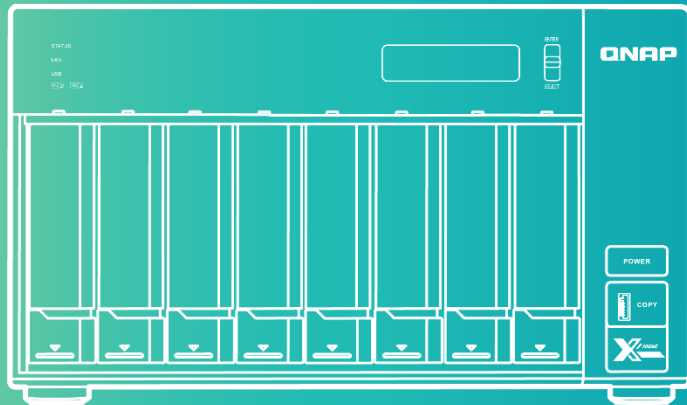


QNAP



Use QNAP NAS to back up multiple Time Machine simultaneously



A tip for Mac users

QNAP NAS : How to become the best choice of Time Machine



- | Mac user's favorite backup software-Time Machine**
- | Comparsion of storage devices for Time Machine**
- | Makes Time Machine backup more complete**
- | Helps you to copy Time Machine up to cloud**
- | Live Demo: Mac Time Machine & QNAP NAS**
- | Easy to change Mac device**
- | HBS 3 achieve Backup 3-2-1 with lower cost**

Mac user's backup habits

- **Common situations...**
 - Copy the important data only.
 - Never do it.
- **Why?**
 - Forgot it.
 - Must plug in the external storage.
 - Manual backup wastes time.



Mac user's favorite backup software "Time Machine"

Time Machine provides

- Comprehensive backup system and file levels at the same time
- Multi-version backup
- Easy and intuitive file restore or system restore
- Backup encryption



Comparsion of storage devices for Time Machine

	 Mac Local	 External Storage	 Time Capsule	 QNAP NAS
Storage Capacity	Fixed	Fixed	Fixed	Expand on demand 
Storage Protection	NA	Lower • RAID	NA	Higher • RAID • Snapshot • Hybrid Backup Sync 
Data access speed	faster 	USB : Slower Thunderbolt : Faster 	1GbE : Slower	10GbE : Faster Thunderbolt 3 : Faster 
Supports multiple users	NA	NA	Yes 	Yes 
Backup space management	NA	NA	NA	Yes 

QNAP NAS makes Time Machine backup more complete

- Simple Management**
- Data Protection**
- High-speed transmission interface**
- Scalable Storage Capacity**
- Cloud Backup**

QNAP Thunderbolt NAS add value to Time Machine



TVS-x72XT

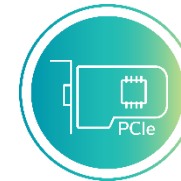
- A. 10GBASE-T and Thunderbolt™ 3 high-bandwidth connectivity for tackling heavy workloads and smoothly transferring
- B. M.2 SSD cache to speed up data access
- C. Both storage and NAS applications are elastically expandable



High-speed Thunderbolt™ 3 with SMB protocol, allowing Mac® and Windows® users to collaborate on media editing.



5-speed 10GBASE-T RJ45 connectivity accelerates virtualization applications and file sharing across teams and devices.



PCIe expandability allows for graphics cards or 40GbE/ 25GbE/ 10GbE adapters to increase application performance.



Install M.2 PCIe (Gen 3 x2, 2 GB/s) NVMe SSDs (sold separately) to set up caching or storage pools, improving file access efficiency.

