

1. Remove the tray

2. Install the SSD w/ screws

3. Insert the tray



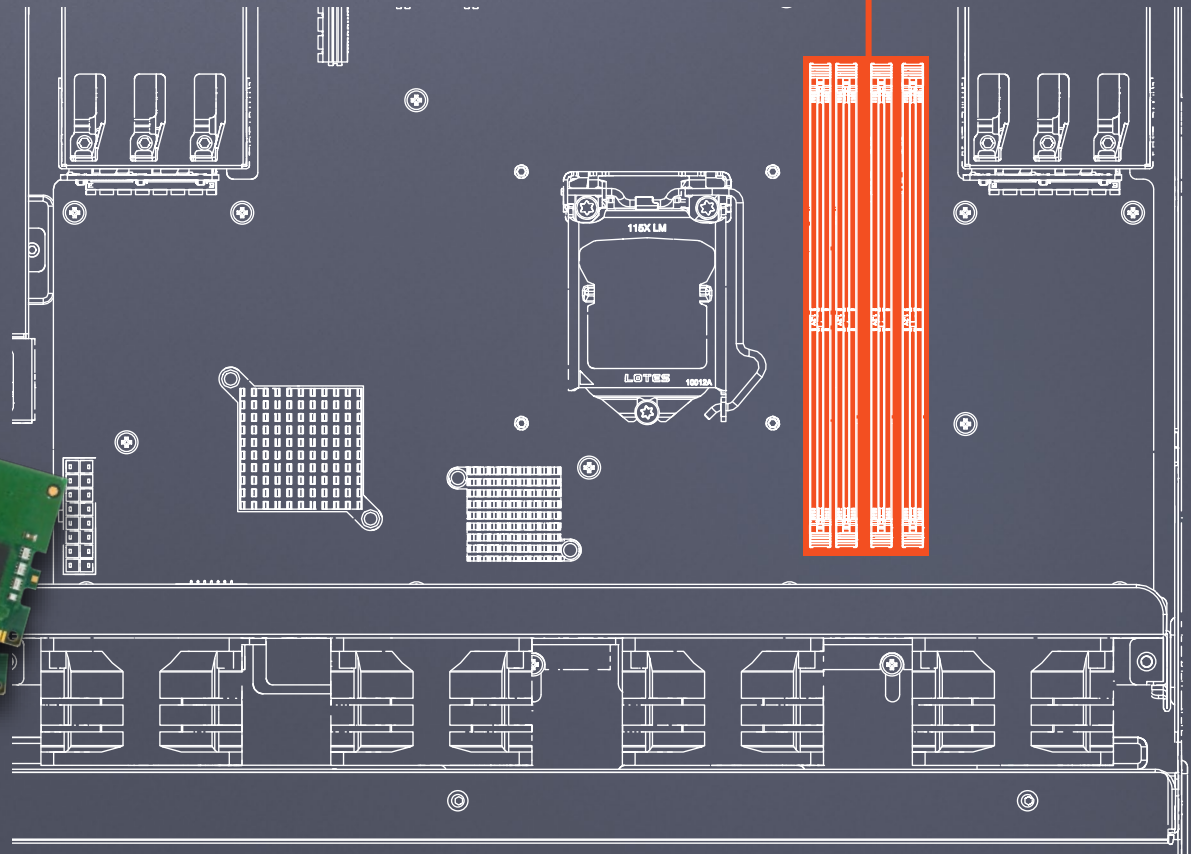


# 4 x DDR4 ECC RAM slots, up to 128 GB RAM total

## Support up to 128 GB RAM

Intel Xeon E processors support DDR4 ECC memory that automatically detects and corrections of error bits

## Dual-channel 4 x DDR4 ECC RAM slots



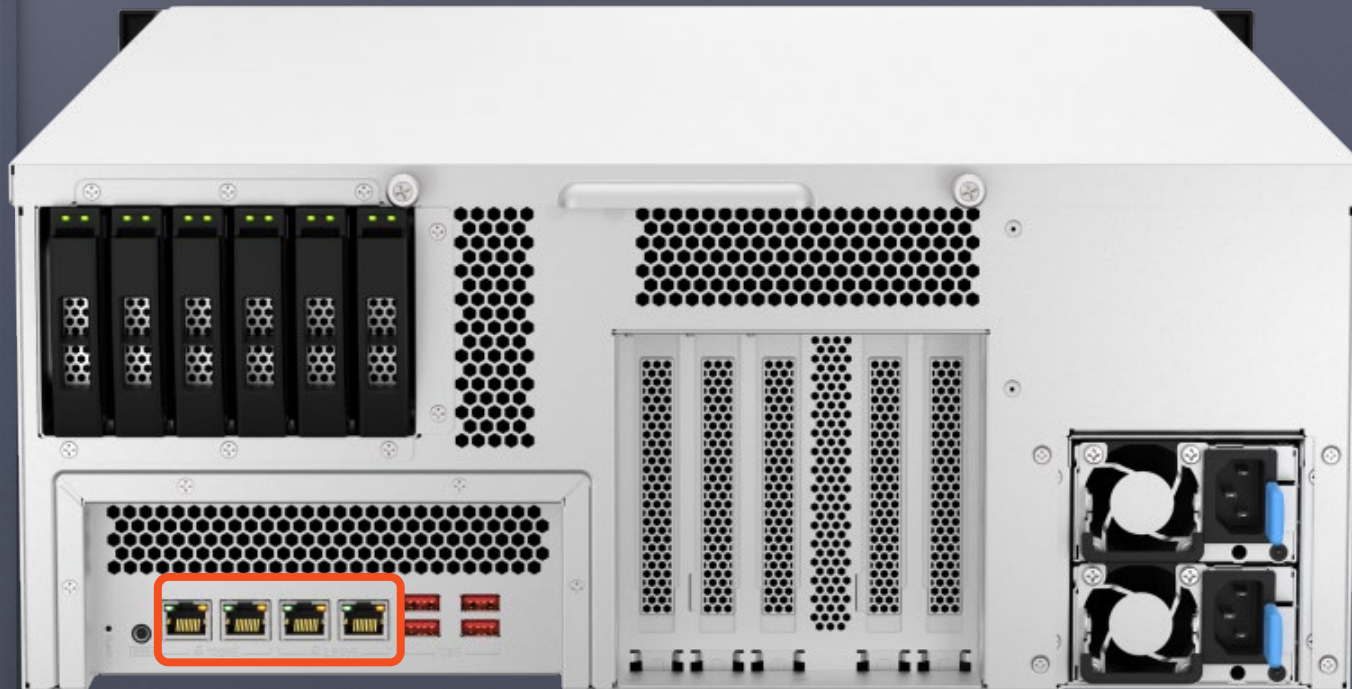
**ECC**

Error correction and detection  
Up to 4 x 32GB = 128GB RAM

# Dual 10 GbE & 2.5GbE Multi-Gig ports for speedy transfer & management right away

## Dual 10GbE / 2.5 GbE RJ45 LAN ports

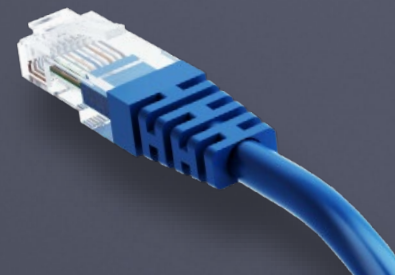
Integrated dual 10 GbE & 2.5GbE LAN ports for auto negotiation of 10 GbE / 5 GbE / 2.5GbE / 1GbE / 100MbE. Reach 20 Gbp with Port Trunking setup for dual client concurrent transfer.



No need to change wiring infrastructure. CAT 5e can provide 2.5X speed.

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

Note: clients and switch must also support 2.5GbE to achieve the 2.5GbE link speed.





# PCIe Gen4 slots for optional QXG-25G2SF-CX6 25GbE SFP28 high-speed network port

- QNAP **QXG-25G2SF-CX6** supports 2 x 25GbE SFP28 SmartNIC ports
- 25GbE port for SFP28 fiber optic transceiver or DAC
- Backward compatible support for 1GbE and 10GbE networks (for compatible SFP/SFP+ optical transceivers)
- Auto-negotiation , automatically adjust connection speed
- Link Aggregation , provides sufficient network transmission bandwidth

10GbE SFP+ /  
1GbE SFP  
transceiver



Supports 25GbE  
SFP28 optical  
transceivers and  
LC cables



**QXG-25G2SF-CX6**



QNAP QXG-25G2SF-CX6  
25GbE network expansion card

**25GbE SFP28**



QNAP QSW-M5216-1T  
16ports 25GbE switch

**10GbE SFP+**

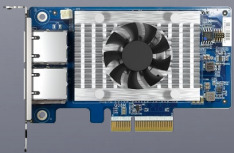


10GbE Switch  
QSW 10GbE series

# Support 2.5GbE / 5GbE / 10GbE / 25GbE / 40GbE Various QNAP network expansion cards

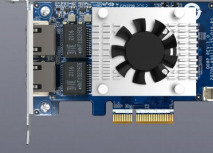
## 10GbE NIC

2 x RJ45



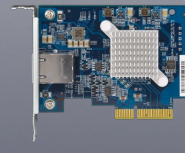
LAN-10G2T-X710

2 x RJ45



QXG-10G2TB

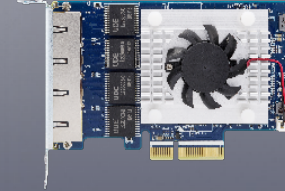
1 x RJ45



QXG-10G1TB

## 5GbE NIC

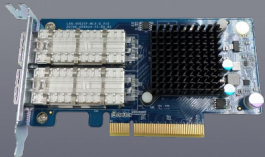
1/2/4 x RJ45



QXG-5G1T-111C  
QXG-5G2T-111C  
QXG-5G4T-111C

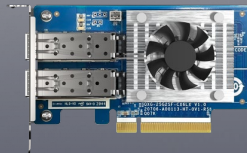
## 40/25GbE NIC

2 x QSFP+ 40Gb/s



LAN-40G2SF-MLX

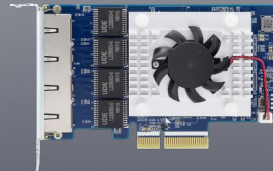
2 x SFP28 25Gb/s



QXG-25G2SF-CX6

## 2.5GbE NIC

1/2/4 x RJ45



QXG-2G1T-I225  
QXG-2G2T-I225  
QXG-2G4T-I225



# 4-core 8-thread TS-h987XU-RP-E2334-16G 25GbE multiple client performance

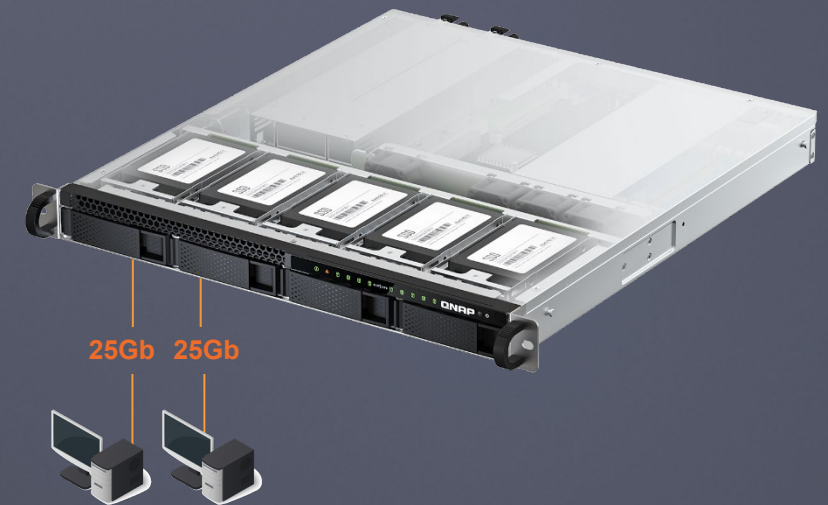
1 x 25GbE SAMBA, Sequential Throughout (1MB), Normal LUN



2 x 25GbE SAMBA, Sequential Throughout (1MB), Normal LUN



- 1 x 25GbE SMB sequential read 2,953 MB/s and sequential write 2,940 MB/s
- 2 x 25GbE SMB sequential read 5,876 MB/s and sequential write 5,901 MB/s



2 x 25GbE clients

Tested in QNAP Labs. Figures may vary by environment.

