

The QNAP logo is displayed in a bold, white, sans-serif font against a dark blue background. The letters are slightly shadowed, giving them a three-dimensional appearance.

QNAP

Discover the all-new

CacheMount

The key to make NAS
a hybrid cloud server

Will be released in **QTS 4.4.1**

Comming soon!



Discover the all-new CacheMount

- 1 Why CacheMount and what are its problem solving abilities
- 2 Cache function makes the hybrid cloud more efficient
- 3 The key of CacheMount: Cache Volume
- 4 User manual on how To Start The Cache Experience
- 5 Live demo



Issues you might encounter while using **Private cloud**

When out of office, it is too slow to access the data in the NAS due to **network issues**.

It is slow to synchronize data between different NAS in multiple site office.

Issues you might encounter while using **Public cloud**

It is too slow to access the data in the cloud due to **network issues** in different location.

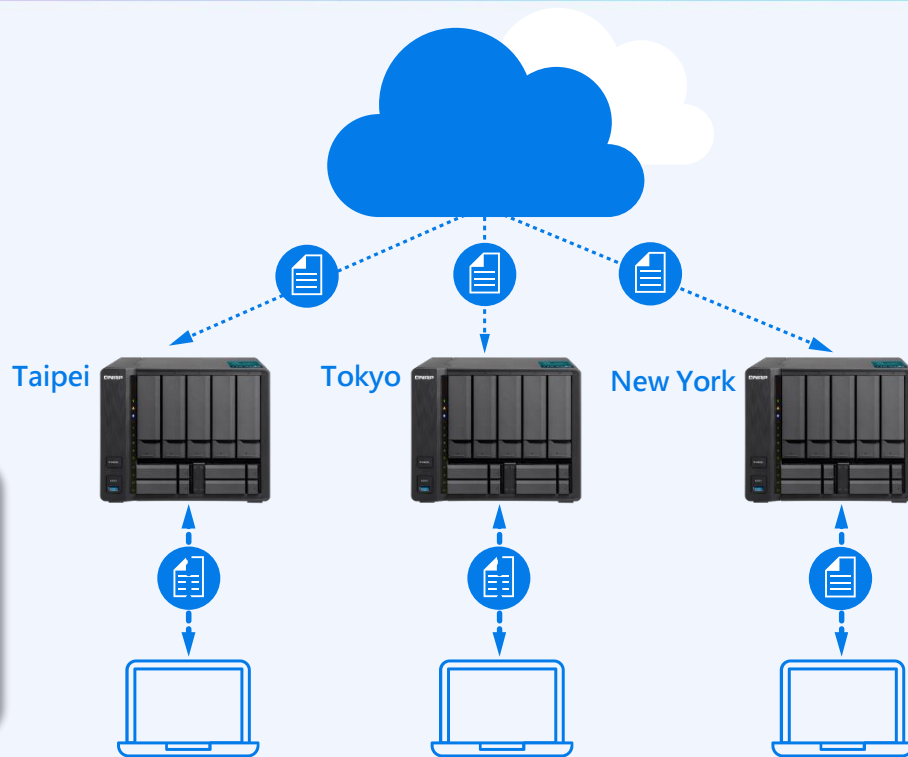
It is slow to connect to the same cloud between in multiple site office.

Hybrid Cloud Solution Embrace The Advantages of Both

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- **Security**
- **Storage extension**
- **Access Speed**
- **Powerful computing**
- **Access anywhere**

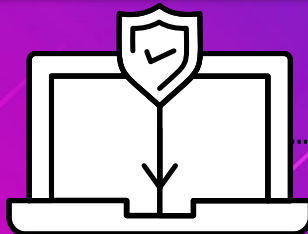
Hybrid cloud solution is one of the best choice of the enterprise! Keep the old service investment and get the elasticity advantage!



The previous QNAP Hybrid Cloud Solution is...

Mount the cloud storage through **Connect to Cloud Drive**.
You can not access data through SMB/ AFP!

Synchronize data through **Hybrid Backup Sync**.
You can access data through SMB/AFP,
but it takes same capacity as the cloud use in NAS!



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Now QNAP gives you A New Hybrid Cloud Solution: CacheMount



**Allocate a part of NAS storage to
enjoy the hybrid cloud!**

Enjoy QTS applications at the same time.

SMB/NFS/AFP



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CacheMount

**Cache function makes the
hybrid cloud more efficient**

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A New Hybrid Cloud Solution: CacheMount

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Remote Mount
& Connect to Cloud Drive



NAS as the edge gateway
device to the cloud



CacheMount
New service in
QTS 4.4.1

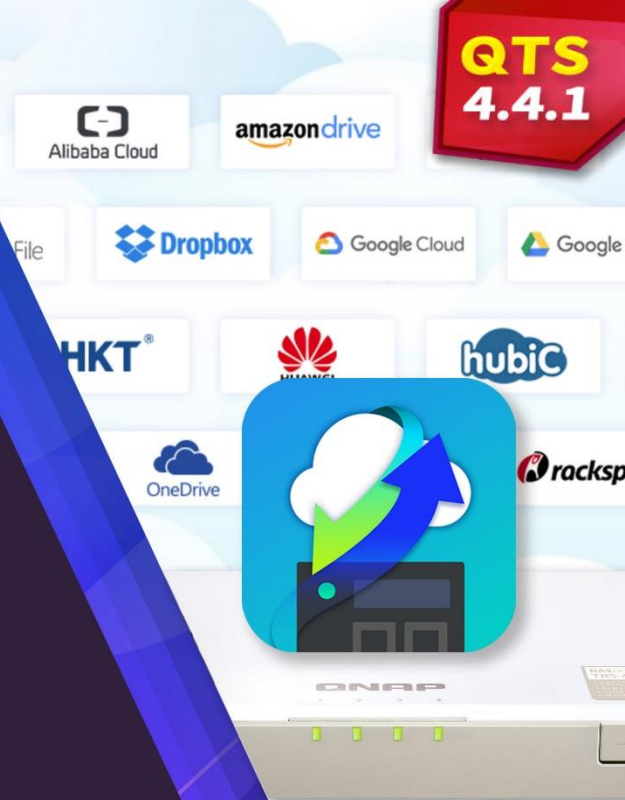


After upgrading the firmware to QTS 4.4.1, CacheMount will replace Connect to Cloud Drive. Please install CacheMount in App Center.

CacheMount Cloud Gateway

5 features to increase cloud management

- Support 2 types, 20 cloud providers.
- Much more smoothly access cloud data.
- Access through SMB/AFP. No need PC utility for cloud service anymore.
- Share and manage files between multiple site office in time.
- Horizontally integrate QTS applications to use the cloud data.

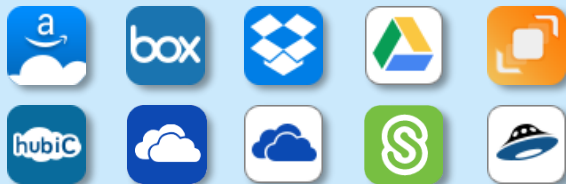


Support 2 types, 20 cloud providers.

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Type I: File-base Storage

- Storage data by the folder structure.
- Pricing depending on the fixed capacity.