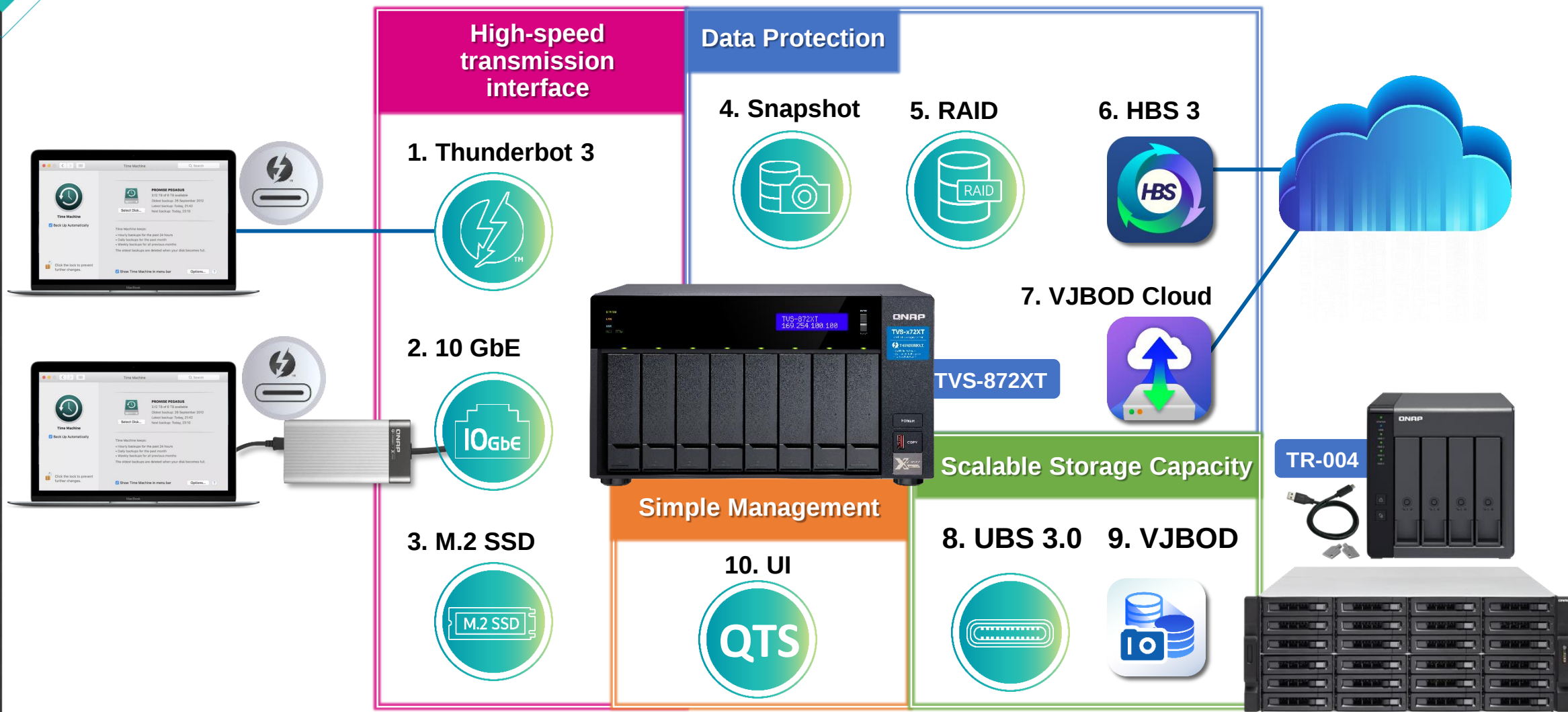


4K media playback and real-time transcoding; directly view creative works on an HDTV via HDMI 2.0 (4K @60Hz) output.



Snapshots fully record system status and data, allowing you to protect files and data from accidental deletion and malware attacks.

Make complete Time Machine backup



Easy to copy Time Machine to Cloud

NAS: Creating a LUN to connect to the object storage cloud

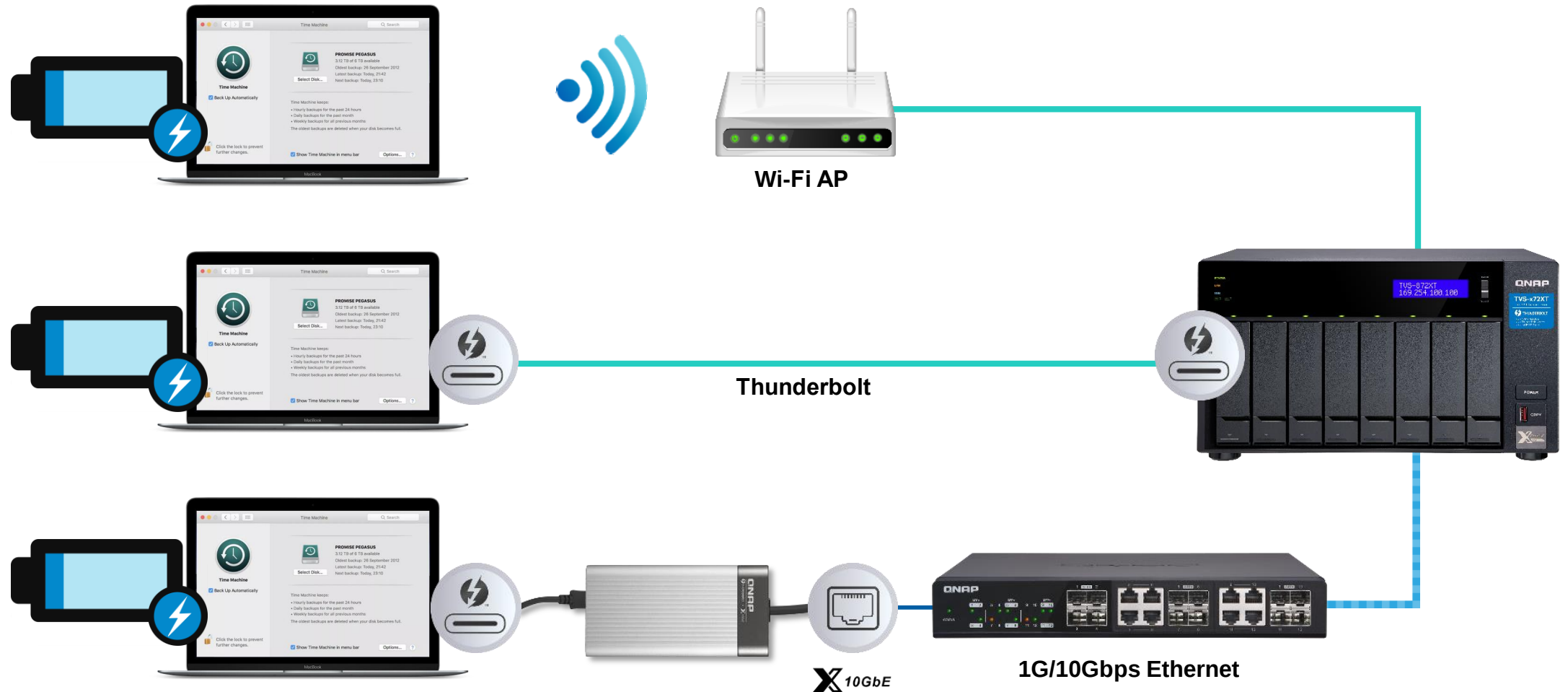
Mac: Mounting NAS's LUN as a Time Machine backup destination via iSCSI