Test environment:

NAS: TS-h987XU-RP-E2334-16G, QuTS hero h5.0.0

Volume type: Samsung 860 EVO 1TB RAID 5; QXG-25G2SF-CX6

Client PC: 2\* Client PC simultaneously read and write 16GB file

Intel Core™ i7-7700 4.20GHz CPU, 32GB DDR4 RAM, QXG-25G2SF-CX4, Windows® Server 2016

# 6-core12-thread TS-h1887XU-RP-E2336-32G

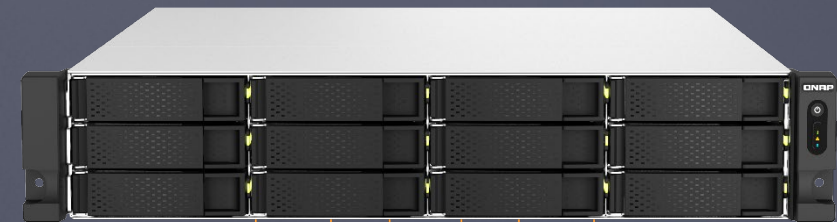
## 6 x 25GbE multiple client performance

6 x 25GbE iSCSI, Random IOPS (4K), SED pool



- iSCSI Random read 583,553 IOPS and Random write 404,818 IOPS
- SMB sequential read 9,755 MB/s and sequential write 8,874 MB/s

6 x 25GbE SAMBA, Sequential Throughput (1MB), Encryption LUN



6 x 25GbE clients

Tested in QNAP Labs. Figures may vary by environment.

Test environment:

NAS: TS-h1887XU-RP-E2336-32G, QuTS hero h5.0.0

Volume type: Samsung 860 EVO 1TB x30 (RAID 50, 9 x2); QXG-25G2SF-CX6

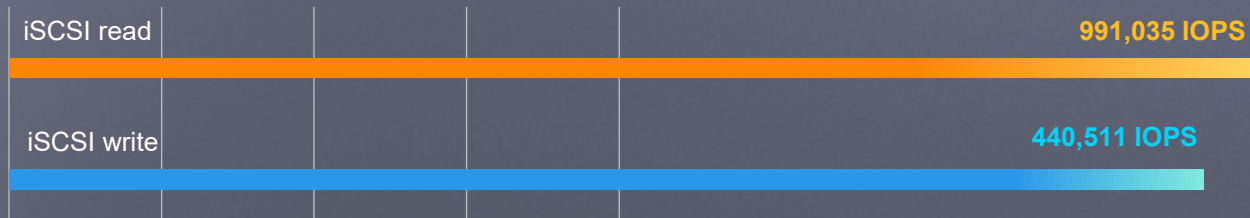
Client PC: 6\* Client PC simultaneously read and write 16GB file (= 96GB totally)

Intel Core™ i7-7700 4.20GHz CPU, 32GB DDR4 RAM, QXG-25G2SF-CX4, Windows® Server 2016, and Intel Core™ i3-8100 3.60GHz CPU, 4GB DDR4 RAM, QXG-25G2SF-CX4, Windows® Server 2016



# 8-core 16-thread TS-h2287XU-RP-E2378-64G 6 x 25GbE multiple client performance

6 x 25GbE iSCSI, Random IOPS (4K), SED pool



- iSCSI Random read 991,035 IOPS and Random write 440,511 IOPS
- SMB sequential read 9,961 MB/s and sequential write 9,670 MB/s

6 x 25GbE SAMBA, Sequential Throughput (1MB), Encryption LUN



6 x 25GbE clients

Tested in QNAP Labs. Figures may vary by environment.

Test environment:

NAS: TS-h2287XU-RP-E2378-64G, QuTS hero h5.0.0

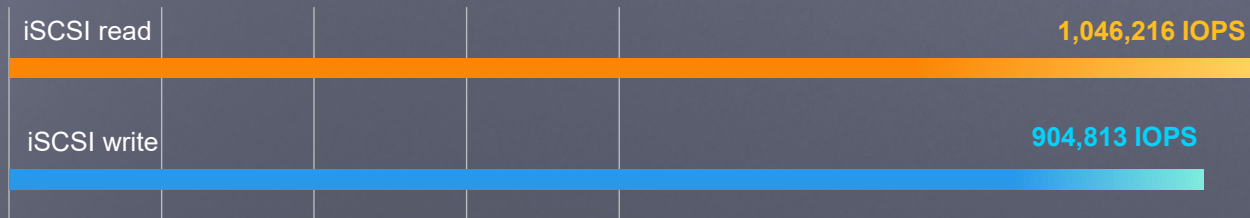
Volume type: Samsung 860 EVO 1TB x30 (RAID 50, 11 x2); QXG-25G2SF-CX6

Client PC: 6\* Client PC simultaneously read and write 16GB file (= 96GB totally)

Intel Core™ i7-7700 4.20GHz CPU, 32GB DDR4 RAM, QXG-25G2SF-CX4, Windows® Server 2016, and Intel Core™ i3-8100 3.60GHz CPU, 4GB DDR4 RAM, QXG-25G2SF-CX4, Windows® Server 2016

# 8-core 16-thread TS-h3087XU-RP-E2378-32G 6 x 25GbE multiple client performance

6 x 25GbE iSCSI, Random IOPS (4K), SED pool



- iSCSI Random read 1,046,216 IOPS and Random write 904,813 IOPS
- SMB sequential read 10,273 MB/s and sequential write 10,132 MB/s

6 x 25GbE SAMBA, Sequential Throughput (1MB), Encryption LUN



6 x 25GbE clients

Tested in QNAP Labs. Figures may vary by environment.

Test environment:

NAS: TS-h3087XU-RP-E2378-64G, QuTS hero h5.0.0

Volume type: Samsung 860 EVO 1TB x30 (RAID 50, 15 x2); QXG-25G2SF-CX6

Client PC: 6\* Client PC simultaneously read and write 16GB file (= 96GB totally)

Intel Core™ i7-7700 4.20GHz CPU, 32GB DDR4 RAM, QXG-25G2SF-CX4, Windows® Server 2016, and Intel Core™ i3-8100 3.60GHz CPU, 4GB DDR4 RAM, QXG-25G2SF-CX4, Windows® Server 2016

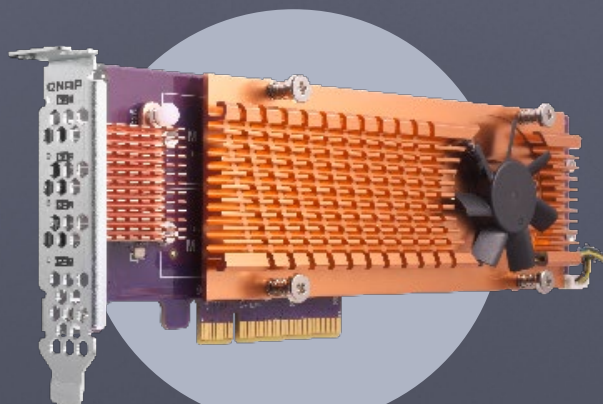


# Add more M.2 NVMe PCIe SSD slots with QM2

QM2 cards help to add more M.2 NVMe SSD slots via PCIe expansion

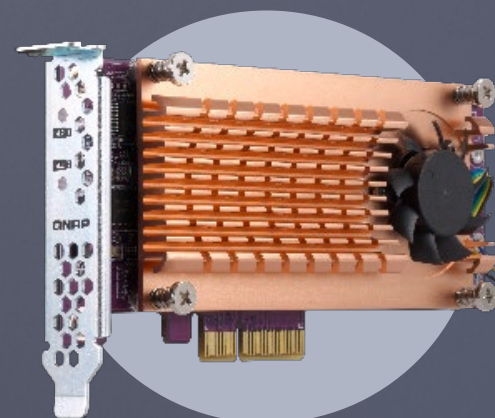


## Add more M.2 2280/22110 NVMe PCIe SSDs



### QM2-4P-384 (Gen 3 x8)

4 x M.2 2280 PCIe Gen 3 x4  
NVMe SSD slots



### QM2-2P-384 (Gen 3 x8)

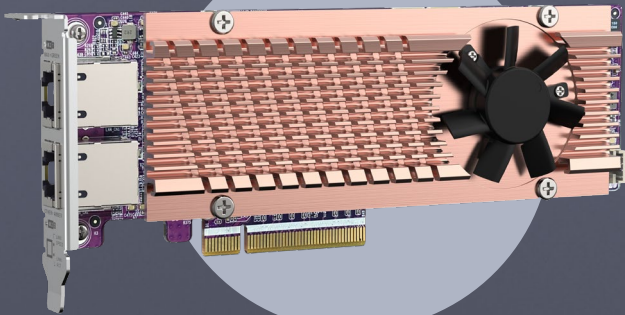
2 x M.2 22110/2280 PCIe Gen 3 x4  
NVMe SSD slots

# Add 10GbE and M.2 NVMe PCIe Gen4 SSD slots with PCIe Gen4 version of QM2 cards

Expand both Ethernet and M.2 NVMe SSD slots with the PCIe 4.0 QM2 series cards

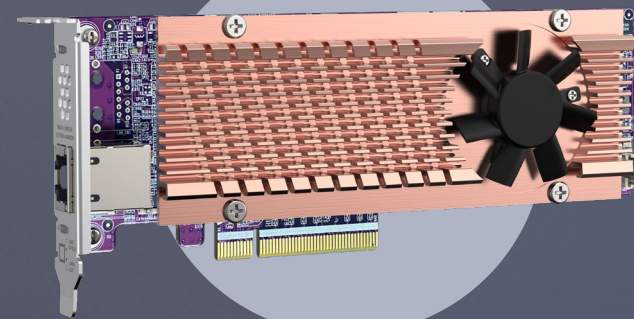


**PCIe 4.0** high speed bandwidth for M.2 & 10GbE



**QM2-2P410G2T (Gen 4 x8 )**

2 x M.2 2280 PCIe **Gen 4 x4** NVMe SSD slots  
+ 2 x 10GbE RJ45 ports

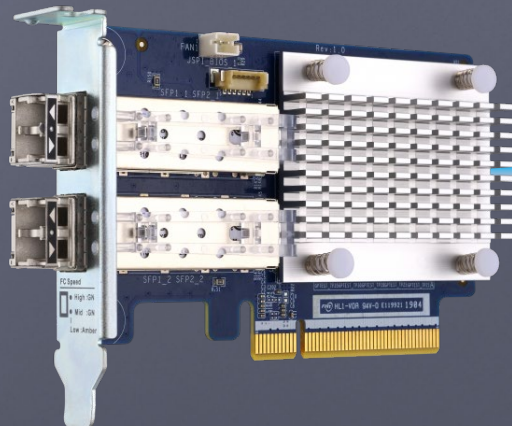


**QM2-2P410G1T (Gen 4 x8 )**

2 x M.2 2280 PCIe **Gen 4 x4** NVMe SSD slots  
+ 1 x 10GbE RJ45 ports



# Fibre Channel SAN 32Gb/s & 16Gb/s storage & backup with affordable NAS solution



**QXP-32G2FC**

2-port 32Gbps FC card

**QXP-16G2FC**

2-port 16Gbps FC card

Designed for NAS, high-performance and efficient QNAP FC expansion cards\*  
\* Installation on Windows/Linux hosts is not supported