Type II: Object-base Storage

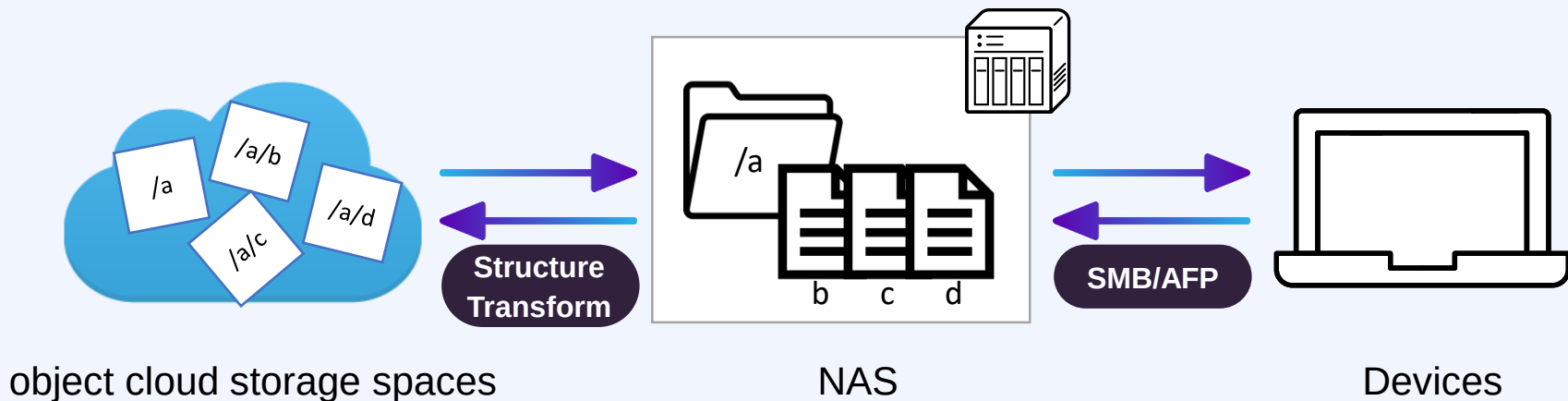
- Storage unstructured data in the flat environment.
- Pricing depending the actual storage usage.



File Cloud Gateway Help To Access Object Storage Service

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CacheMount can transform the unstructured data into file structure for easy management of object cloud storage spaces



Why you should use object storage service?

Data backup and disaster recovery

It enables you to store, back up, archive large amounts of data in the cloud and also help with disaster recovery.

Highly scalable and elastic

It can store enormous data and price by the actual storage usage.

Various computing service

Cloud vendors provide various computing such as big data analytics.



Smoother access to cloud data

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Remote Mount-Basic Function

Manage multiple cloud services in File Station.



With CacheMount, you can...



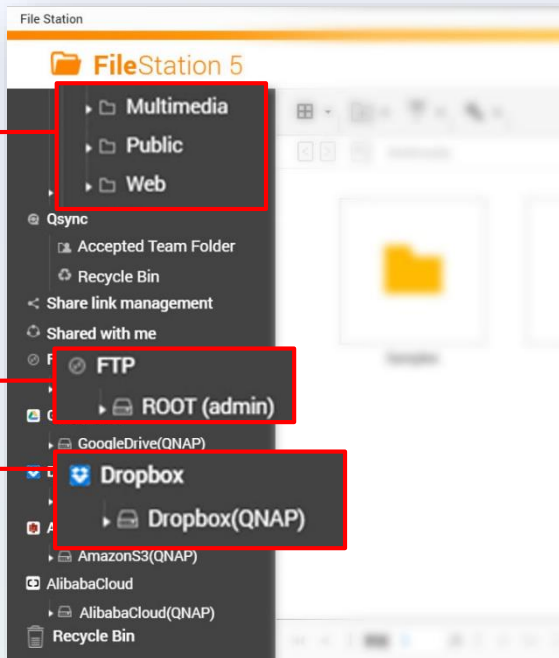
1. Create a more compact hybrid cloud with smoother data access.
2. Access through **SMB/AFP**. No need PC utility for cloud service anymore.



Access through SMB/AFP

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File Station

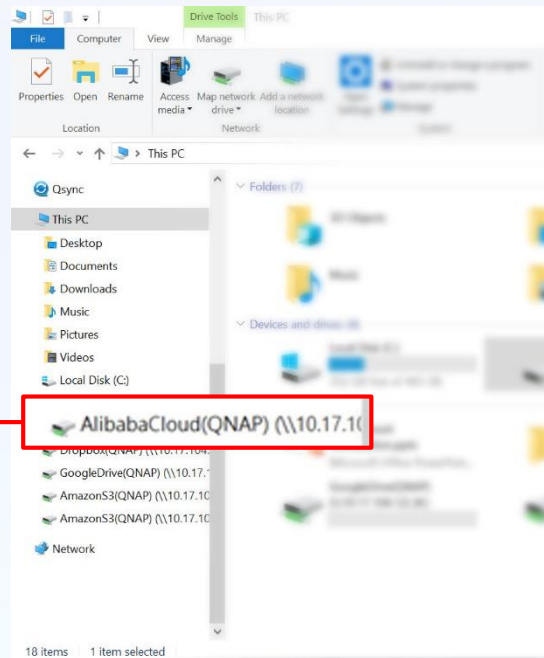


Local Storage

Remote NAS

Cloud Storage

PC (mounting through Samba)



Mount on PC by
network protocol

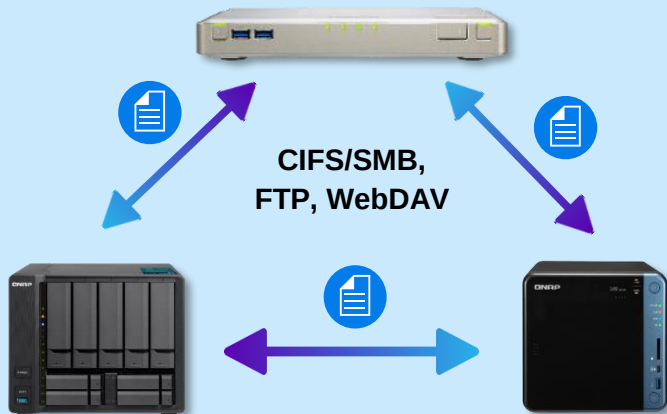
Share and manage files between multiple site office in time

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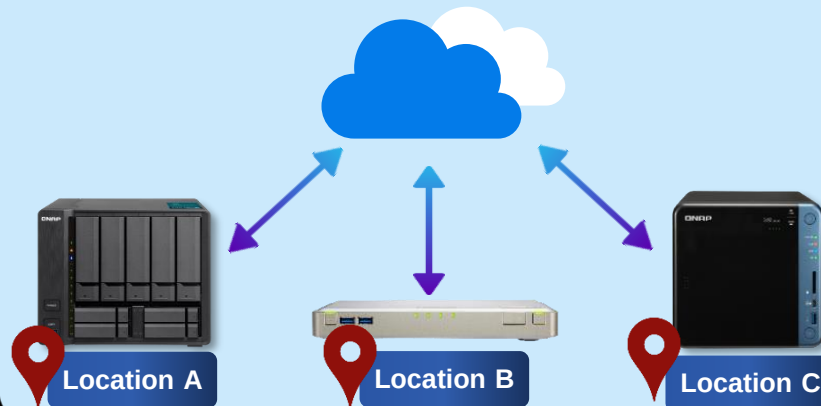
Remote Mount-Basic Function

No matter how large the file is, file transfer across NAS can be fast.