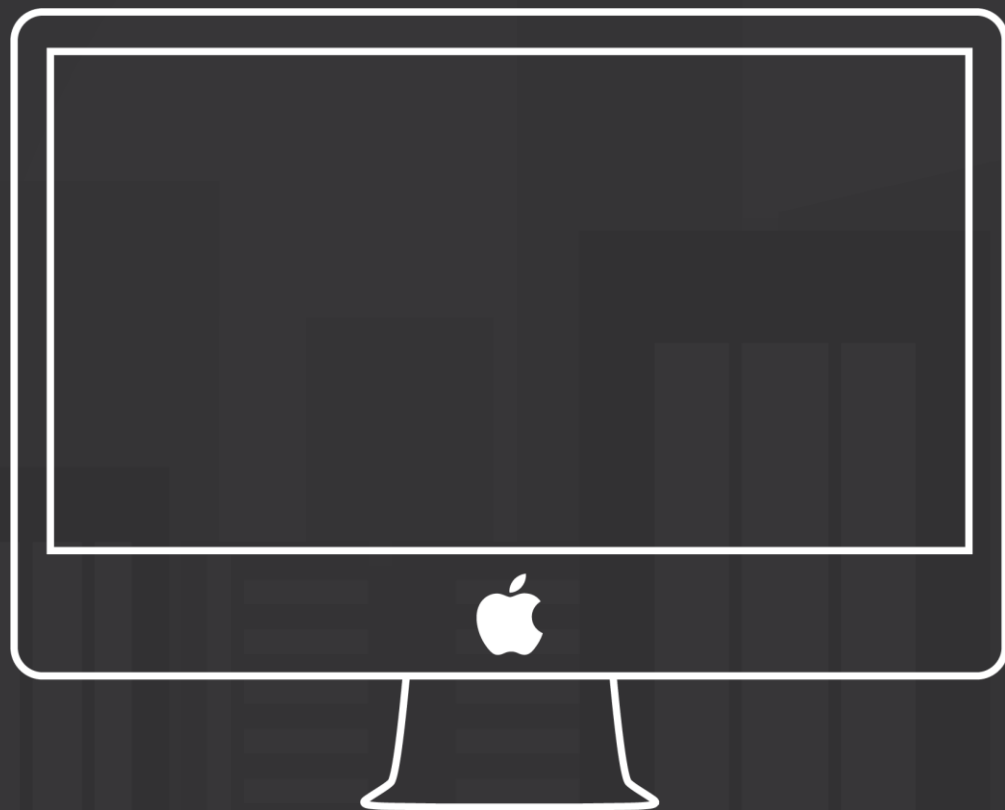
After the backup file is transferred to NAS's LUN, it is also copied to the cloud automatically via the VJBOD Cloud Gateway.



How to connect Mac to QNAP NAS

Connect with WiFi 、Thunderbolt 、1GbE/10GbE





**Live
Demo**

- **Mac Time Machine & QNAP NAS**

Enterprise's problems of Mac backup

- Too many people
 - Space management is difficult
 - Storage space is not enough
 - Backup cannot be completed in time
 - Affect the bandwidth usage of work

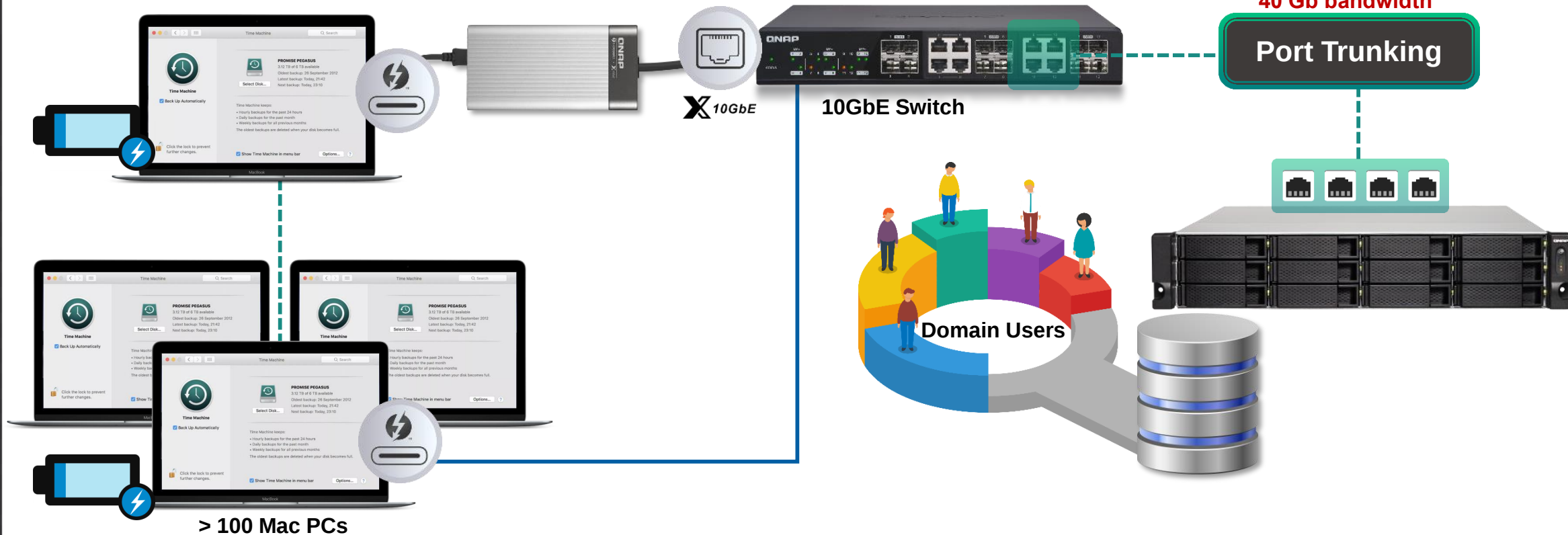


Mac backup solution for enterprises

- Backup space quota allocation for multiple users
- High-speed transmission interface and technology
- Centralized storage management, easy to back up again