Includes 2 optical FC transceivers. Additional ones are available for purchase:



**TRX-32GFCSFP-SR**

32Gb/16Gb/8Gb

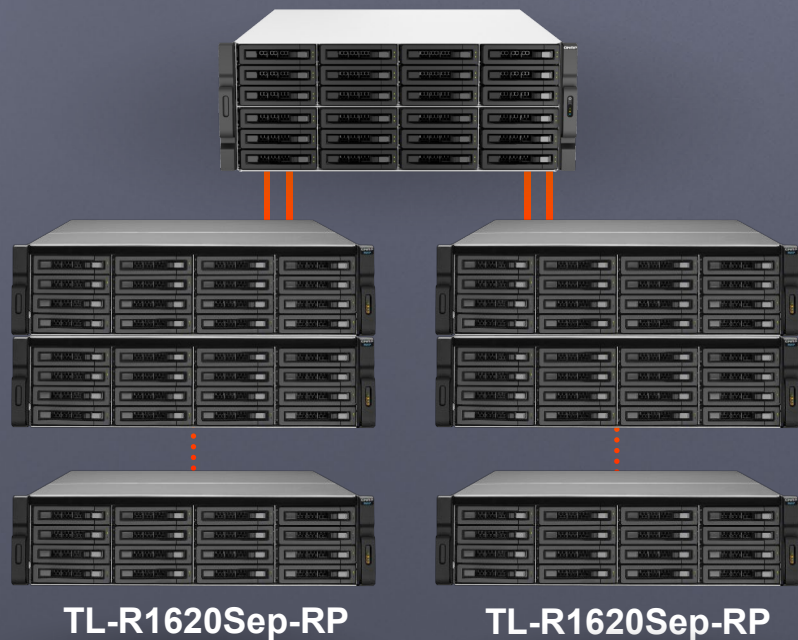
**TRX-16GFCSFP-SR**

16Gb/8Gb/4Gb

Note: cables are not included.



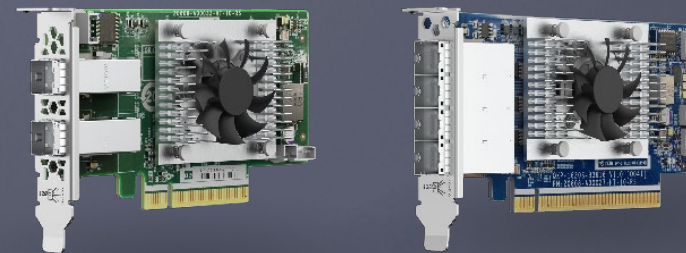
# Reach PB storage capacity with multiple QNAP SAS 12Gb/s 12-bay & 16-bay JBOD units



NAS supports up to 16 QNAP SAS JBOD enclosures

- 12-bay TL-R1220Sep-RP or 16-bay TL-R1620Sep-RP
- Each NAS with hundreds of HDDs · 1~2 PB raw HDD capacity
- SAS JBOD can expand NAS existing storage pools

## SAS HBA ( Optional )



	QXP-820S-B3408	QXP-1620S-B3616W
PCI bus	PCIe3 x8	PCIe3 x16
IOPS	1.2X	1.8X
Bandwidth	6,850 MBs	13,700 MBs
ports	External 8 port	External 16 port
Connectors	2 x SFF8644	4 x SFF8644

\*The above data is for reference only based on IC vendor' s data sheets. Actual performance could be different due to host, expansion unit or drives.



TS-h2287XU



TS-h1887XU



# Live Demo

TS-h3087XU



TS-h987XU

# NAS & QuTS hero O.S. support powerful data reduction technologies to extend SSD endurance

Only available when during inline data process before writing

ZFS file system with inline deduplications and compression feature

It's the best choice to pair with the all-flash and SSD storage because it reduces the data size and pattern that need to be written to the SSD directly.

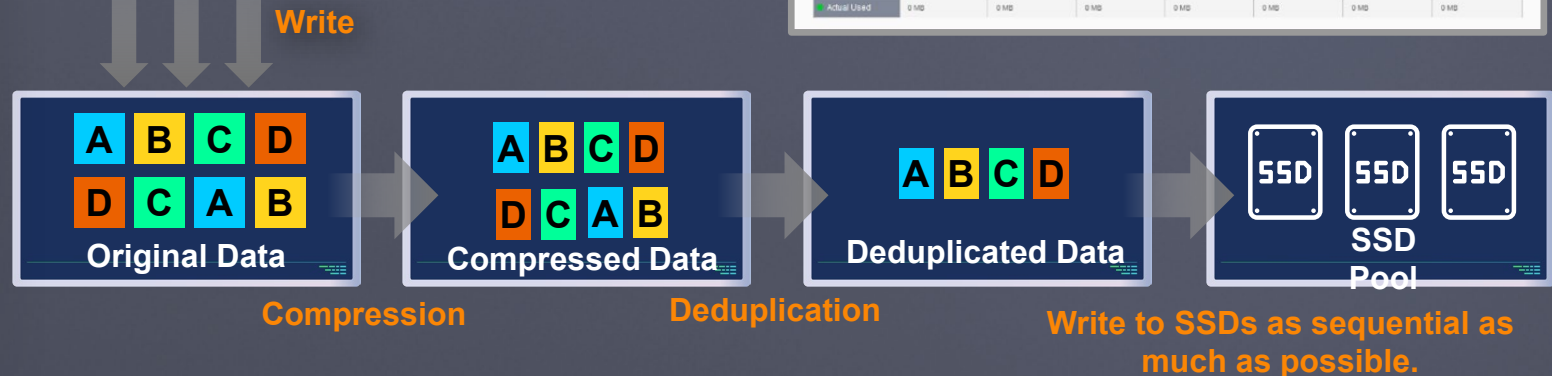
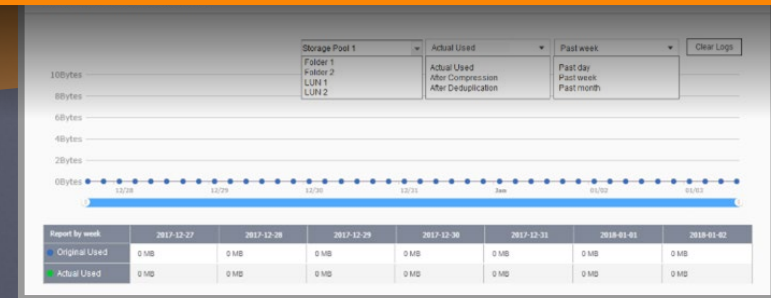
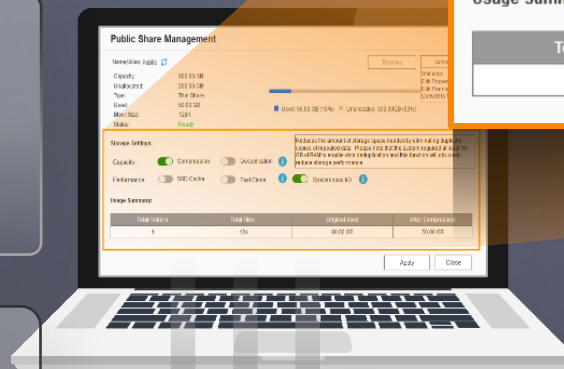
## Storage Settings:

Capacity:  Compression  Deduplication i  
Performance:  SSD Cache  Fast Clone  Synchronous I/O i

Reduces the amount of storage space needed by eliminating duplicate copies of repeated data. Please note that the system required at least 16 GB of RAM to enable data deduplication and this function will obviously reduce storage performance.

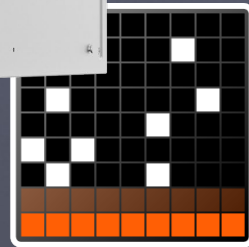
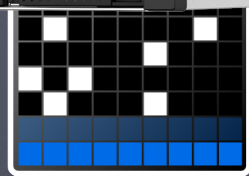
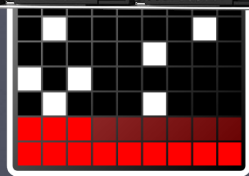
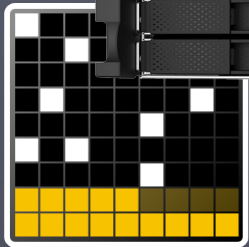
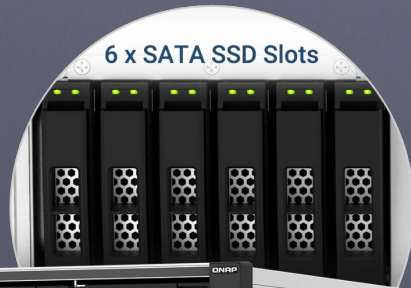
## Usage Summary:

Total Folders	Total Files	Original Used	After Compression
1	124	80.00 GB	50.00 GB



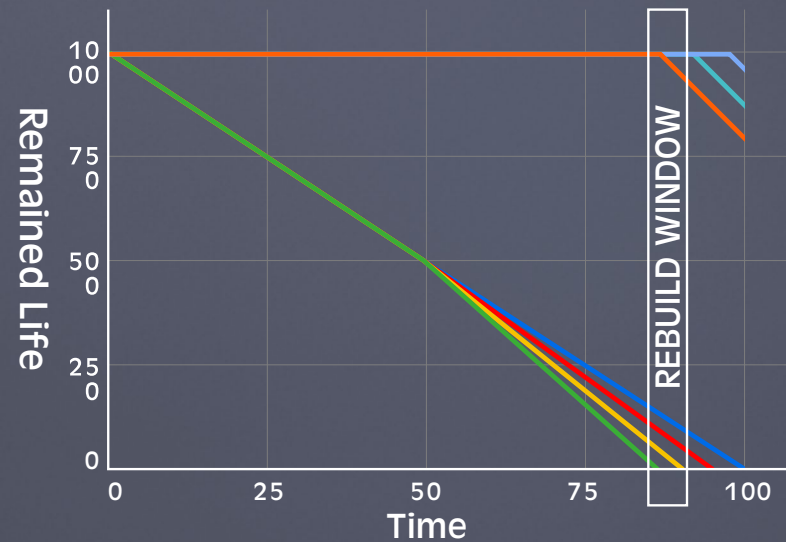


# Patented QSAL technology : preventing multiple SSD malfunctioning at the same time



Corresponding to SSD RAID 5 / 6 / 50 / 60 / TP(Triple Parity) will be enabled by default automatically.

