Synology®

Backup
Solution Guide

Introducing backup solutions in different
user scenarios

Backup Software

Synology NAS is a storage device that comes with various backup functions. Download and install from Package Center in the operating system DSM (DiskStation Manager). Whether you are a business or personal user, you can build up a safe and secure backup environment quickly and easily. This solution guide will introduce all the backup features provided by Synology. For more detailed information about each feature, please check the Synology official website.

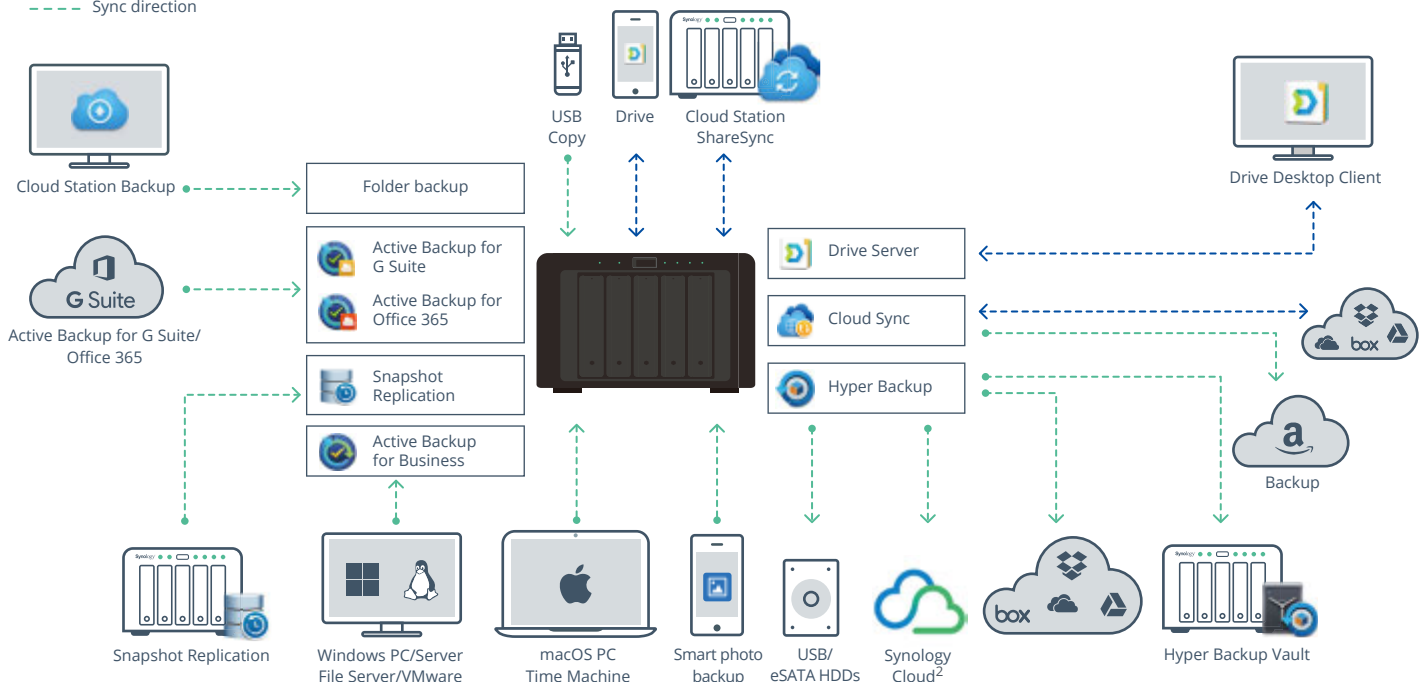## What's the difference between synchronization and backup?