- Suitable for different network segments
- How to backup via SMB across network segments?

```
$ sudo tmutil setdestination  
smb://{USER_NAME}:{PASSWORD}@{NAS_IPADDRESS}/{SHARED_FOLDER_NAME}
```



Easy to change Mac device



3-2-1 Backup Strategy

- **What is the safe backup solution?**
 - How many copies?
 - Where to store?
- **Best strategy for complete backup**
 - Recommend backup approach by the U.S. government
 - 『3-2-1 Backup Strategy』



HBS 3.0 achieve Backup 3-2-1 with lower cost



Save time and space

- QuDedup: Source-side data deduplication
- TCP BBR
- Support 23 cloud providers (continue increasing...)
- Up to 30 schedule settings

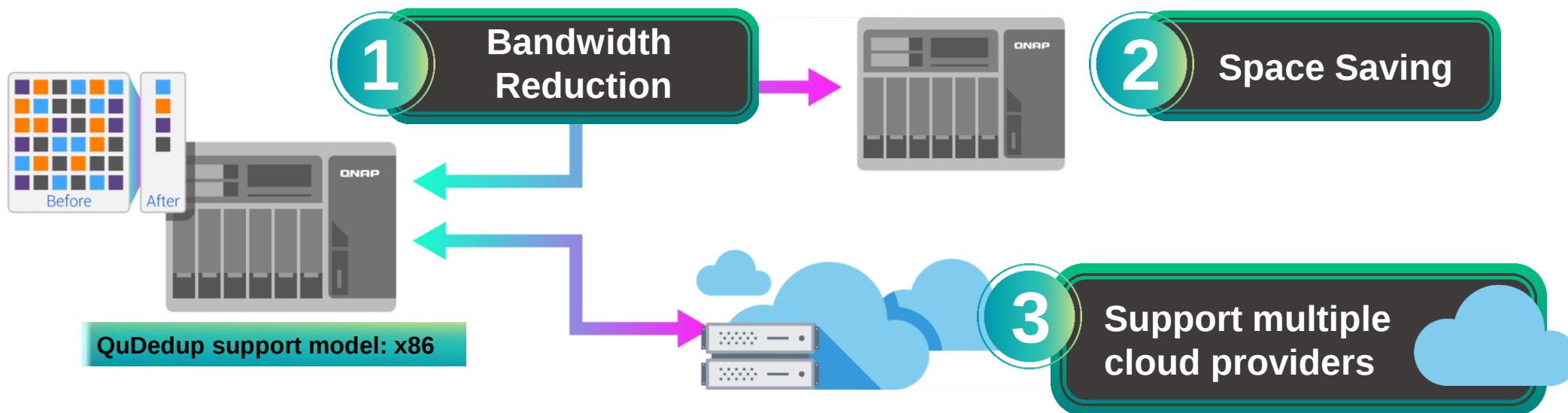
QuDedup: Data reduction, lower cost

Future highlights

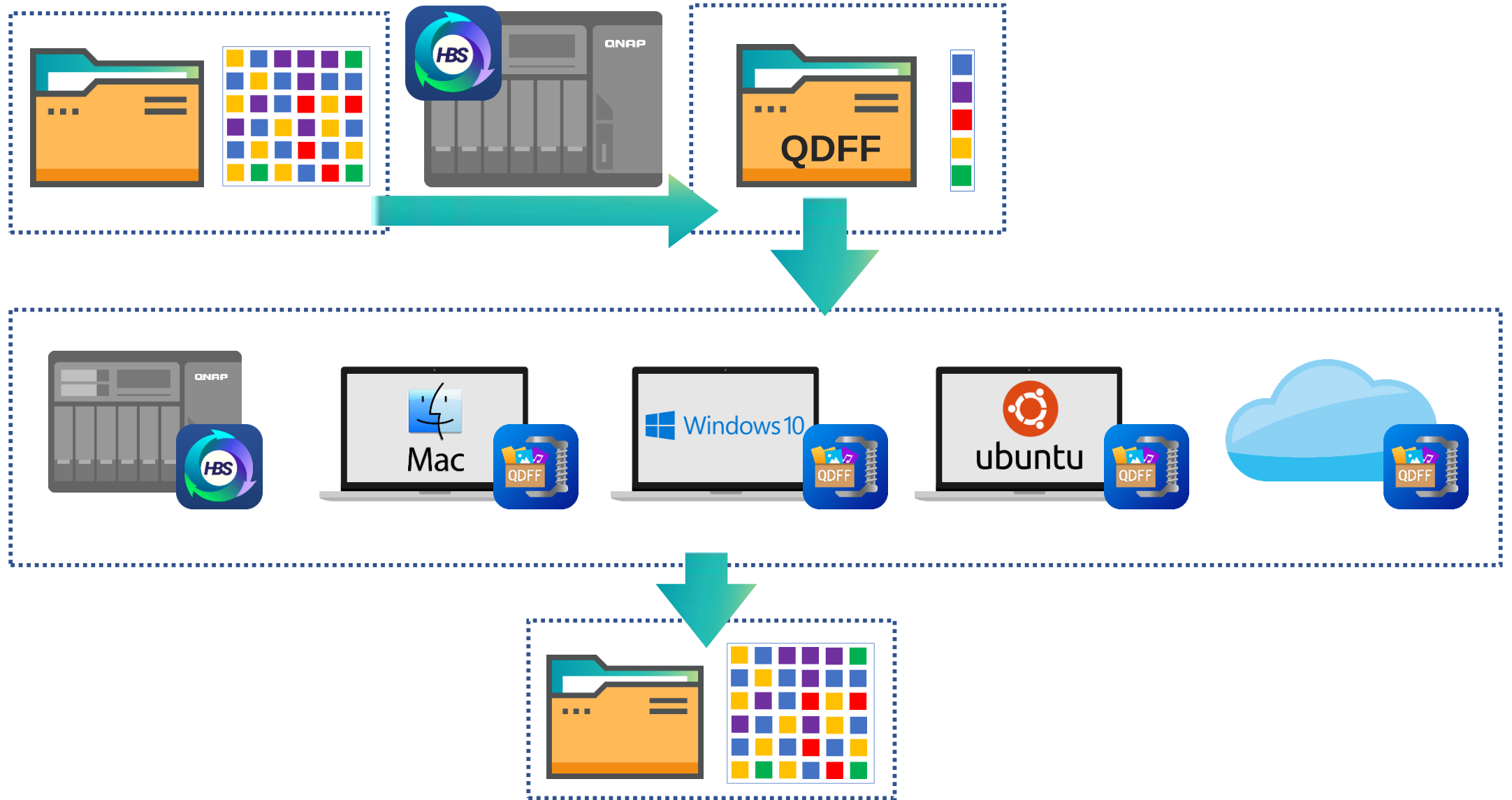
- Block level analysis and comparison
- Source-side data deduplication framework
- 3 Advantages: Bandwidth reduction, space saving, support multiple cloud providers