SSD 0   SSD 1   SSD 2   SSD 3   SSD 4   SSD 5   SSD 6

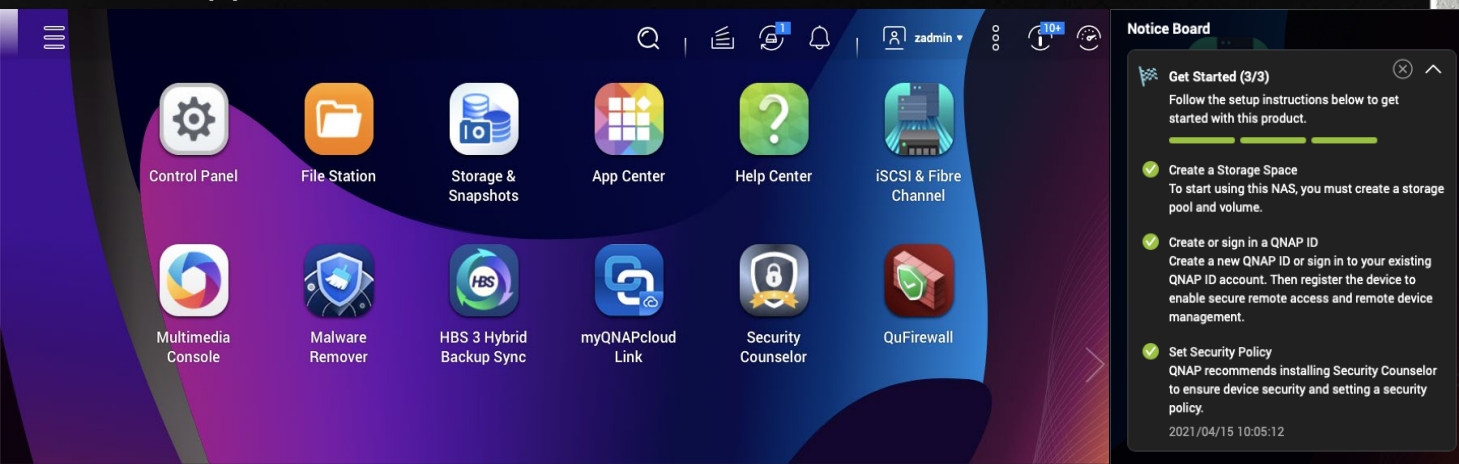


# Kernel 5.10 LTS

The QuTS hero operating system is based on the ZFS file system. It can provide the data integrity, safety, and efficiency required for all flash storage.

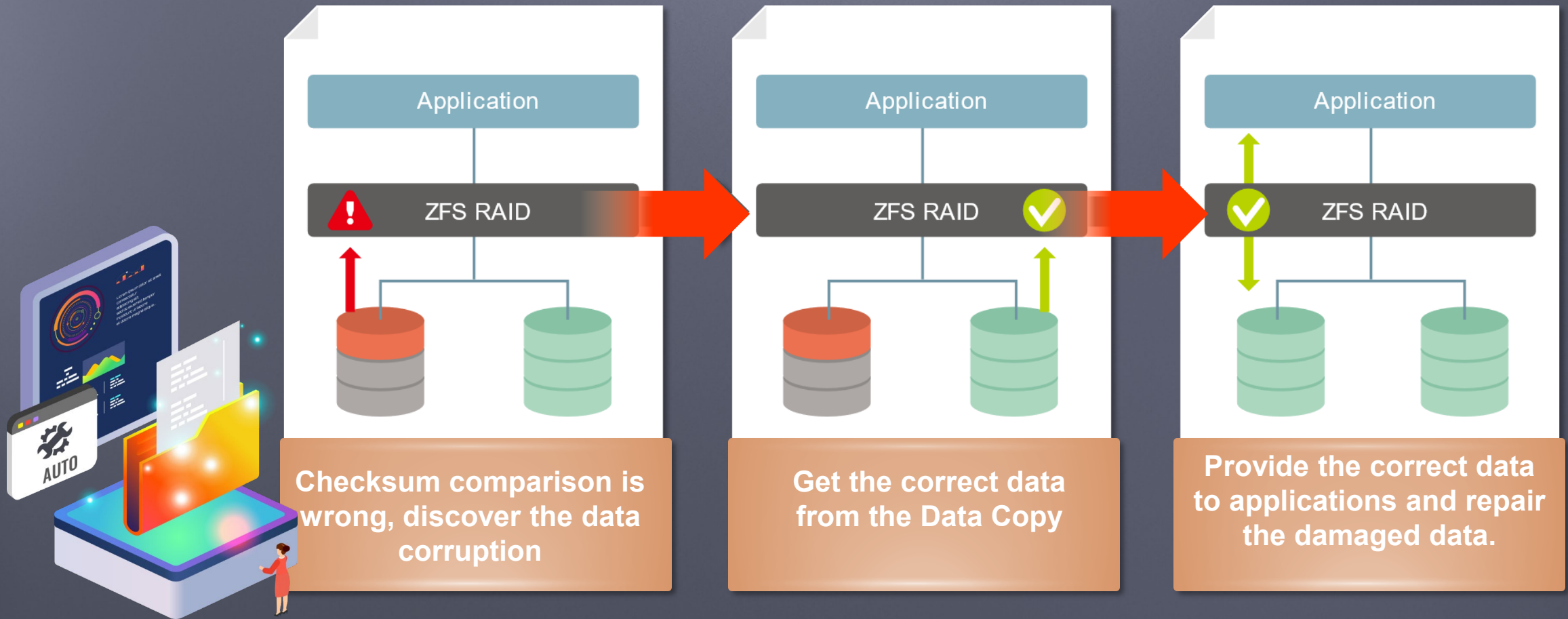
## User friendly interface

QuTS hero combines the app-based QTS with a 128-bit ZFS file system to provide flexible storage management, comprehensive data protection and optimized performance to meet the needs of business-critical applications.





# Prevent silent data corruption & self-healing



Avoid silent data corruption that occurred on the running system.

# Protect data and service security

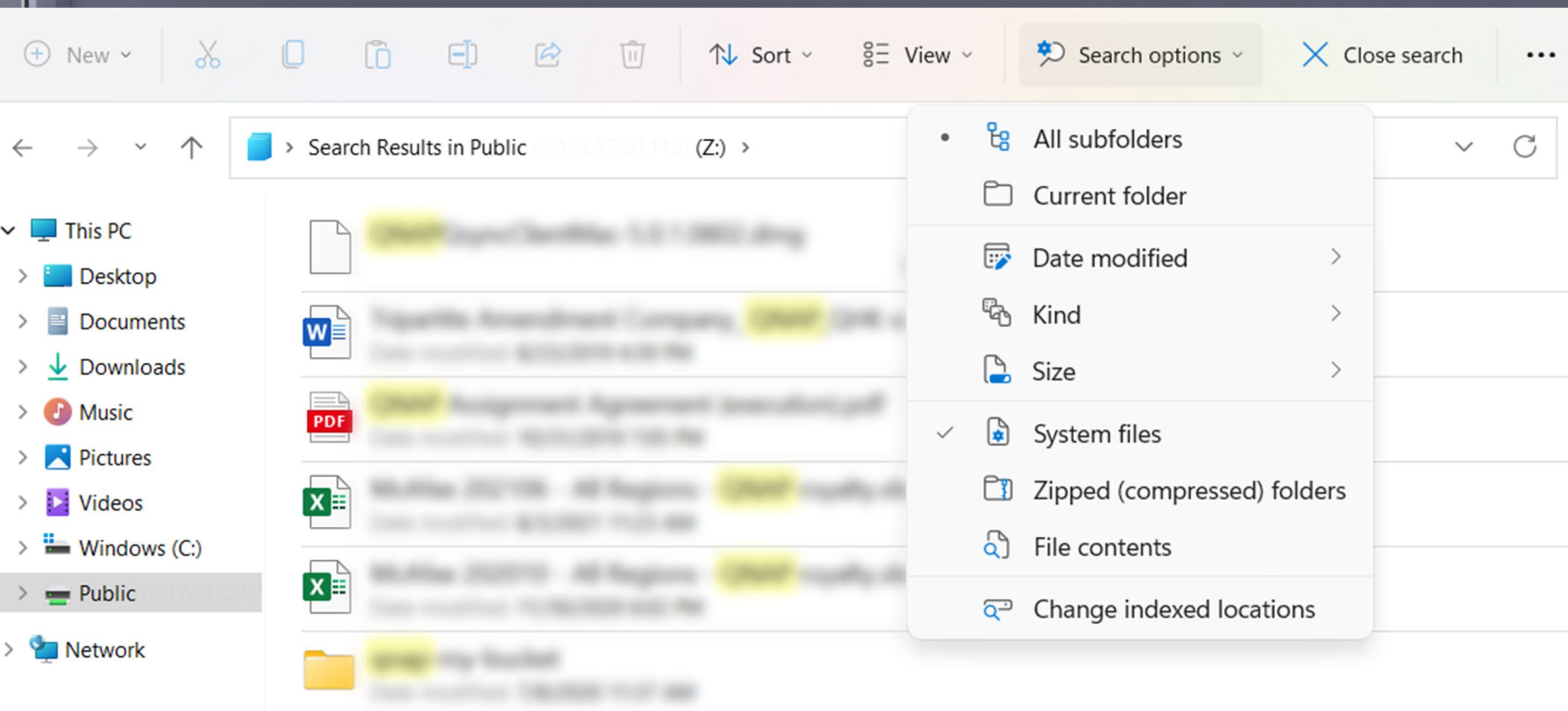


- Complete folder permissions, Azure Active Directory Domain Services (Azure AD DS), Windows AD, LDAP, and Windows ACL
- **QuFirewall**: allow/deny IP addresses and regions to prevent unauthorized access and brute force attacks for safeguarding data and service security
- Support TLS 1.3, SSH Key login, and close the admin account by default
- **Security Counselor**: A security portal to check for weaknesses and receive recommendations for enhancing the security of your NAS. It also integrates anti-virus and anti-malware scanning software.
- **Malware Remover**: Regularly scan your QNAP NAS using the latest malware definitions. If infected files are detected, they will be immediately removed to ensure NAS data security.
- Firmware and app auto update



# Convenient file search with Windows® Search Protocol (WSP) support for NAS shared folders

Windows® 10/ Windows Server® 2016 (or later) users can easily search NAS shared folders via Windows® when an SMB drive is mounted to the NAS. Advanced file search by time, file type, or size is supported for greater convenience.



For an optimized full-text search experience, we recommend [Qsirch PC Edition!](#)

**Qsirch  
PC Edition**

The most powerful search engine that integrate with NAS and PC local search.



# The NAS provides a productive office file management flow with useful apps





# Accelerate large file sharing with free built-in exFAT file system support for external devices

exFAT is natively supported free of charge on TS-hx87XU-RP. exFAT is a file system optimized for flash storage (such as SD cards and USB devices) and helps accelerate large media file transfer.



File System	exFAT	NTFS	FAT32
Maximum File Size	16EB	16TB	4GB
Typical Usage	Next-generation USB drives and SD cards (such as SDXC) that require higher capacities and faster speeds	The file system used by Windows	The standard file system used by normal USB drives

# License-free backup solutions to provide the most complete data backup protection



RPO : daily / scheduled



### HBS 3 (Hybrid Backup Sync 3):

File level, multi-version management: RTRR, Rsync, FTP, WebDAV, and CIFS/SMB protocols.



RPO : hourly / daily / yearly



### Snapshot & Replica:

File level, multi-version management.  
Lightweight snapshot w/o performance impact.



RPO : real-time



### SnapSync:

Block level, Mirror the data copy and always kept up to date.