Backup

· Uni-directional
· Performed in designated time
· Backup data undergoes data compression and deduplication, which can only be used after restoration

Synchronization

· Uni-directional or bi-directional
· Keep the latest version in real time
· The file structure in the source and destination is the same

Overview - Synology's data backup solutions

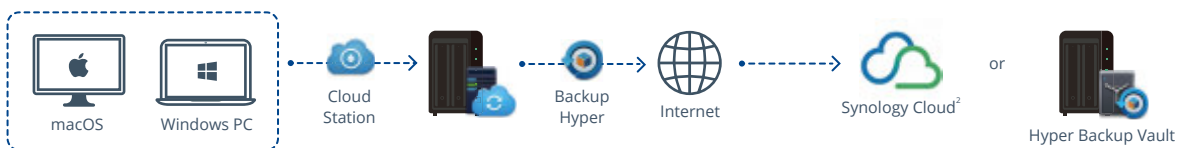- - - - Data synchronization
- - - - Sync direction

USB Copy
Drive
Cloud Station ShareSync
Drive Desktop Client

Cloud Station Backup
Folder backup

Active Backup for G Suite/Office 365
Active Backup for G Suite
Active Backup for Office 365

Snapshot Replication

Active Backup for Business

Drive Server

Cloud Sync

Hyper Backup

Snapshot Replication
Windows PC/Server File Server/VMware
macOS PC Time Machine
Smart photo backup
USB/ eSATA HDDs
Synology Cloud[2]
Hyper Backup Vault

Backup

Data Protection Strategy: 3-2-1 Backup Rule
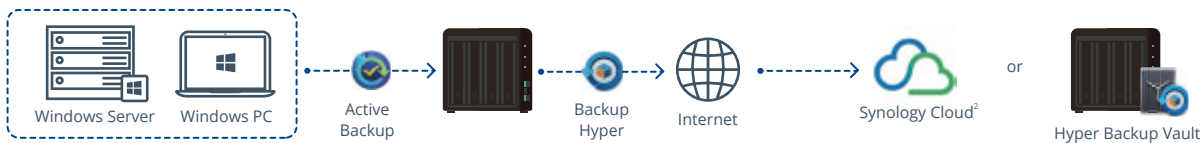
3 Have at least 3 copies of your data.   **2** Keep these backups on 2 different mediums.   **1** Store at least 1 copy of the data offsite.

Unexpected data loss from hard drive failures, natural disasters, and ransomware attacks pose potential threats to your critical data. Use the 3-2-1 Backup Strategy to protect your family photos, videos and corporate data, thereby minimizing the risk of data loss. Please refer to the backup best practices below.
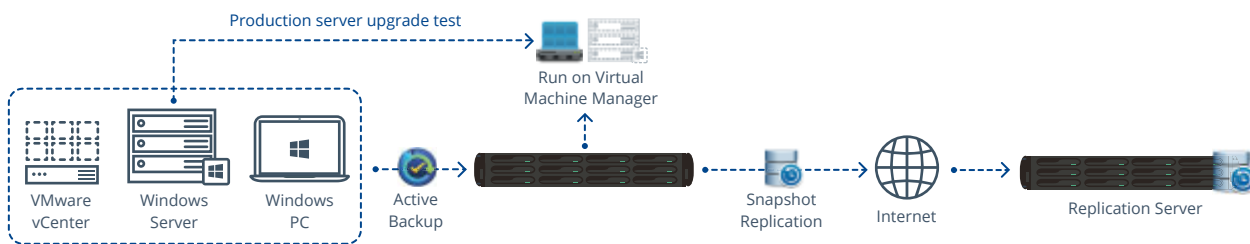
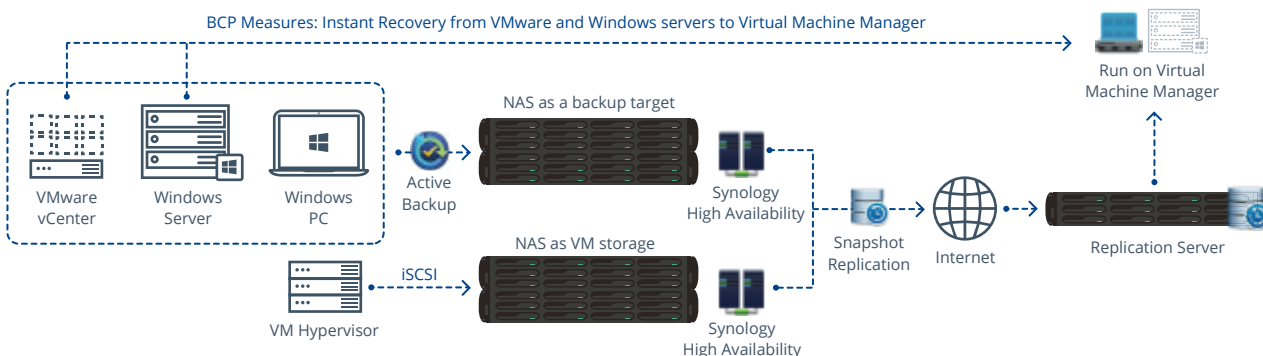## Home & personal user (1-10 devices): File backup only