With CacheMount, you can...

With using cloud service, files sharing and management between multiple site office can be on time.

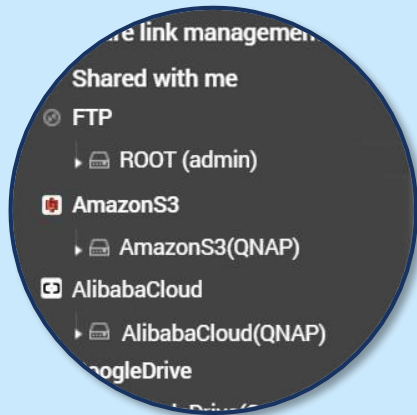


Horizontal integrate QTS applications to use the cloud data

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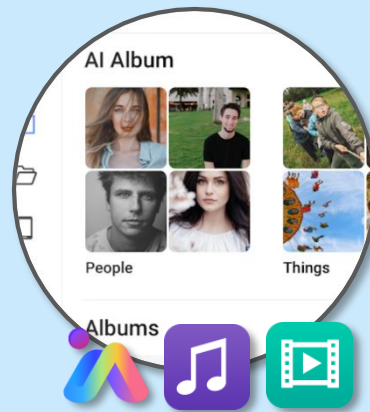
Remote Mount-Basic Function



File Station

The remote data can be managed only in File Station.
Other application can not access data on the cloud.

With CacheMount, you can...



Have a same multimedia
experience of data in
different cloud service.



Search enormous
files on the cloud
fast and easily .

CacheMount Features

Enable Cache To Have Better Cloud Experience

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Basic Functions

- **Remote Mount**
Remote Device: Through CIFS/SMB, FTP, WebDAV
Cloud Service: 2 types, 20 cloud providers
- **Manage Remote Data**
Only be able to operate files in File Station
- **Manage Multiple Clouds**

NEW!! Enable Cache

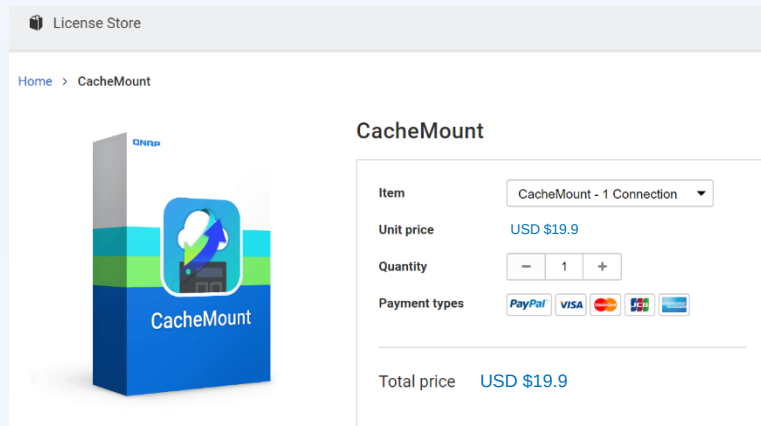
- **Access Files Smoothly**
Cache function let file access more smooth
- **Operate Cloud Data by PC**
PC can access cloud directly through SMB/AFP
- **Cloud data usage**
Enjoy various applications in QTS including file manager and multimedia services



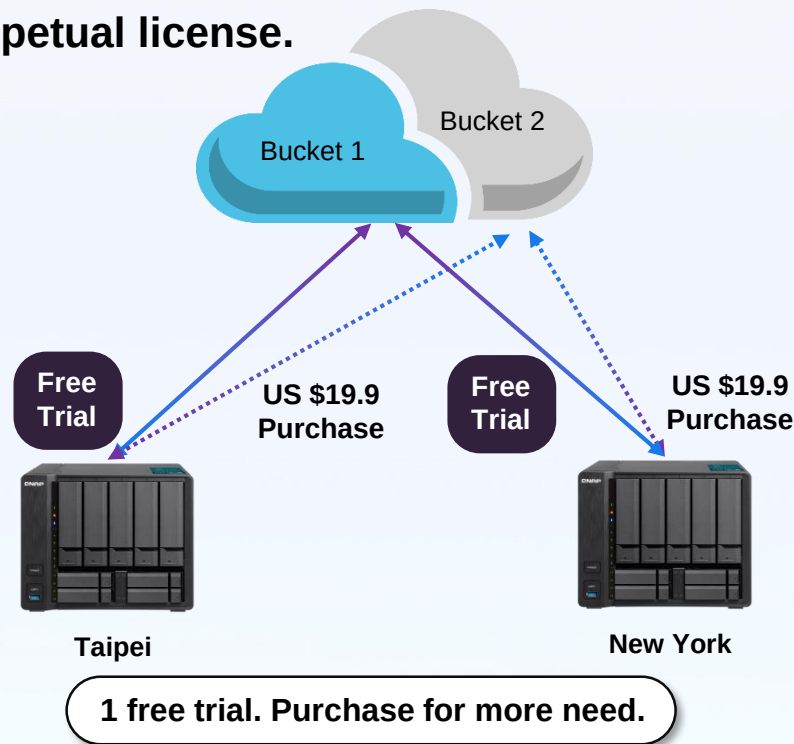
Purchase License for CacheMount Solution

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Install CacheMount and Enjoy one free and perpetual license.



Item	Price
CacheMount – 1 connection /year	US \$ 19.9
CacheMount – 4 connections /year	US \$ 59.9
CacheMount – 8 connections /year	US \$ 99.9



View License Status Anytime

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Licenses
View the status of CacheMount licenses.

 Licensed Connections
Used: 1
Total: 5

 License Overview

 Purchase License

License Name	License ID	Status	Apply Date	Valid Until	Connection
CacheMount	Free License	Valid License	--	Perpetual	
CacheMount	5c458065055a536d...	Valid License	2019/01/21	2020/01/21	

View the
usage of
license

Note the
valid time

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CacheMount

**The key of CacheMount:
Cache Volume**

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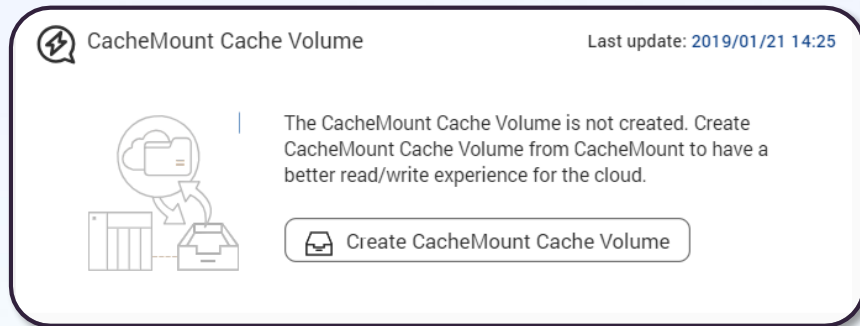


Create a Cache Volume To Smooth Access

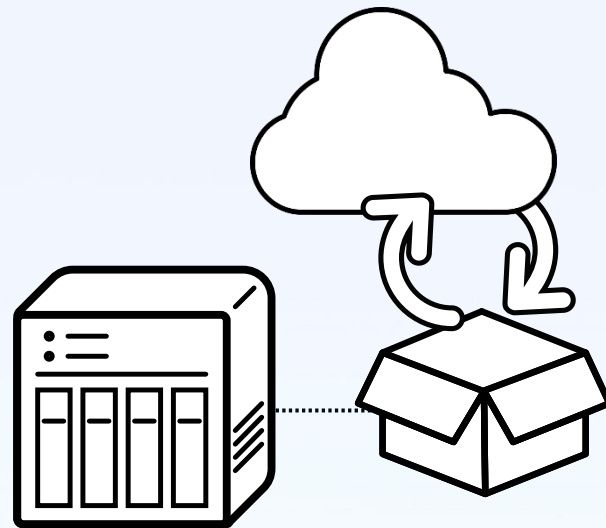
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Create a proper size of cache volume to help smoothly access unlimited cloud storage like local transferring.