# Easy to use HBS 3.0 app fulfilling backup 3-2-1 practice with deduplication



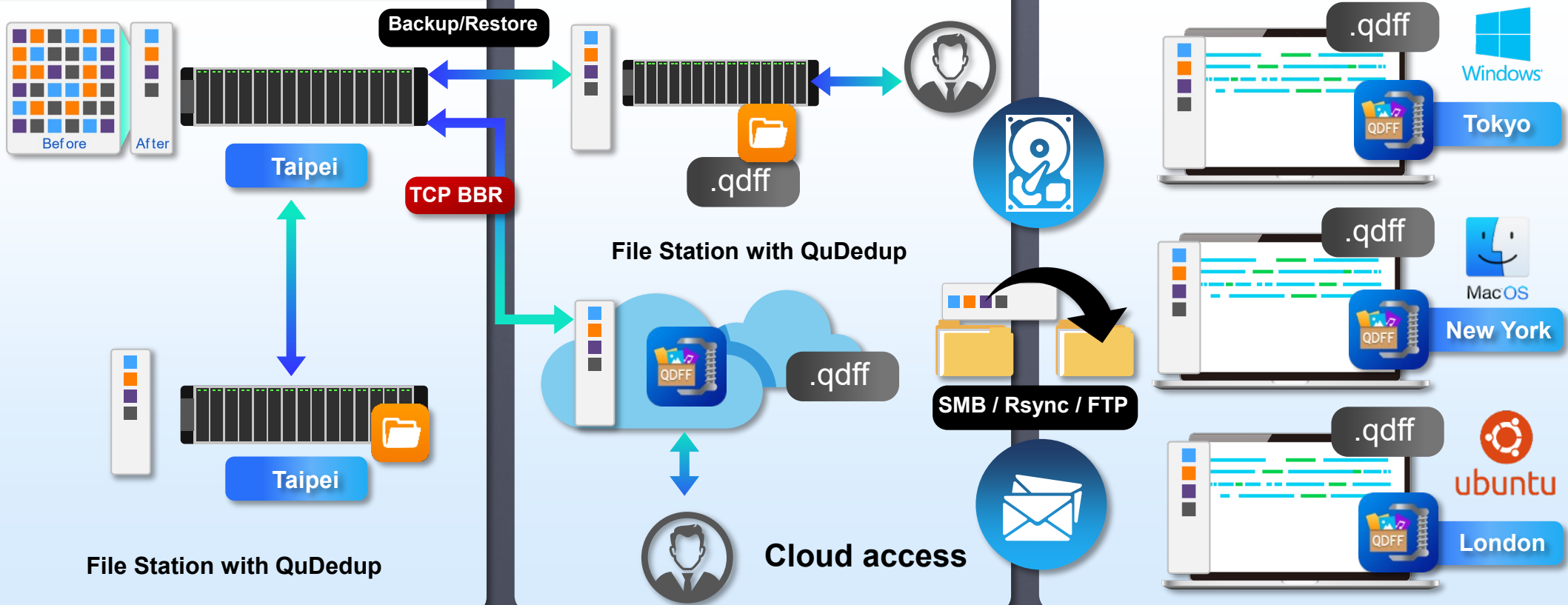
HBS 3 (Hybrid Backup Sync 3)



Local NAS access  
(via HBS 3)

Remote NAS access  
( via File Station )

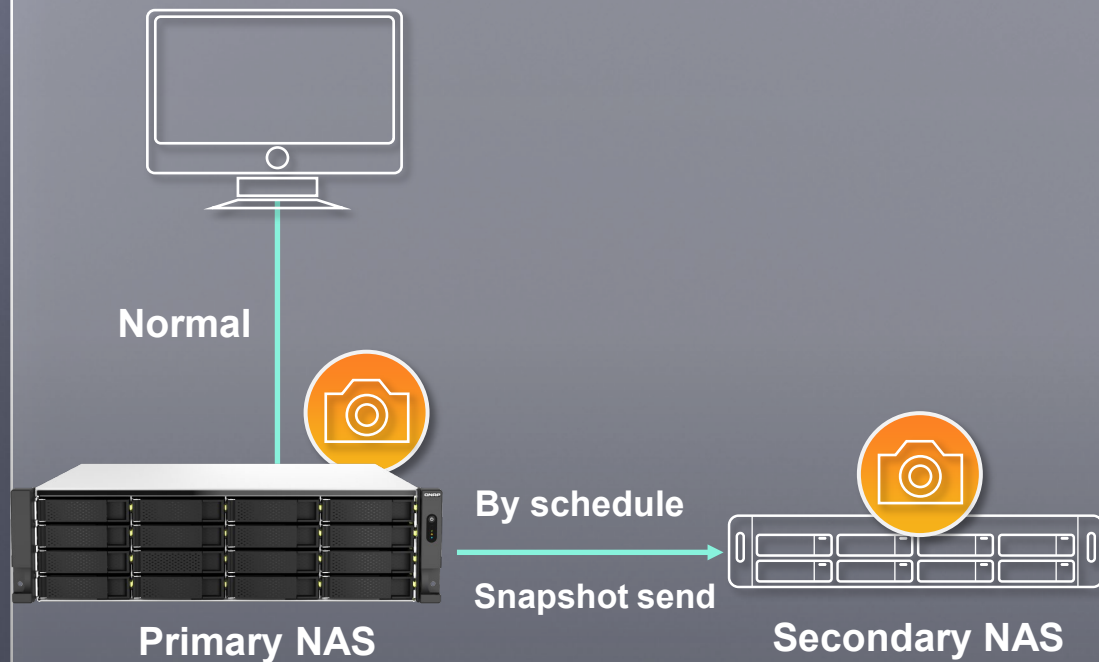
Portable use  
(QuDedup Extract Tool)



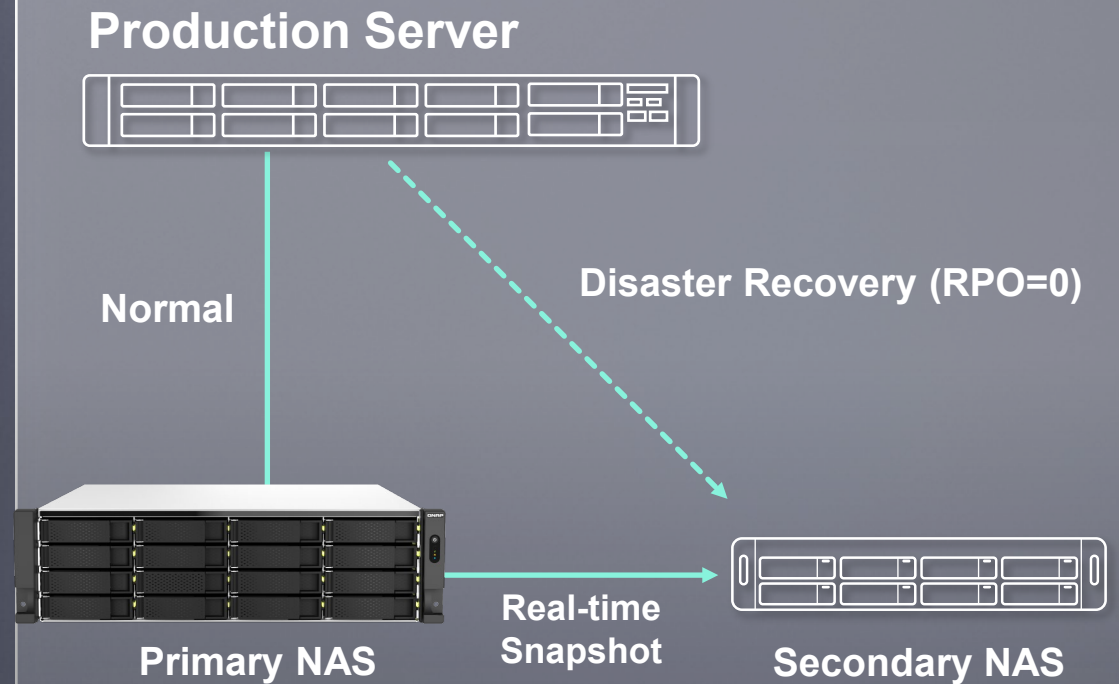
# Real-time SnapSync ensures minimal RPO with real-time disaster recovery

Back up data from the local NAS to another QNAP NAS using block-level replication in real time.

## Schedule SnapSync: 5min~60min



## Realtime SnapSync: RPO=0

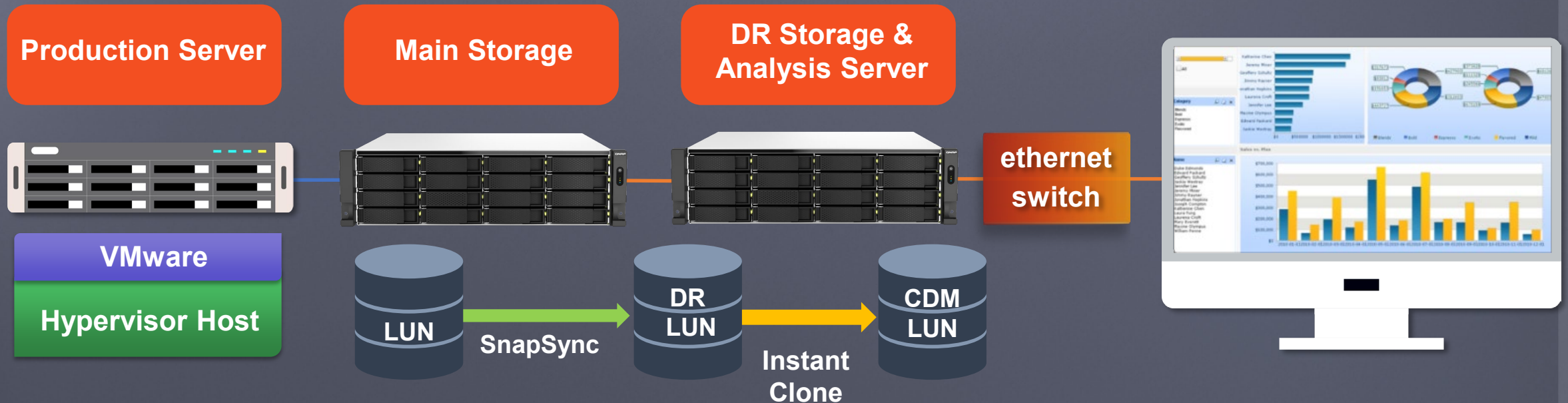


Direct connected via 25GbE  
(Round Trip Latency < 5ms)



# SnapSync + Instant Clone

Economical & efficient CDM (Copy Data Management) solution



# Easily set up a secure FTP server for file sharing and exchange with QNAP QuFTP

QuFTP Service consolidates all FTP related activities into a single App. With its user-friendly interface and detailed permissions settings, QuFTP Service leverages FTP's efficiency with high security and easy management.