macOS   Windows PC → Cloud Station → Backup Hyper → Internet → Synology Cloud²   or   Hyper Backup Vault

SOHO & small workgroup (11-50 devices): File & full backup

Windows Server   Windows PC → Active Backup → Backup Hyper → Internet → Synology Cloud²   or   Hyper Backup Vault

SMB & cross-office (51 – 200 Devices): File & full backup

Production server upgrade test

Run on Virtual Machine Manager

VMware vCenter   Windows Server   Windows PC → Active Backup → Snapshot Replication → Internet → Replication Server

Enterprise (200+ devices): File, LUN and full backup

BCP Measures: Instant Recovery from VMware and Windows servers to Virtual Machine Manager

Run on Virtual Machine Manager

VMware vCenter   Windows Server   Windows PC → Active Backup → NAS as a backup target

VM Hypervisor → iSCSI → NAS as VM storage

Synology High Availability → Snapshot Replication → Internet → Replication Server

Synology High Availability

A

Back up your PC/Server to NAS

Home PCs, company servers, and virtual machines can all be protected with a Synology NAS.

Cloud Station Backup

Easy to set up, protecting your valuable data on PC right away

· Real-time backup for up to 32 versions
· Incremental backup to reduce the required storage capacity
· Intelli-versioning keeps only important versions (Patent pending)
· Back up multiple PCs at home and in the office at the same time
· Compatible with Windows, MAC, and Linux

Conventional backup only keeps the latest version

Keep the most important versions

—— Versions retained
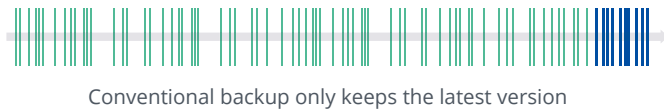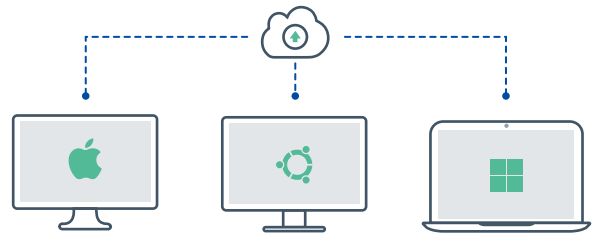
Intelli-versioning

Keeps only important versions in a smarter way

Configure your backup policy and the number of versions you wish to keep on your NAS. You can also keep only important versions with Synology's proprietary technology "Intelli-versioning" or simply delete older versions first.

Restore unintentionally deleted data from Version Explorer

Select a point in time where you wish to restore the version in Version Explorer and retrieve the original data easily and quickly

· Restore your previous data with just a few clicks
· Restore files to the original path from Version Explorer
· Browse previous versions with an easy-to-understand calendar
· Search missing files by keyword
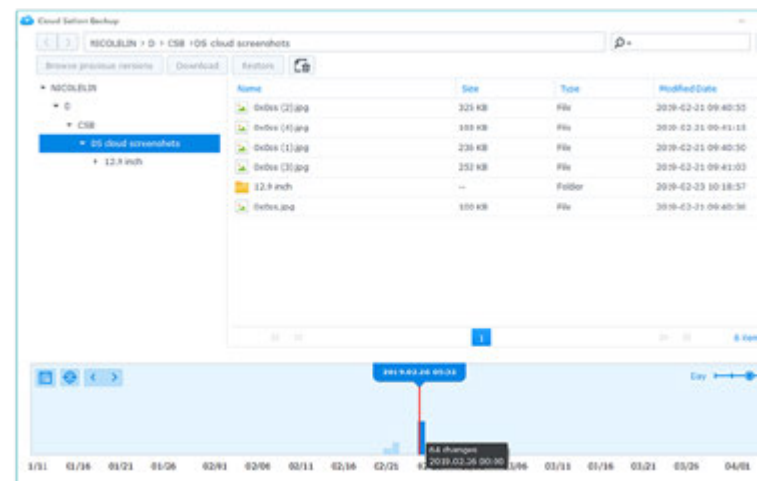
Active Backup for Business