First Step To Enable Cache: Create a Cache Volume

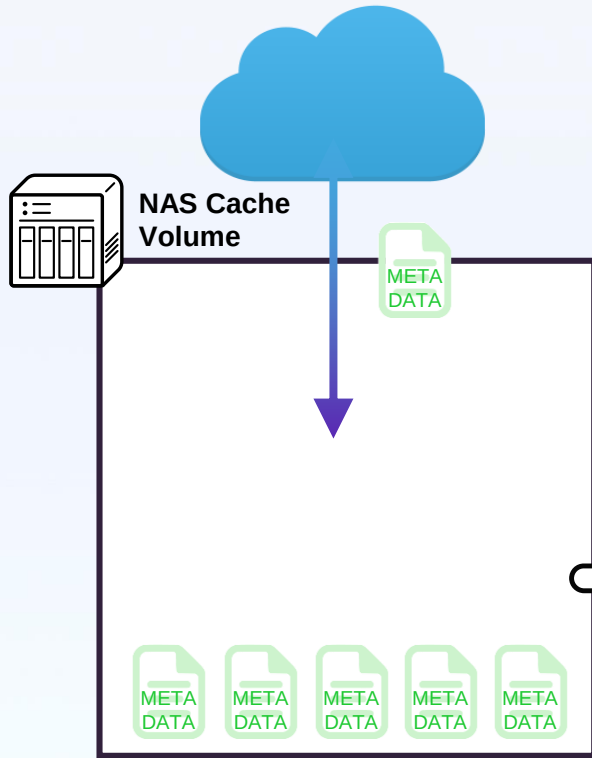


Minimize space: 200GB



Sync Metadata To Read File List Fast

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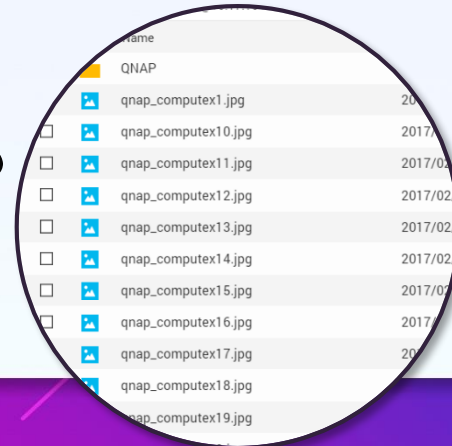
Mount and then use

With cache function, you can view all file list and operate files without download all cloud data to the local NAS.

File list synchronization

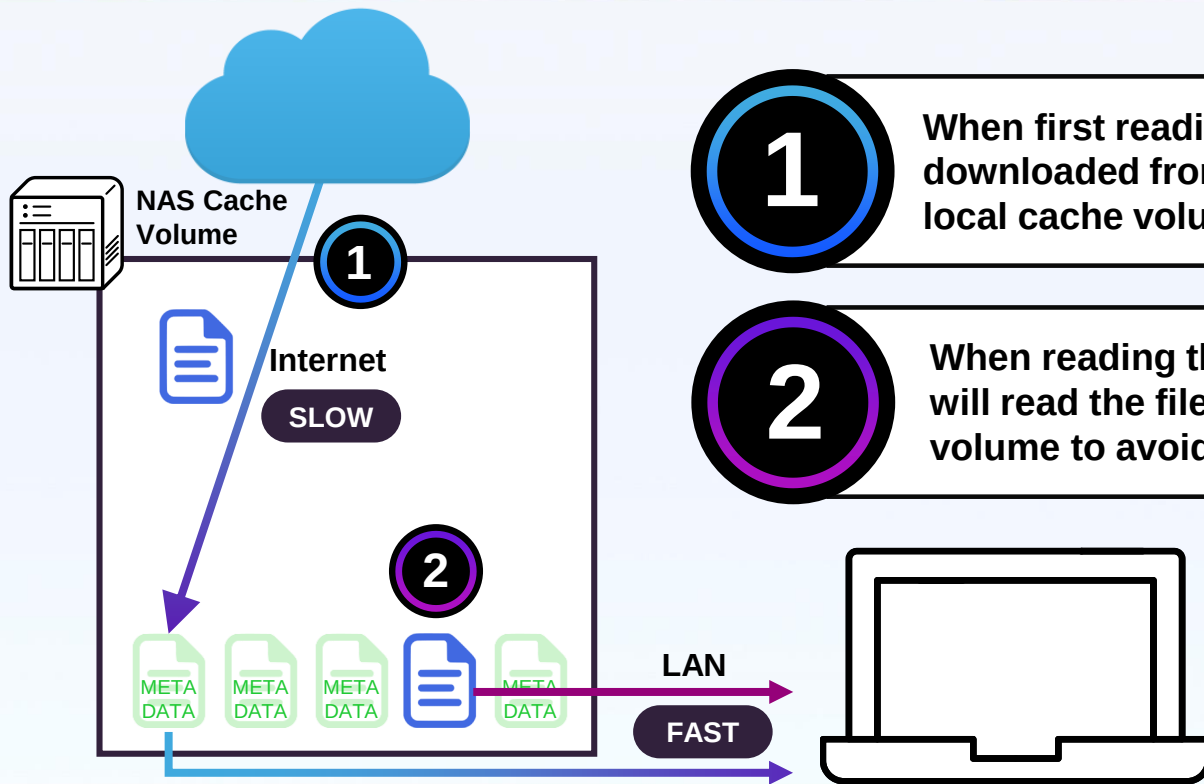
- **File-base storage service: synchronize anytime**
*HiDrive, Yandex and Sharefile will synchronize by schedule or manually.
- **Object-base storage service: synchronize by schedule or manually.**

Create a file list by the metadata.