- Folder-level permissions
- QoS (Quality of Service) settings
- Instant event notifications
- Access time restrictions
- Limit access to only the FTP root folder
- Watermark for images & videos
- Detailed logs
- Remotely connect to other NAS

QuFTP Service

Overview

Server Name: TS-653D

Status: Enabled

Monitor

Speed (KB/s)

Online Sessions (Sessions)

U/D Speeds: 0/0 (KB/s) — Upload — Download

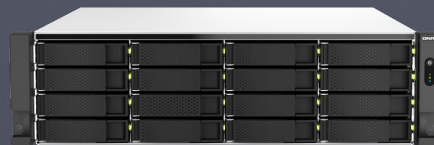
Online Sessions

User	Login Time	Source IP	Upload Spe...	Download Spe...	Applied Rules
zadmin	2021/04/09 16:51:43	172.17.30.37	0 (KB/s)	0 (KB/s)	--
zadmin	2021/04/09 16:51:43	172.17.30.37	0 (KB/s)	0 (KB/s)	--
zadmin	2021/04/09 16:51:49	172.17.30.37	0 (KB/s)	0 (KB/s)	--



# Lighter and faster VPN service

- In addition to L2TP VPN, the new QVPN supports WireGuard VPN, which is lighter, easier to set up, supports multiple user platforms, and greatly improves the speed.
- WireGuard handles VPN encapsulated packets directly from the Kernel layer, resulting in faster transmission.
- WireGuard only uses key to log in, no need for general account management

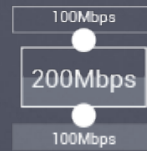


# QuWAN is SD-WAN Solution for Resilient IT Infrastructure

QNAP's QuWAN SD-WAN solution features Auto Mesh VPN, IPsec encryption, cloud-centric management and QVPN Service for multi-site network. Compatible with a wide range of QNAP products and Hypervisor Platforms such as VMware ESXi, QuWAN enables SMBs to efficiently build a dependable network at a cost-effective price, and to facilitate digital transformation, multi-site expansion and remote working.



**Automated  
VPN  
Deployment**



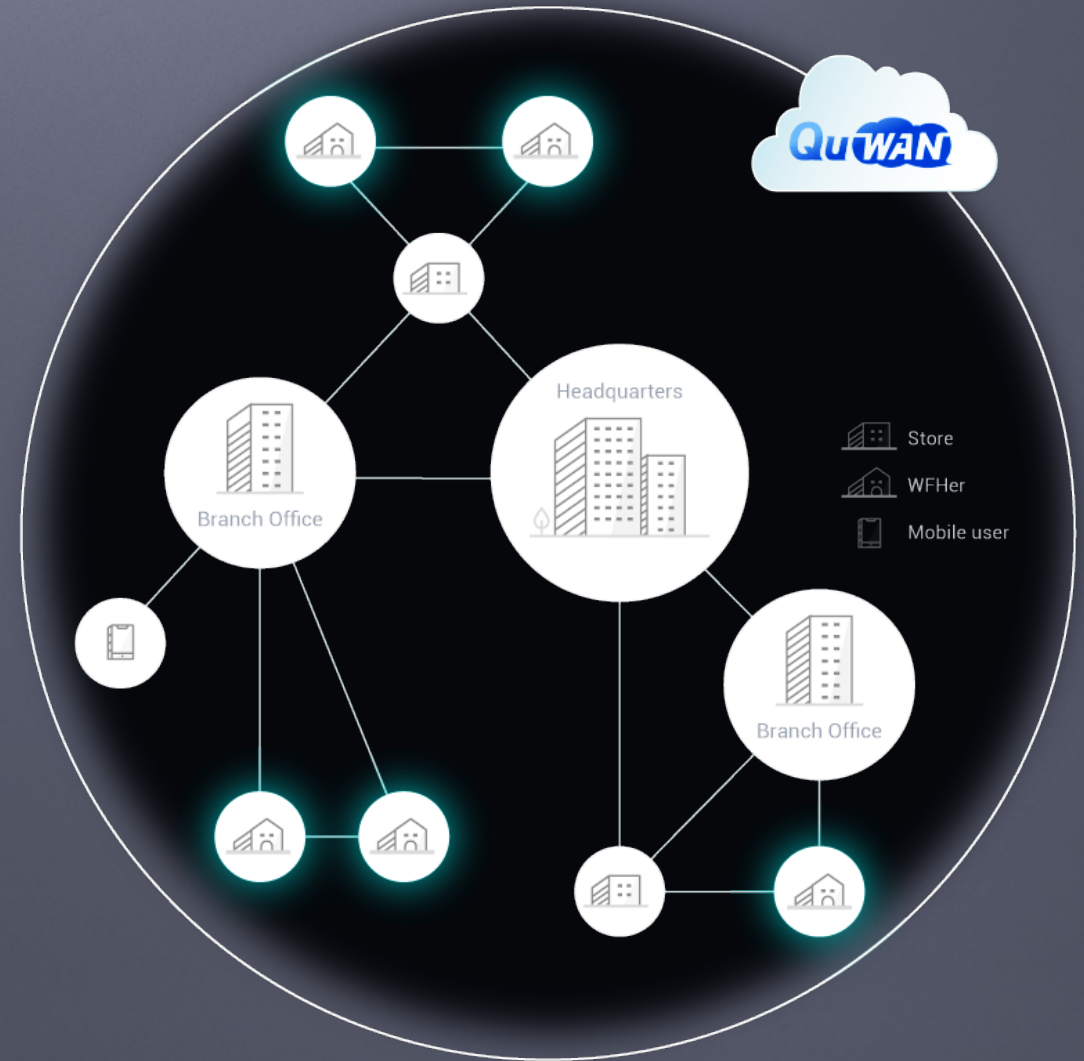
**Smart  
Bandwidth  
Prioritization**



**Centralized  
Cloud  
Management**

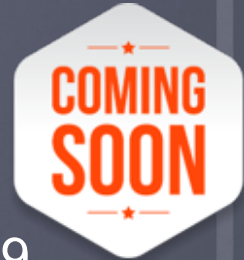


**Secure  
Network  
Protection**





# Hyper Data Protector is a license-free VMware® and Hyper-V backup appliance. Unlimited.



With only one QNAP NAS required and with no license fees to pay, you can backup unlimited VMware® and Hyper-V environments. Hyper Data Protector provides you with a cost-effective and reliable disaster recovery plan, ensuring 24/7 operation of your services.

Windows 10 / Server 2016 / Server 2019



# QuObjects for object storage development & testing, and backing up cold data from the cloud

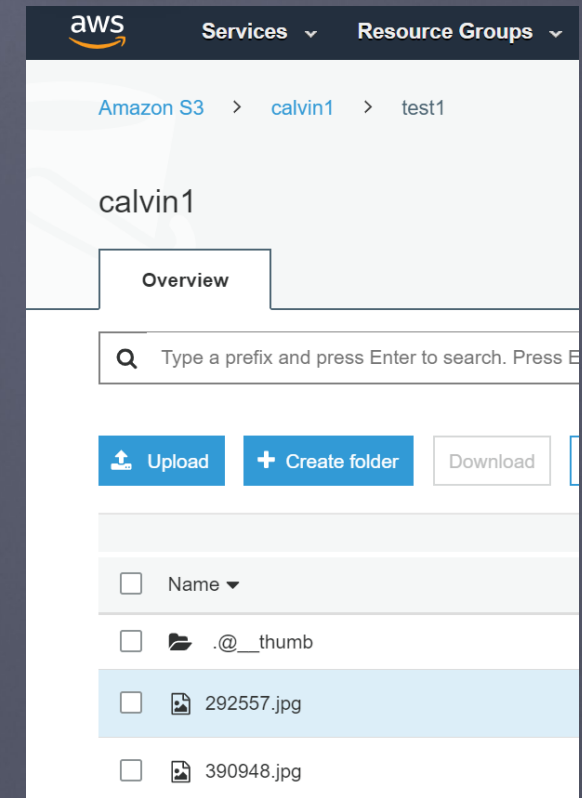
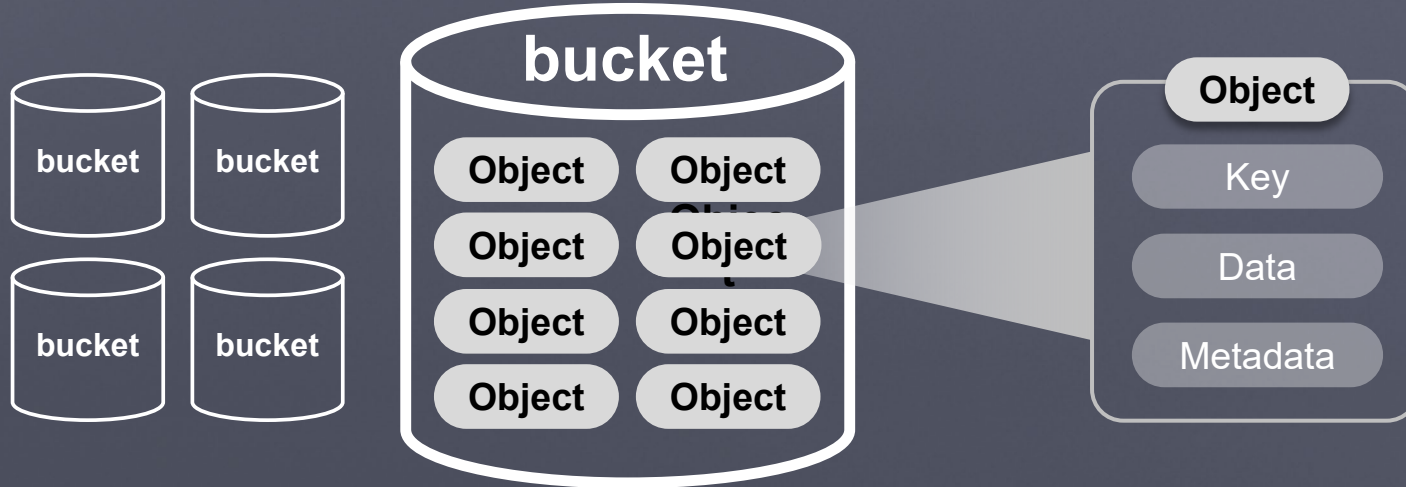
Designed for object service developers, QuObjects allows for creating high-performance S3 compatible development environments on a QNAP NAS. It's also ideal on-premises storage for backing up cold data from the cloud to reduce cloud storage costs.