VM Image Size	Deduped File Size	Compression Rate
15.48 GB	7.59 GB	2.04:1

Note: The compression ration of one VM image file



One Backup , Restore Everywhere



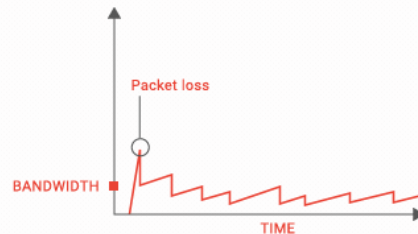
What is BBR (Bottleneck Bandwidth and Round-Trip Time)

BBR is a congestion control technology suitable for modern network environment

- BBR is Google's new congestion control algorithm designed for TCP
- Supported by Linux kernel 4.9 and above
- Fully improve bandwidth utilization in a network environment where the packet loss rate is too high

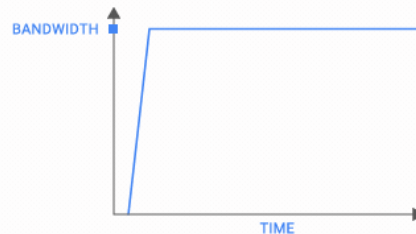
TCP before BBR

Today's Internet is not moving data as well as it should. TCP sends data at lower bandwidth because the 1980s-era algorithm assumes that packet loss means network congestion.



TCP BBR

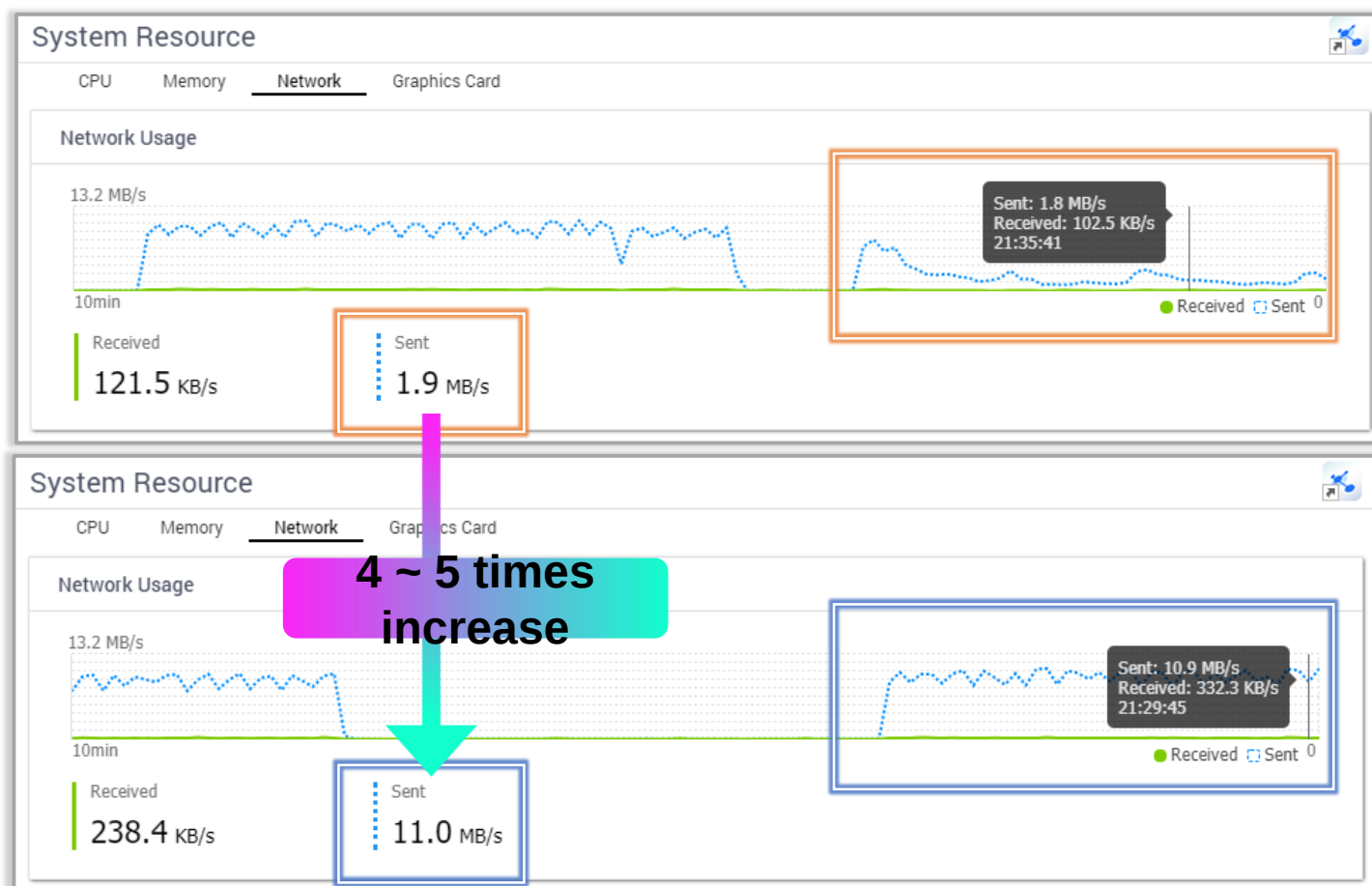
BBR models the network to send as fast as the available bandwidth and is 2700x faster than previous TCPs on a 10Gb, 100ms link with 1% loss. BBR powers google.com, youtube.com, and apps using Google Cloud Platform services.