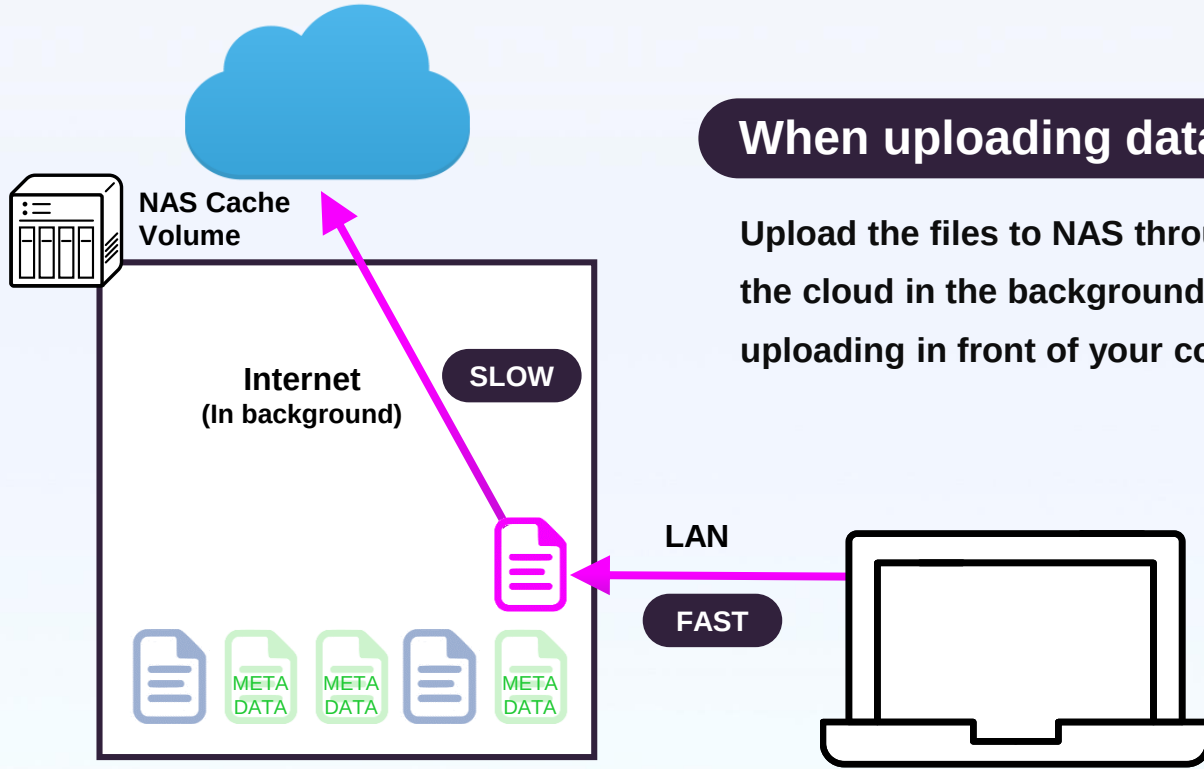
Accelerate When Reading Cached Files

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Cache Uploading Files To Reduce Waiting Time

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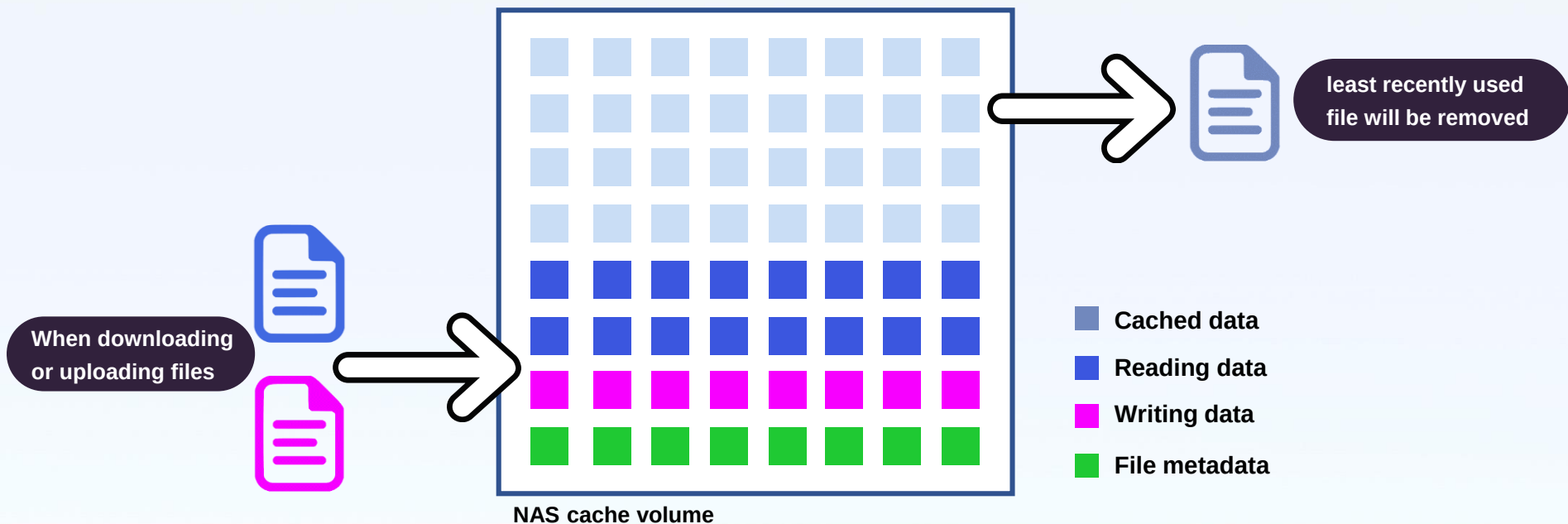


When uploading data to the cloud

Upload the files to NAS through LAN and then upload to the cloud in the background. It helps you reduce waiting uploading in front of your computer.

How Does The Cache Algorithm Work

When cache volume is full and there is more file space needed, the system will remove the least recently used file and only keep its metadata.





How To Configure The Cache Volume

Space

- To meet upload / download request, you need to create at least 200GB cache volume.
- Adjust space by your need. The larger space can store more cached data.

More Upload Request

A larger cache volume is needed to keep more uploading data.

More Download Request

Only need proper space. The space can be reused by removing the cached data.

Volume

Static Volume

Create the file system directly on the disk to have **better read / write performance** (20% better than other volume type).

Thick Volume

Create volume in the storage pool. The volume can be **resize** for elastic use.



Expand your NAS storage by TR-004.

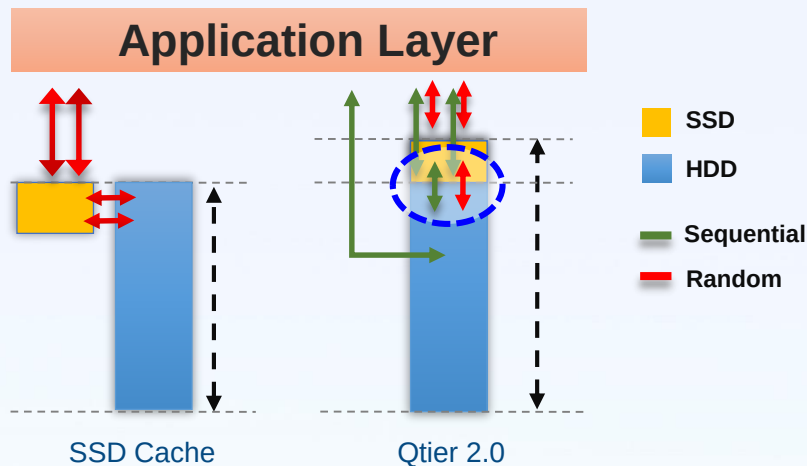
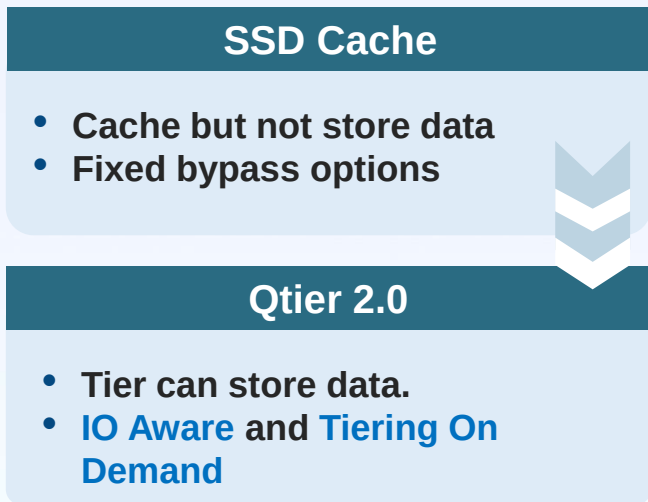