S3 Compatible

<https://calvin1.s3.ap-east-1.amazonaws.com/test1/292557.jpg>

bucket Cloud service provider Folder File name

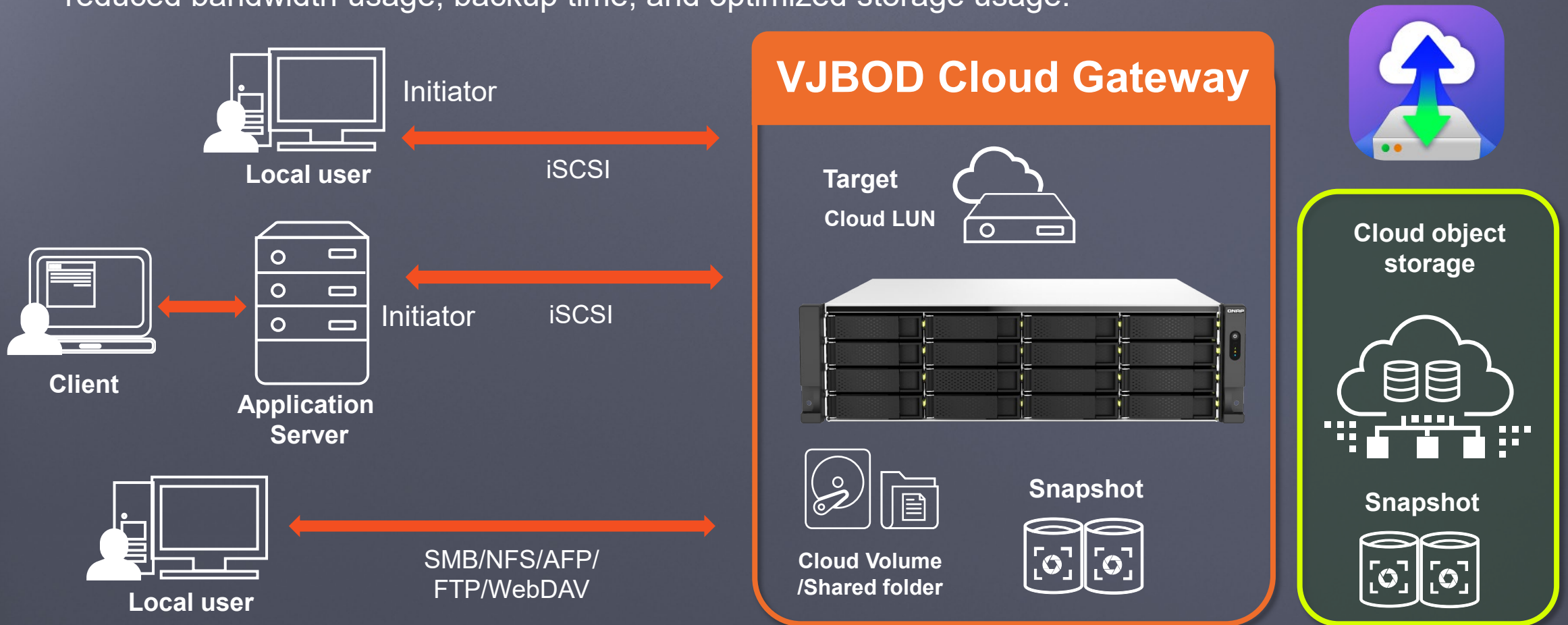






# Back up business data to the cloud. Flexible, economical, and safe with VJBOD Cloud

Connect your QNAP NAS with cloud object storage and back up business data to the cloud with reduced bandwidth usage, backup time, and optimized storage usage.





# Google™ Workspace and Microsoft 365® total backup solution with Boxafe



With Boxafe, you do not need to worry about data loss. You can backup files, emails, calendars and contacts from Google™ Workspace and Microsoft 365® into the QNAP NAS.

## Google™ Workspace



### Gmail

Backup all your emails and attachments in Gmail



### Google Drive

Backup all your file versions in Google Drive and supports My Drive and Shared Drive



### Contacts

Backup all your contacts in Google Contacts



### Calendar

Backup all your events and attachments in Google Calendar

## Microsoft 365®



### Outlook

Backup all your emails and attachments in Outlook



### Contacts (People)

Backup all your contacts in Outlook People



### Calendar

Backup all your events and attachments in Outlook Calendar



### SharePoint & OneDrive

Backup your SharePoint and OneDrive files including OneNote.

# All-in-one solution for hosting virtual machines and containerized apps



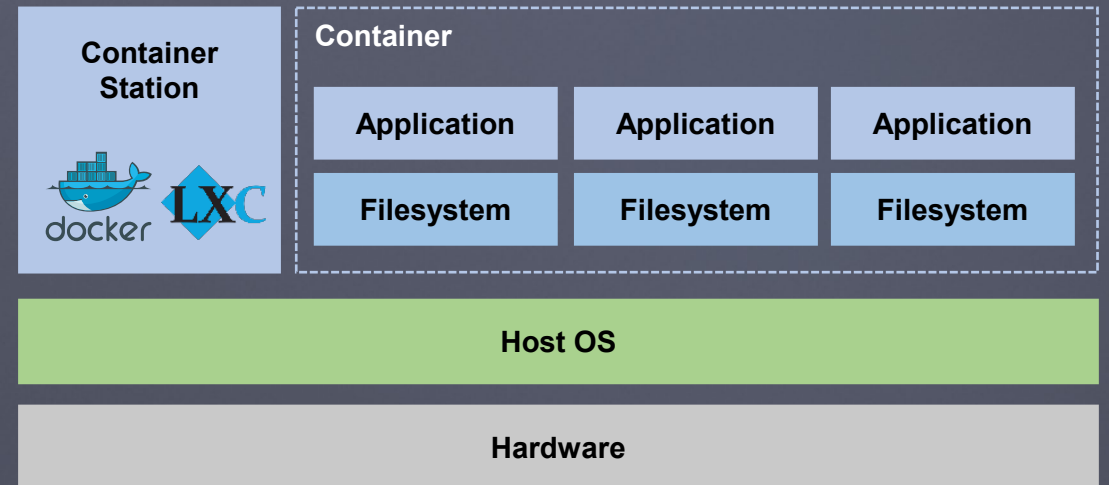
## Virtualization Station

Virtualization Station allows you to create virtual machines (VM) on Turbo NAS, supporting Windows、Linux<sup>®</sup>、UNIX<sup>®</sup>、Android、QuTScloud operating systems.



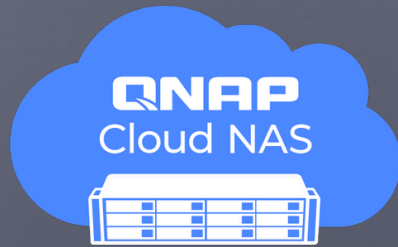
## Container Station

Experience LXD and Docker<sup>®</sup> lightweight virtualization technologies, download apps from the Docker Hub Registry<sup>®</sup>, import/export containers, and create abundant microservices.



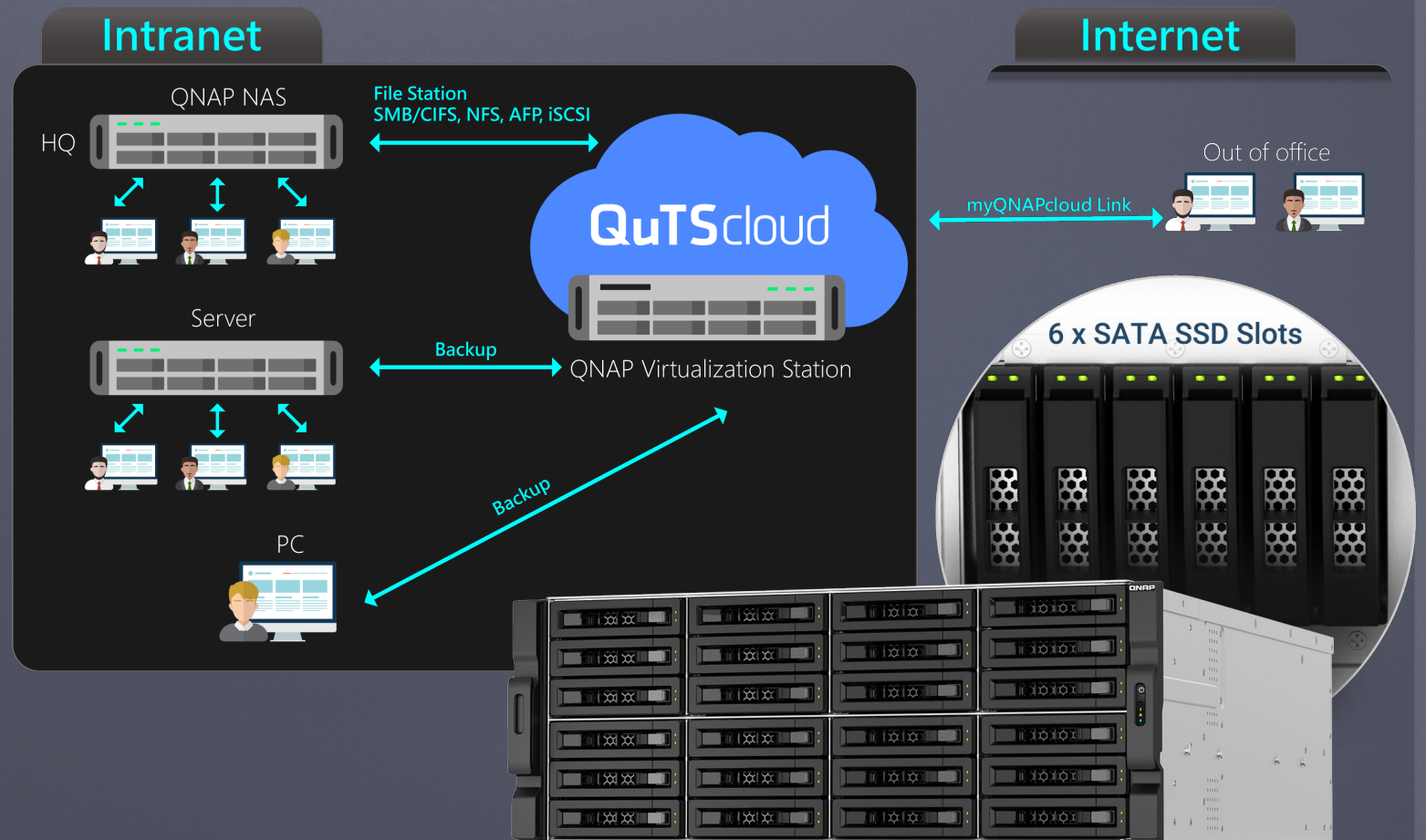


# A QuTScLOUD virtual NAS solution suited for Enterprises and Workgroups



QuTScLOUD is a virtual appliance based on QNAP's QTS Operating system, can be quickly launched on QNAP Virtualization Station.

Organizations can increase their budget flexibility by using existing virtual environments, saving hardware space and additional maintenance efforts, and by leveraging the application advantages of the app-ware QuTScLOUD operating system.





# Reliable, high-performance storage for virtualization

QNAP TS-hx87XU-RP NAS supports VMware® VAAI and Microsoft® ODX to increase performance by offloading server loading for ESXi server and Hyper-V respectively as well as Citrix® XenServer™ and Veeam Ready certifications.

vmware®  
READY

Windows  
Server  
2019

Certified

CITRIX®  
ready™

veeam  
READY

Repository



# Build a comprehensive surveillance system with a QNAP NAS, QVR Elite, and IP cameras



QNAP QVR Elite is a subscription-based smart surveillance solution, allowing you to easily build a surveillance system with lower TCO (subscriptions starting from only US \$1.99 per month) and higher scalability. It also integrates multiple QNAP AI-based video analytics solutions to build smart facial recognition for retail and door access systems with QNAP NAS.

Windows/macOS/iOS/Android QVR Pro client

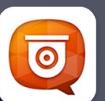
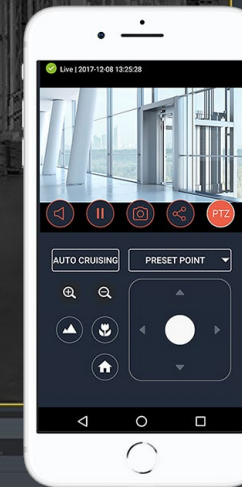
**Flexible subscription**

Monthly Annually

**Capacity expansion**

**AI enhancements**

**Standard MP4 format**







<https://coral.ai/products/>



USB



M.2 2280 PCIe\*

- Official certification by Google to support Coral M.2 & USB TPU devices
- Up to 4 TPU devices per NAS

With Coral  
intelligence

Google

# QVR Face Insight

## Local Smart Facial Recognition

A facial recognition solution for small offices and residential communities that enables instant and accurate facial recognition with live AI-powered video analytics that is even capable of recognizing masked people.