Network Speed Measurement of TCP BBR

Connect to the cloud service through the Heterogeneous network. Enable TCP BBR to improve the transmission efficiency!

Source: QNAP NAS in Taiwan
Destination: AWS S3 EU(London) Zone

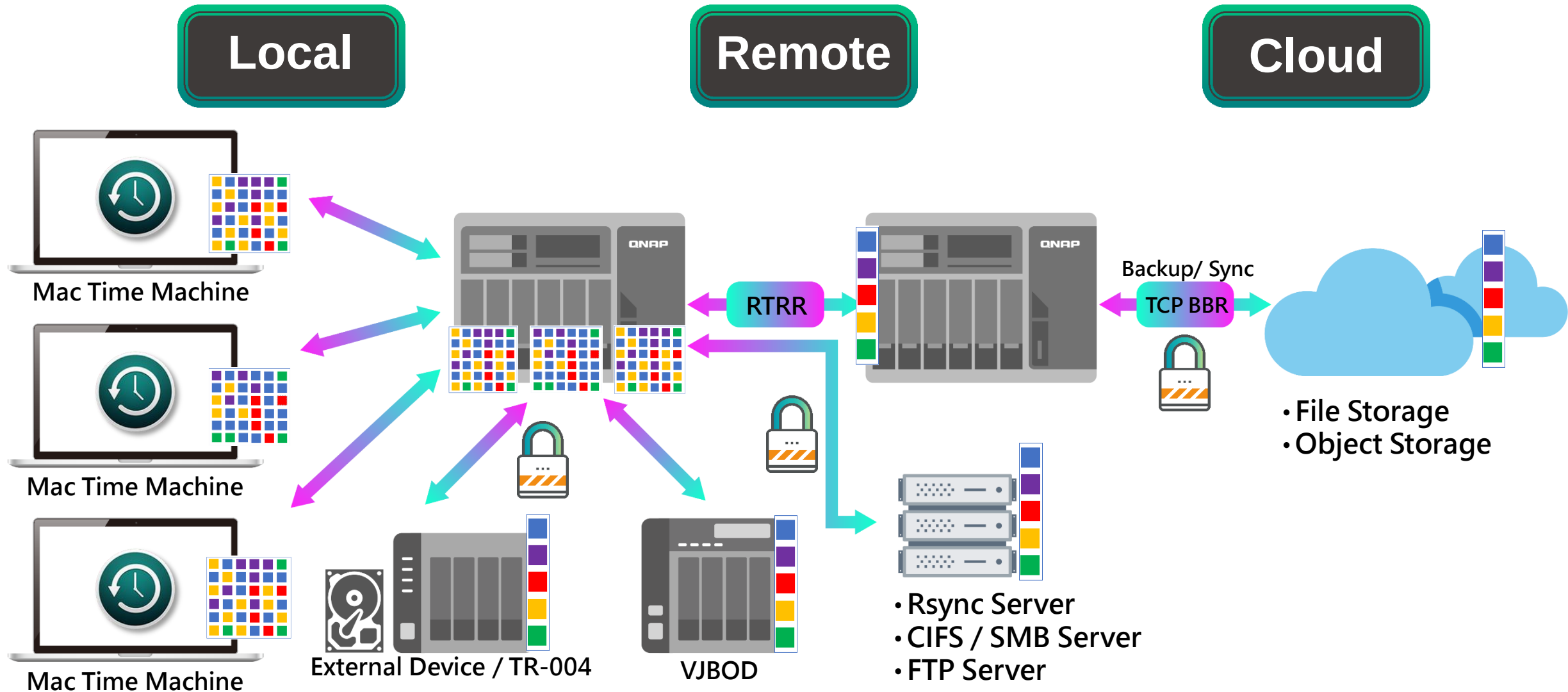


Disable TCP BBR

Enable TCP BBR

Notice: TCP BBR is suitable for WAN, it will not have effect in network env. without packet loss(e.g. LAN).

QNAP & Time Machine's Complete Data Protection Plan complies with the 3-2-1 Principle



HBS 3 support Time Machine backup settings

HBS 3

Services

- Apple
 - Time Machine
- Servers
 - Rsync Server
 - RTRR Server
- External Devices
 - USB One Touch Copy

Time Machine

Settings Backups

Account Settings

☒ **Use shared Time Machine account**
Makes Time Machine accessible with a shared QTS user account.