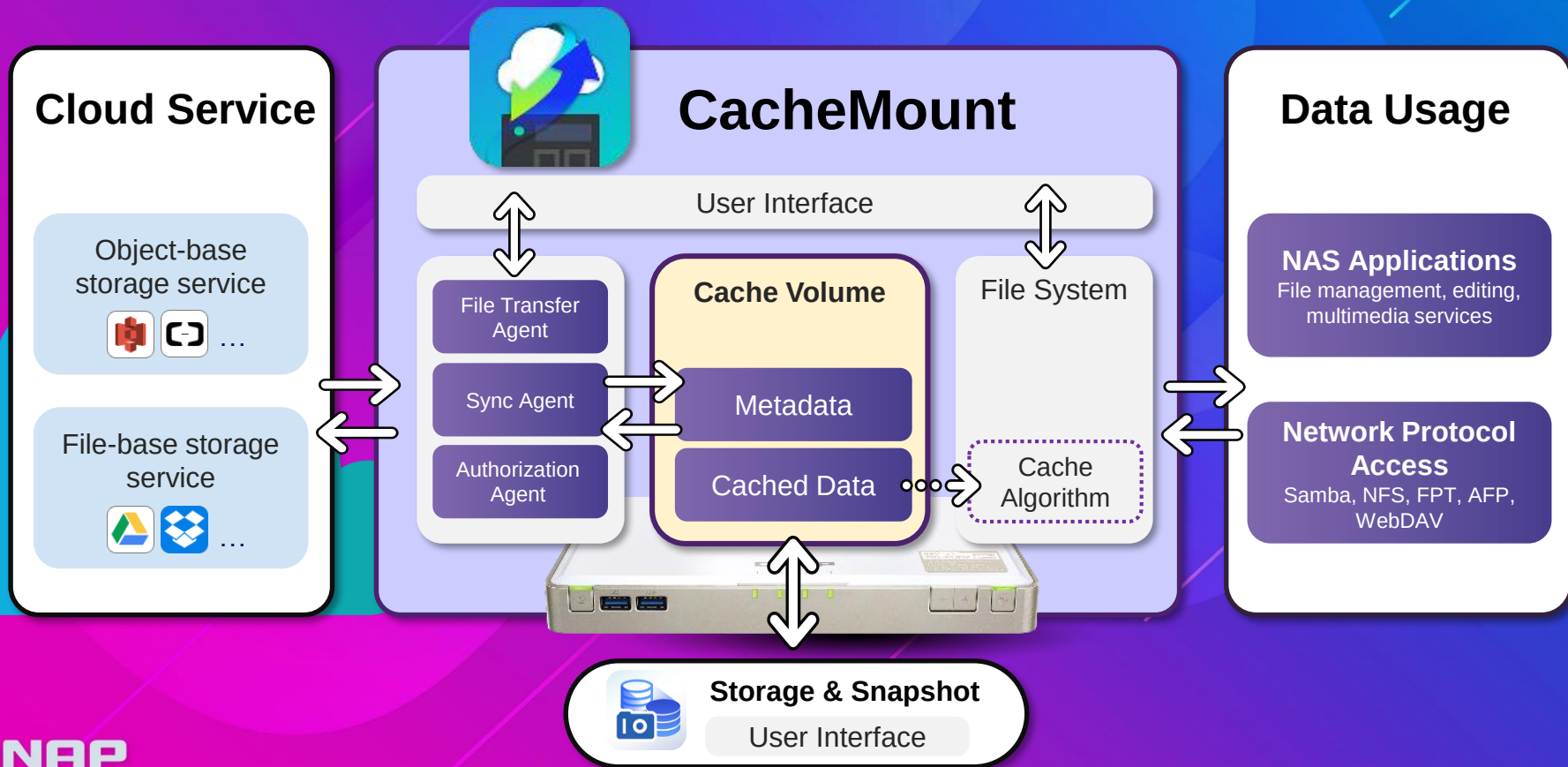
Accelerate With Qtier And SSD Cache

SSD cost too much?

Use SSD and HDD with Qtier and SSD cache.



CacheMount As a Best Bridge To The Cloud



Test Result To The Cache Function

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Speed of downloading a large file (511 MB)

Cached

32.38 MB/s



9.6 time faster

Not Cached

3.38 MB/s

More complicated process,
more significant effect!

Speed of download 500 small files (522 MB in total)

Cached

31.26 MB/s



34.7 time faster

Not Cached

0.90 MB/s

Test Condition:

- NAS Model : TS-1685 (CPU: Intel(R) Xeon(R) CPU D-1521 @ 2.40GHz, RAM: 16GB)
- 200 GB Cache Volume: Thick volume in RAID 1 storage pool (HDD*2/SSD*1,enable Qtier)
- Cloud Service : AWS S3

Test Method: Mount the same cloud bucket, and download the cached file and the file without cache separately.

* Test in QNAP LAB, the test result will differ based on the network speed and cloud services.

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CacheMount

**How To Start The Cache
Experience User Manual
(take Amazon S3 as the example)**

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4 Ways To Enjoy Cache Experience

- 1 3 steps to create cache connections**
- 2 4 tips to manage cache connections**
- 3 Visible usage status of cache volume**
- 4 User Whitelist for CacheMount**



3 Steps To Create Cache Connections

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1 Create cache volume

The screenshot displays the QNAP QTS interface with the CacheMount section selected in the left sidebar. The main area shows the 'Overview' tab, which includes a 'Licensed Connections' section with 'Used: 1' and 'Total: 1', and a 'Remote Mount Overview' section showing a 'MagicTurtle' server connected to 'Cloud service' (5 mounted) and 'Remote device' (1 mounted). A circular callout highlights the 'Create CacheMount Cache Volume' button and a message stating: 'The CacheMount Cache Volume is not created by default. CacheMount Cache Volume from CacheMount provides a better read/write experience for the cloud.'

CacheMount Create Remote Mount

Overview

Licensed Connections

Used: 1
Total: 1

Purchase License +

CacheMount Cache Volume

The CacheMount Cache Volume is not created by default. CacheMount Cache Volume from CacheMount provides a better read/write experience for the cloud.