Protect complicated enterprise IT environments with reduced total cost

· A portal that centralizes and manages all backup tasks from PCs, Windows servers, and virtual machines
· Back up all devices with a NAS, without any licenses
· Run VM images directly on Synology VMM while supporting backup verification, failover tests, etc

| Comparison Table	Agentless		Agent-based	
	File Server	VMware	(Windows)	Server
Image Backup	—	○	○	○
Image Restoration	—	○	○	○
File / Folder Restoration	○	○	○	○
Block-level Deduplication	File	Cross image	Cross image	Cross image

Centralized management

Manage multiple servers/clients with only one NAS

Integrate all backup tasks from PCs, servers, and virtual machines. With the intuitive interface, you can easily set up and monitor your data backup. Features such as notifications and regular reports are also available.

Maximize backup efficiency
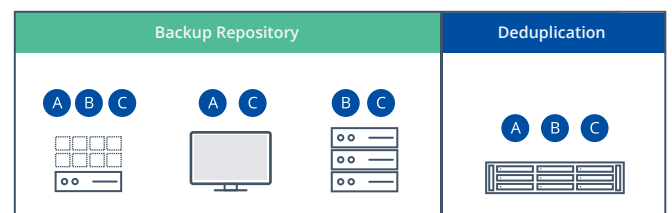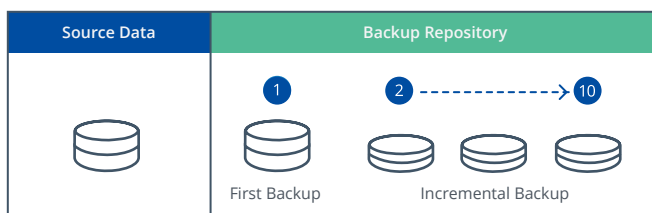
Deploy enterprise-grade technology with paid features from other software vendors

Block-level incremental backup and global deduplication dramatically reduce backup time and storage capacity. In addition, it supports CBT (Changed Block Tracking) technology when backing up Windows Server and VMware.

B

# Back up from cloud storage to local NAS

Synology NAS handles all backup tasks from personal files to corporate SaaS.

Cloud Sync

Easily back up data onto the cloud

· Compatible with about 20 public cloud services
· Select the folder and data type you wish to synchronize individually, and set up the schedule and bandwidth limit
· Support folder and data transmission encryptions
· Support real-time backup
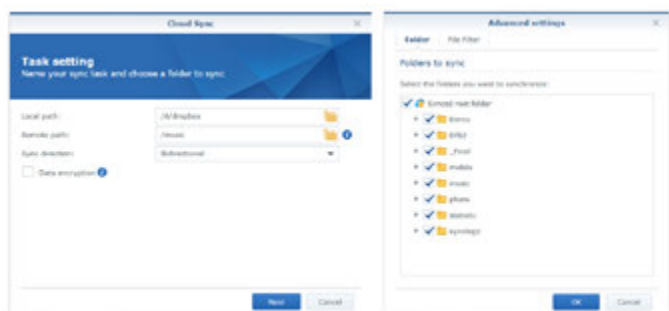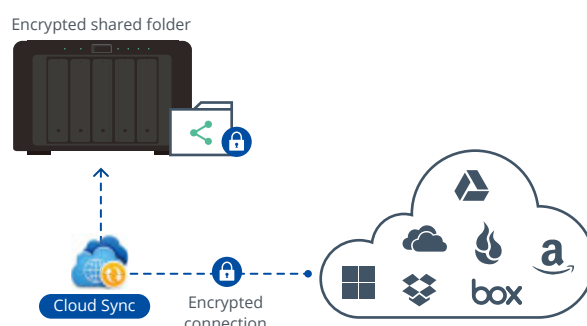
Configure sync direction, schedule, encryption, and filter rules.