Display name: **TMBBackup**

Username: **TimeMachine**

Password:

Volume: DataVol1 (310 / 352 GB) ▼

Capacity: ☒ **Unlimited** ☐ Maximum 10 GB

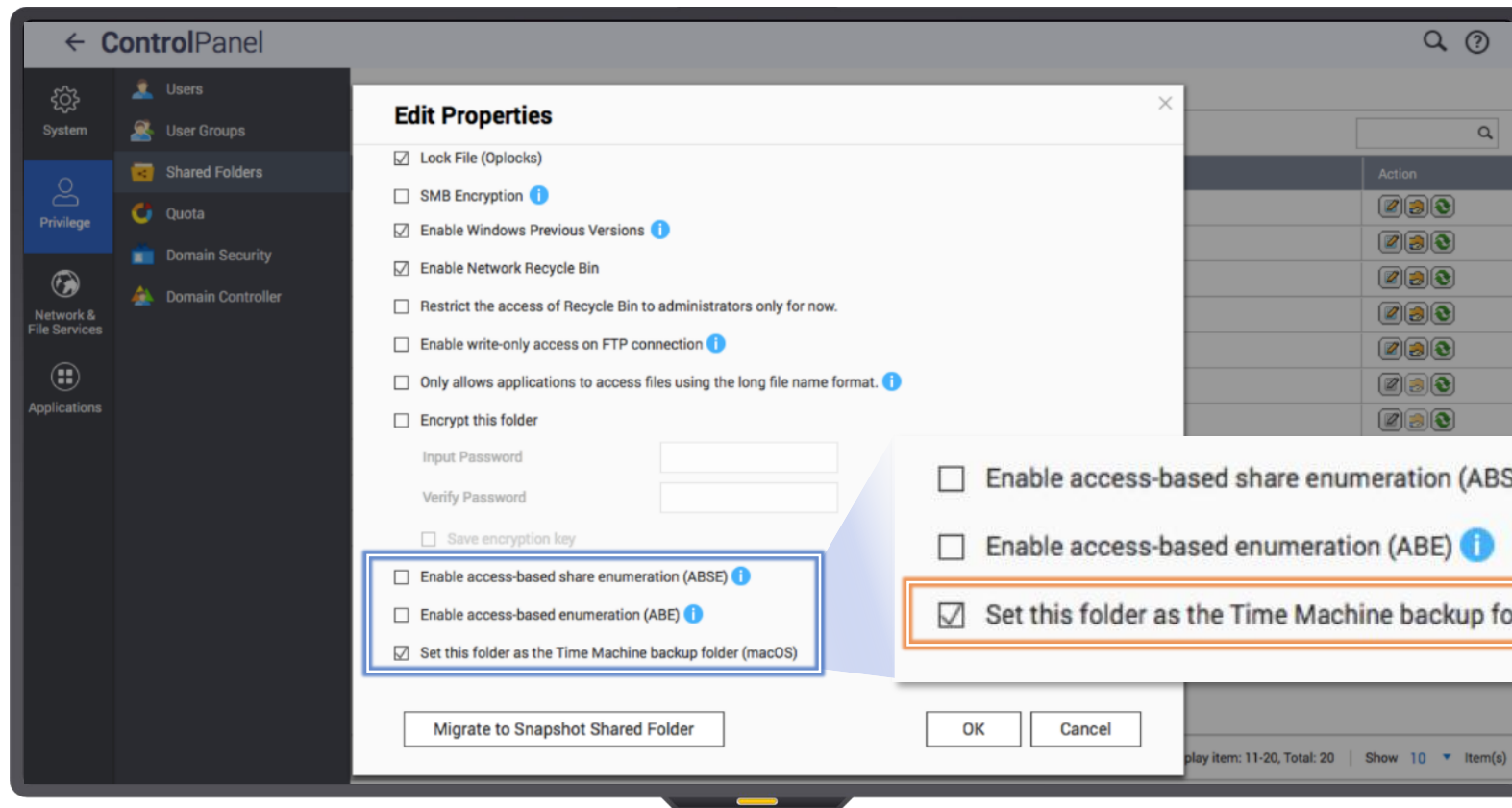
☒ **Access with local QTS accounts**
Use separate QTS accounts when creating Time Machine backups. For more instructions, go [here](#).