Create CacheMount Cache Volume

Remote Mount Overview

MagicTurtle

Cloud service

Mounted: 5

Remote device

Mounted: 1

Disabled: 0

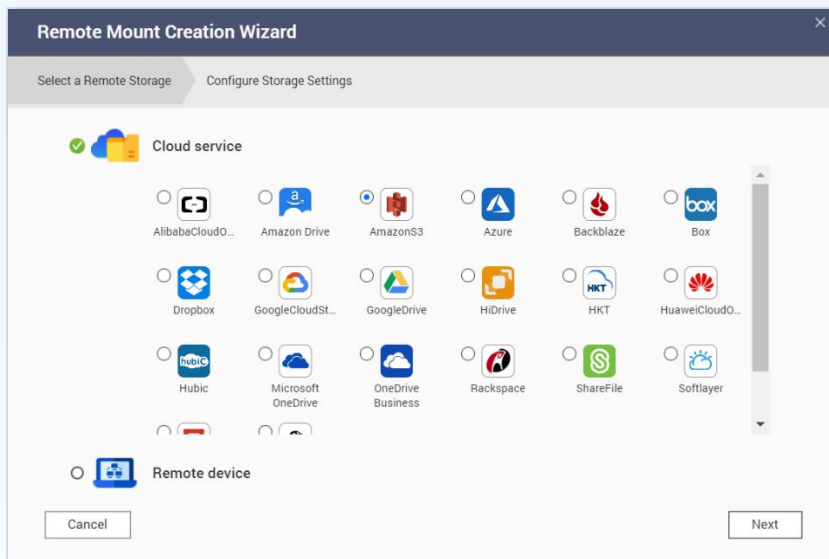
Disable +

3 Steps To Create Cache Connections

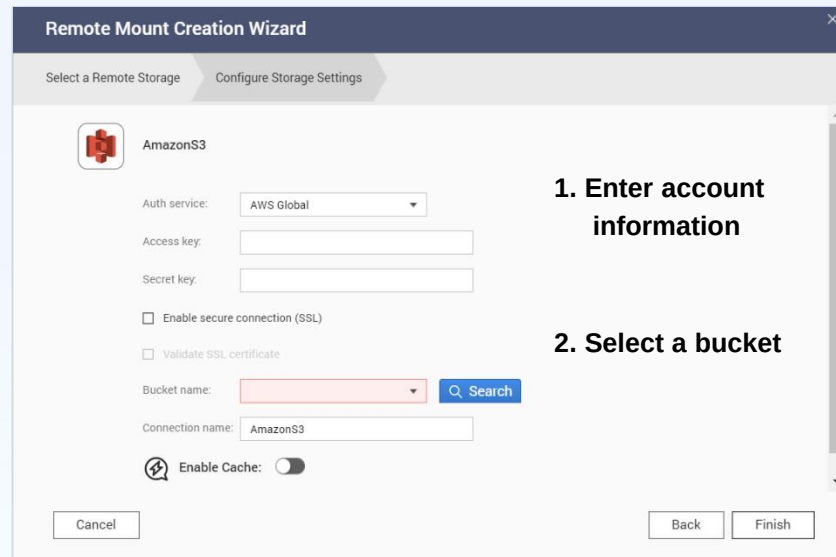
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2 Mount the cloud storage

Step1: Select a cloud provider (take AWS S3 as the example)



Step2: Make configuration

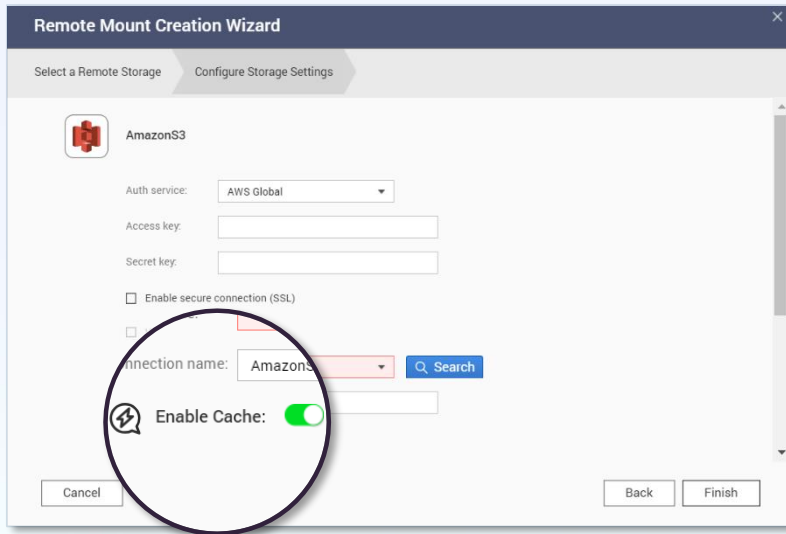


3 Steps To Create Cache Connections

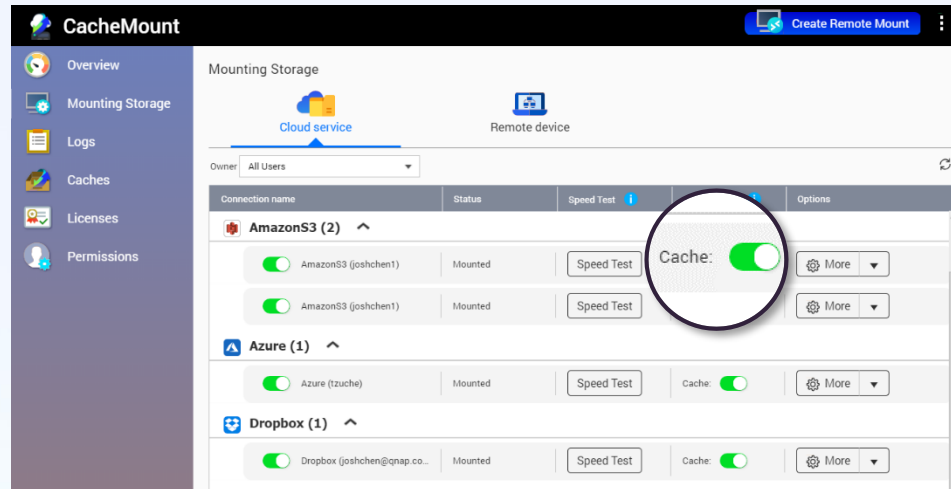
QTS
4.4.1

3 Enable Cache

Method 1: In the step of creation wizard



Method 2: In Mounting Storage page



4 Tips To Manage Cache Connections

QTS
4.4.1

1 View all connections status

Classify by
cloud
providers

The screenshot displays the 'Connections' page in QTS, categorized by cloud providers. The interface includes a table with columns for 'Connection name', 'Status', 'Speed Test', 'Cache status', and 'Options'. The connections listed are AmazonS3, Azure (1), Dropbox (1), and GoogleDrive (1). Each connection has a status indicator (e.g., 'Mounted') and a 'Cache' toggle switch. Callouts highlight these elements: 'Classify by cloud providers' points to the provider icons; 'Mounted' points to the status text; 'Cache Status' points to the toggle switch; and 'View Connection Status' points to the status section, which includes a list of status definitions.

Connection name	Status	Speed Test	Cache status	Options
AmazonS3	Mounted	Speed Test	Cache: ☒	More
Azure (1)				
Dropbox (1)				
GoogleDrive (1)	Mounted	Speed Test	Cache: ☒	More

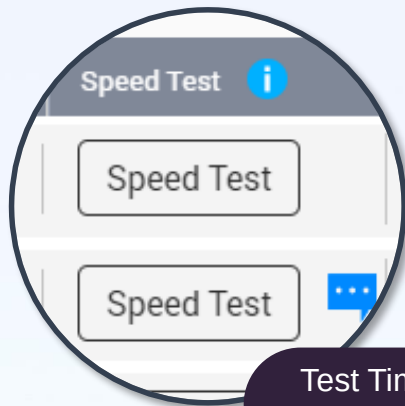
View Connection Status

- Mounting: after creating, wait to be successfully mounted
- Mounted: successfully mounted and ready to access
- Failed to Connect:: failed to connect to the cloud temporarily
- Disabled: disabled manually
- Invalid: configuration invalid and need to remount

4 Tips To Manage Cache Connections

2 Speed test helps to select a bucket

Test the upload and download speed to the specific connection.