- Real-Time Facial Recognition and Analytics
- Mask detection and facial recognition in one solution
- Build A Smart Facial Recognition System with One NAS
- Identity Authentication Made Easy with Profile Database
- Enhance your face recognition speed with an Edge TPU
- Empowered surveillance feeds with QVR Pro integration



\*Install M.2 2280 PCIe TPU via the optional QNAP QM2 PCIe expansion cards

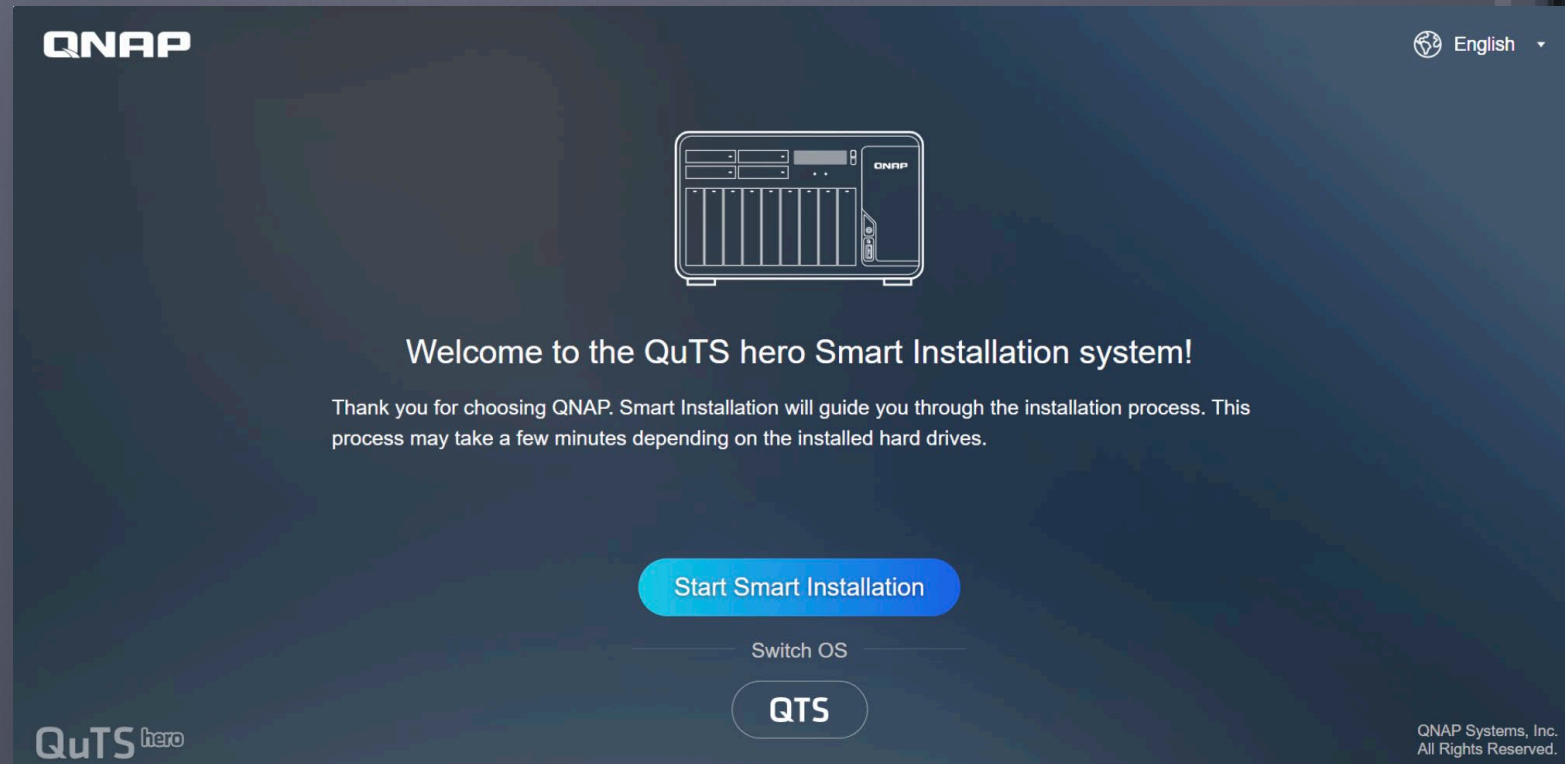


# Switch NAS operating systems between QuTS hero and QTS for higher everyday performance

Supports QTS - QNAP's standard NAS operating system – that provides performance, efficient memory utilization, and the advantage of Qtier auto-tiering. You can also migrate drives from your current QTS-based NAS to the TS-hx87XU-RP.

**Note:**

QTS and QuTS hero use different file systems. You must remove all the drives from the TS-hx87XU-RP before switching from QuTS hero to QTS.



The screenshot shows the QuTS hero Smart Installation system interface. At the top left is the QNAP logo, and at the top right is a language selection menu set to "English". In the center, there is a line-art illustration of a QNAP NAS device. Below the illustration, the text reads: "Welcome to the QuTS hero Smart Installation system!" followed by a paragraph: "Thank you for choosing QNAP. Smart Installation will guide you through the installation process. This process may take a few minutes depending on the installed hard drives." A prominent blue button labeled "Start Smart Installation" is centered below the text. Underneath this button is a "Switch OS" section with a radio button selected for "QTS". The "QuTS hero" logo is visible in the bottom left corner, and "QNAP Systems, Inc. All Rights Reserved." is in the bottom right corner.

# Ordering information & the rail kit

## SKUs

- **TS-h987XU-RP-E2334-16G**

Intel Xeon E-2334 4C 8T up to 4.8 GHz, 1 x 16GB ECC, 2 x 10GbE + 2 x 2.5GbE

- **TS-h1887XU-RP-E2334-16G**

Intel Xeon E-2334 4C 8T up to 4.8 GHz, 1 x 16GB ECC, 2 x 10GbE + 2 x 2.5GbE

- **TS-h1887XU-RP-E2336-32G**

Intel Xeon E-2336 6C 12T up to 4.8 GHz, 2 x 16GB ECC, 2 x 10GbE + 2 x 2.5GbE

- **TS-h2287XU-RP-E2336-32G**

Intel Xeon E-2336 6C 12T up to 4.8 GHz, 2 x 16GB ECC, 2 x 10GbE + 2 x 2.5GbE

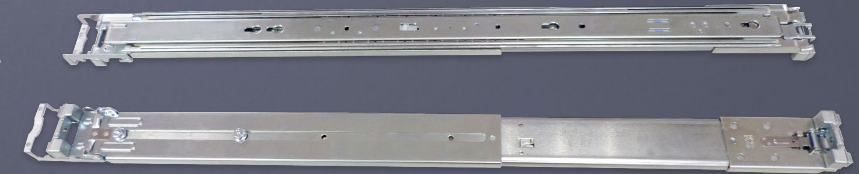
- **TS-h2287XU-RP-E2378-64G**

Intel Xeon E-2378 8C 16T up to 4.8 GHz, 4 x 16GB ECC, 2 x 10GbE + 2 x 2.5GbE

- **TS-h3087XU-RP-E2378-64G**

Intel Xeon E-2378 8C 16T up to 4.8 GHz, 4 x 16GB ECC, 2 x 10GbE + 2 x 2.5GbE

## Optional rail kit



- TS-h987XU-RP, TS-h1887XU-RP, TS-h2287XU-RP: **RAIL-B02**
- TS-h3087XU-RP: **RAIL-A02-90**

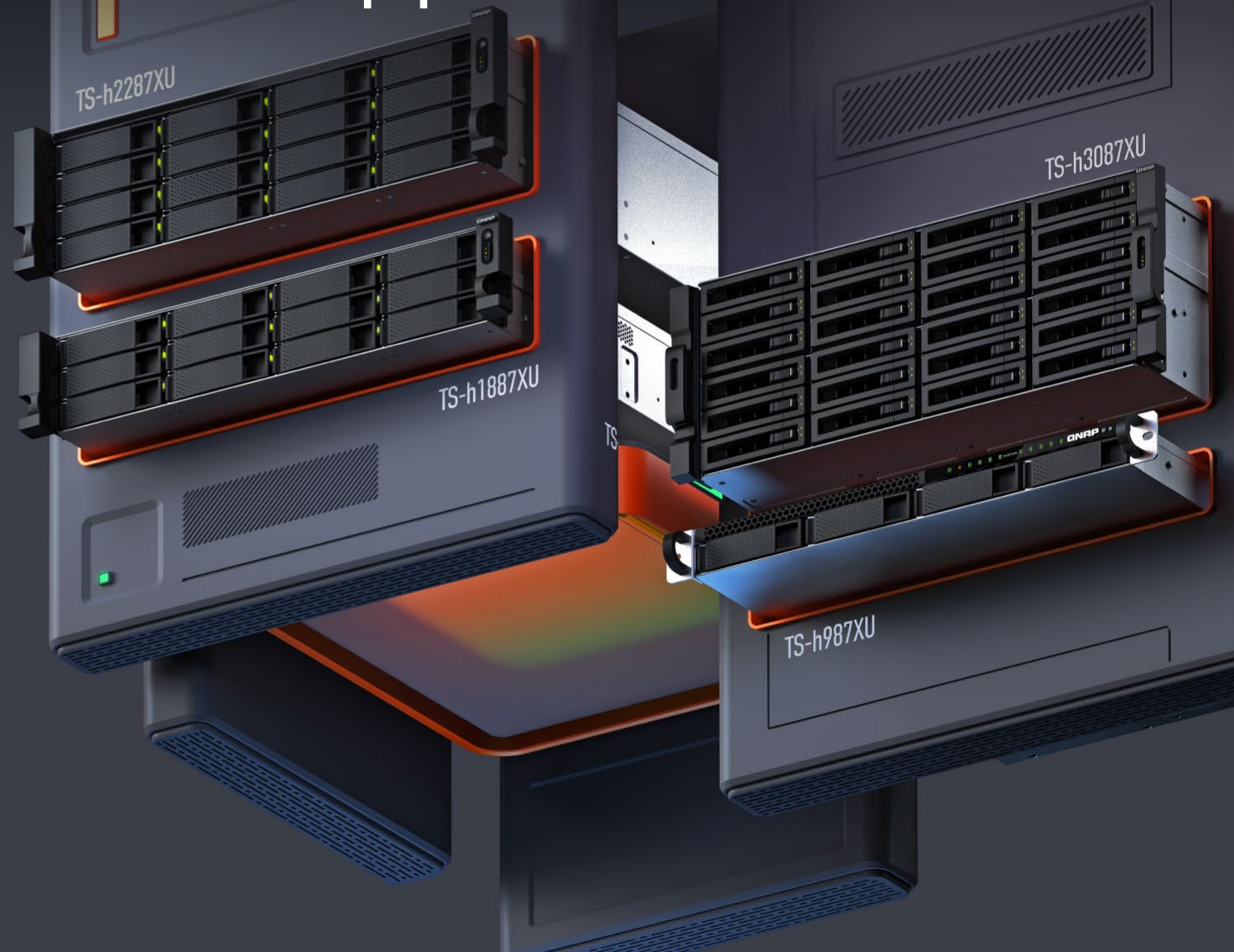




# 3-year standard warranty covering hardware repair and support services



Backed by a **3-year** warranty at no additional cost. You can also purchase a warranty extension that extends your warranty coverage up to 5 years total (2 additional years).



**QNAP**

# TS-hx87XU-RP series

Powerful 10GbE-ready hybrid storage with PCIe Gen 4 expandability, supporting QuTS hero or QTS operating system

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