Support the dedicated Time Machine account

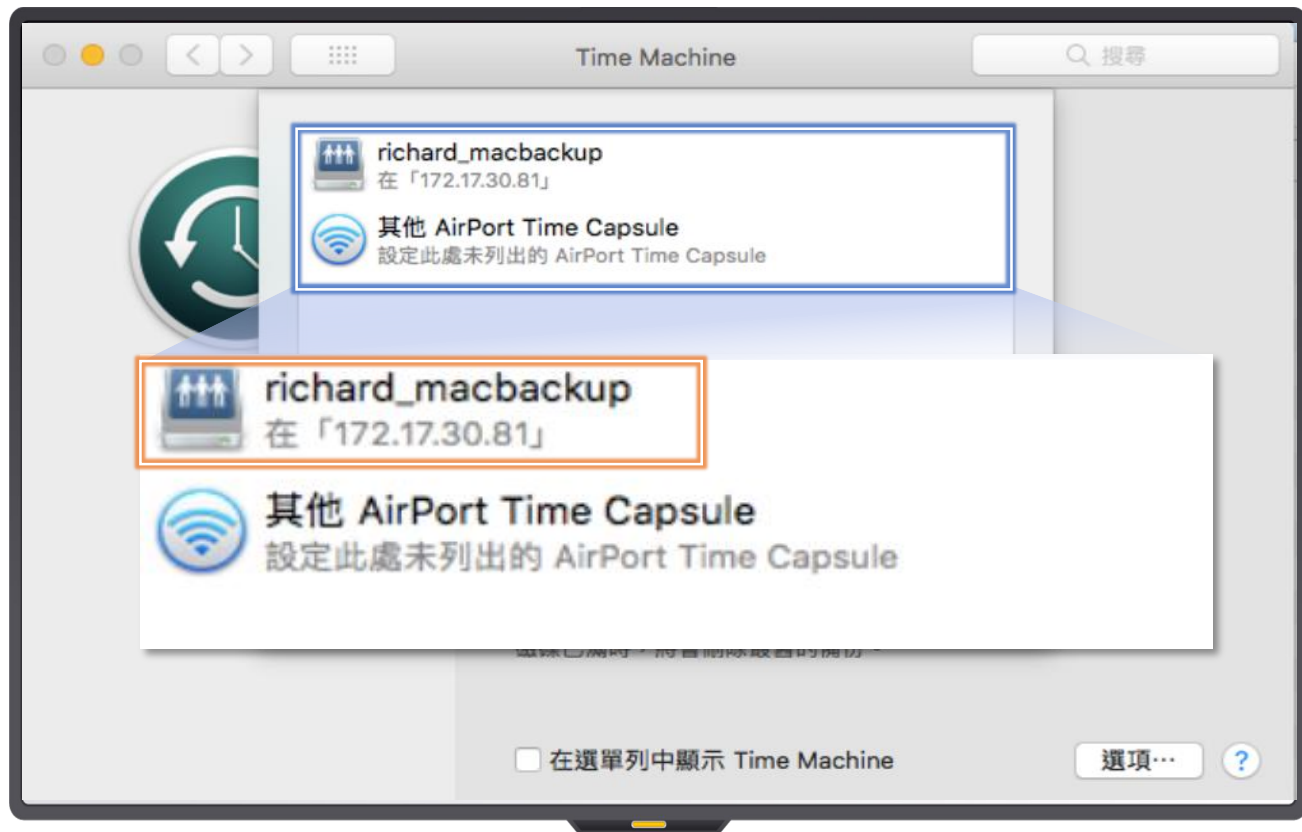
Support multiple accounts of QTS

Apply

How to prepare the NAS



How to set up on Mac



View the Time Machine backup

The screenshot shows the FileStation 5 web interface. The sidebar on the left displays a file tree under 'TVS-1282T' with folders like 'DataVol1', 'Download', 'home', 'homes', 'Macbookbackup', 'Multimedia', and 'Public'. The main content area shows a table of files in the 'richard_macbackup' directory. A blue box highlights the file 'richardli的 MacBook Air.sparsebundle'. The bottom status bar shows 'Page 1 / 1' and 'Display item: 1-2, Total: 2'.

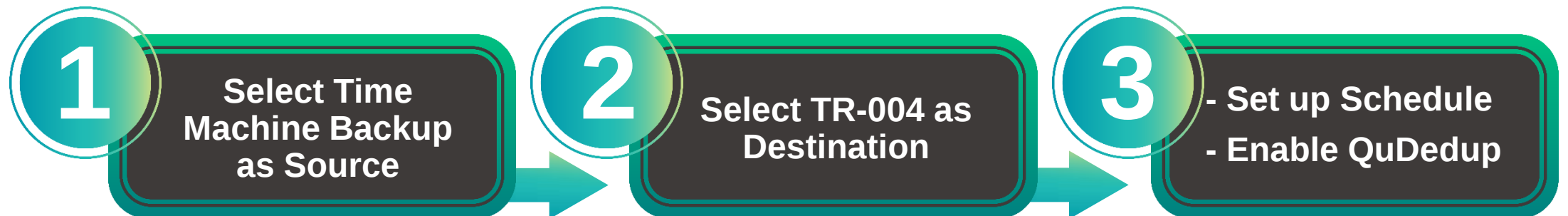
Name	Modified Date	Type	Size	Permission	Owner
richardli的 MacBook Air.sparsebundle	2018/10/15 09:58:15	Folder	770	(rwxrwx--)	richard_tm
@Recycle	2018/10/12 21:44:52	Folder	777	(rwxrwxrwx)	admin

Customer's situation

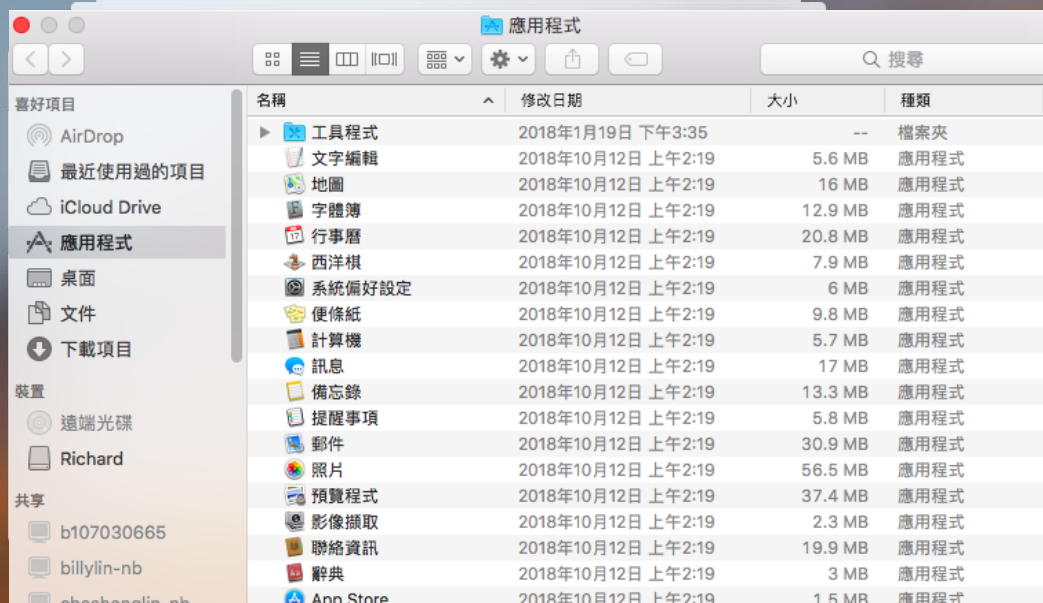
Back up the Time Machine backup file to the external device TR-004 via HBS 3



Create backup job :



Timeline brings your file back to life





**QNAP NAS
is the best
choice for
Mac users**