Test Time: 2019/01/21 14:07:51
Upload: 13.54 MB / Download: 14.77 MB



Take Amazon S3 as the example:

Bucket can be created in any region. Select a bucket with higher speed by testing the speed from your place.

4 Tips To Manage Cache Connections

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3 Customize cache folders to wisely use cache volume

Advanced CacheMount Settings - AmazonS3 (Nothern

Lower the priority of cache folders. We suggest lowering the priority of infrequently used folders to more efficiently use the cache volume.

Select cache folders to lower priority.

AmazonS3 (Nothern Virginia)

- ☐ 123
- ☐ CC free pic
- ☐ Face
- ☐ For Map
- ☐ Test File

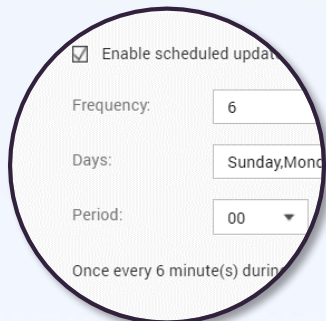


We suggest lowering the priority of infrequently used folders to efficiently use the cache volume.

4 Tips To Manage Cache Connections

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4 Manage cost of object storage service

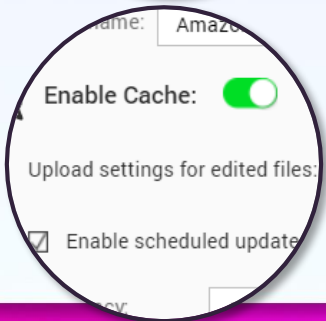


Scheduled updates for file list

Enable scheduled updates for file metadata to control the cost form cloud request.



We suggest you only update in the time period you access frequently.



Upload settings for edited files

Select whether system checks the file version on the cloud or not when the file is edited in local to prevent accidental overwriting of files. Also help to control the cost form cloud request.



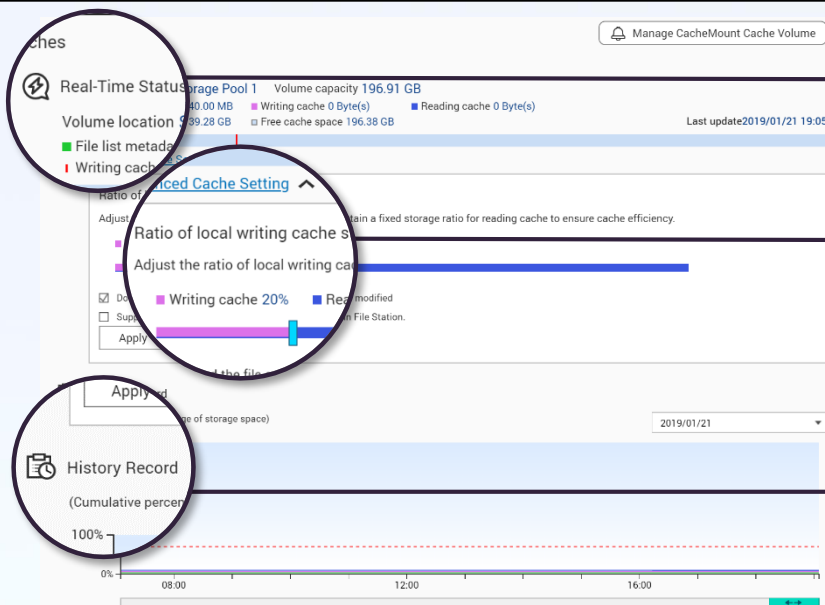
We suggest you not to check the cloud if you only access the cloud with one CacheMount connection.

Visible Usage Status of Cache Volume

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Use the usage status to help adjustment



Real-time Status

Ratio of local writing cache storage

The ratio is set to maintain a fixed storage ratio to avoid the sudden huge writing data ruling out the cache data.

→ We suggest you to adjust by the experience.

History Record



How To Manage The Cache Volume?

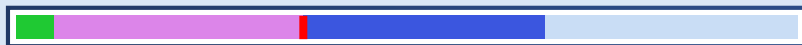


Frequently insufficient space may reduce cache efficiency

Situation 1



Insufficient writing cache with sufficient free cache space. → cannot upload files



Suggest to higher the local writing cache ratio.

Situation 2



Insufficient writing cache free cache space. → cannot upload and download files



Suggest to expanse cache volume.

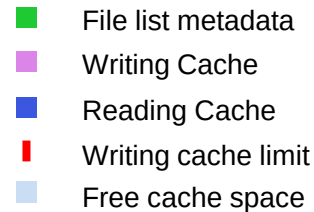
Situation 3



Insufficient reading cache space. → cannot upload and download files



Suggest to expanse cache volume.



User Whitelist for CacheMount

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The screenshot shows the QTS CacheMount interface. The left sidebar contains navigation links: Overview, Mounting Storage, Logs, Mounting Logs, Speed Test Logs, Event Logs, Caches, Licenses, and Permissions. The main content area is titled 'Permissions' and includes a 'Create Remote Mount' button. A circular callout highlights the 'Specific users' radio button, which is selected. Below this, a dropdown menu is set to 'Local Users'. A table lists the selected users: 'admin' and 'Josh'. The 'admin' user is checked, while 'Josh' is not. The table has columns for 'Username', 'Description', and 'Status'. The 'admin' user has a description of 'administrator' and a status of 'Enabled'. The 'Josh' user has no description and a status of 'Enabled'. The footer shows pagination: 'Page 1 / 1' and 'Display item: 1-2, Total: 2 | Show 50 Item(s)'.

CacheMount

Create Remote Mount

Permissions

Allow only the following users to use {0}.

☐ Administrator

☐ Administrator group

☒ Specific users

Local Users

Username	Description	Status
☐ administrator	administrator	Enabled
☒ admin		Enabled
☐ Josh		Enabled

Page 1 / 1

Display item: 1-2, Total: 2 | Show 50 Item(s)

LIVE 

DEMO

Demo Environment:
NAS Model: TBS-453DX
RAM: 8GB

Storage Pool: 256GB M.2 SSD *4, RAID 5
CacheMount Cache Volume : 200GB Thick Volume
Location: QNAP Headquarter in Taipei, Taiwan



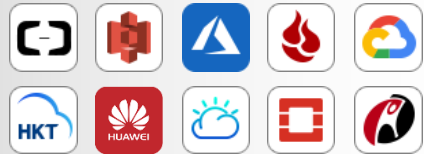
A New Hybrid Cloud Solution: CachMount

Support 20 Cloud Services

File-base Storage



Object-base Storage



CachMount

4 New experiences

Cache Function:
More smoothly access

PC can access cloud storage
through SMB/AFP

Share files between
multiple site office on time

Horizontal integrate QTS
APPs to use cloud data

QNAP

CacheMount **Have A Better Hybrid Cloud Experience!**



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