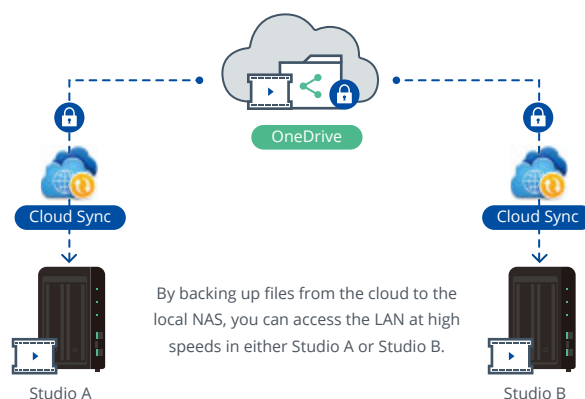## Complete setup in just a few steps

In Cloud Sync, simply log into the cloud service and follow the wizard to finish the setup

To sync to your public cloud storage, select the public cloud service in Cloud Sync and log in. You can specify the folder you wish to connect to and set the sync direction. After the setup is completed, the sync task will be initiated automatically.

High-speed data access in the local network

Access files without external Internet speed limits

Due to Internet speed limits, there may be some delay when accessing files on the cloud. By storing your data in the NAS, you can access them at higher speeds in the local network.


By backing up files from the cloud to the local NAS, you can access the LAN at high speeds in either Studio A or Studio B.

Studio A

Studio B

Active Backup for G Suite/Office 365

Secure your data on the SaaS platform by having on-premises backups

· In addition to business cloud storage, mails, calendars, and contact lists are also backed up at once
· Flexible and intuitive operation interface for both IT administrators and general employees
· Supports incremental/mirroring/multi-version backup mode with flexible version retention policies

Active Backup for G Suite

Active Backup for Office 365

Drive   Mail   Contact   Calendar
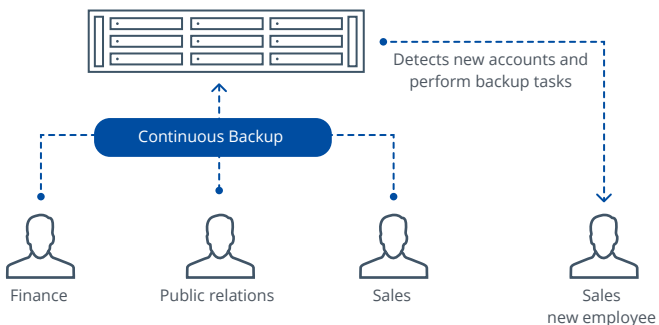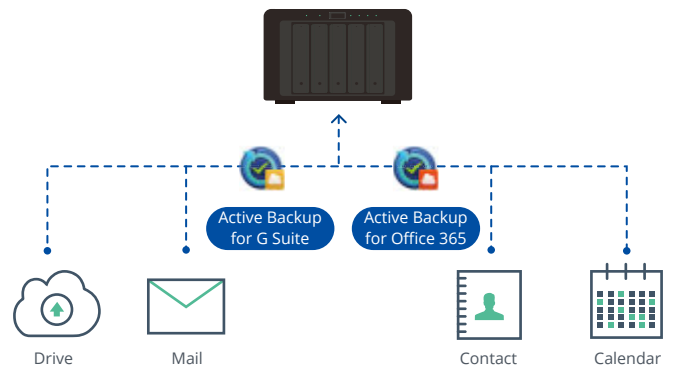
Auto-detect new user account

Ease the burden of administrators and streamline IT management

By discovering new accounts and initiating the backup task automatically, you can improve backup and management efficiency. Continuous backup can also be performed to minimize the risk of data loss.

Detects new accounts and perform backup tasks

Continuous Backup

Finance   Public relations   Sales   Sales new employee

Smart restoration

Access critical information immediately even during service downtime

By activating the Active Backup for G Suite/Office 365 portal, any authorized users, such as IT administrators and general users can easily find the data they wish to restore and export it with just a few clicks.
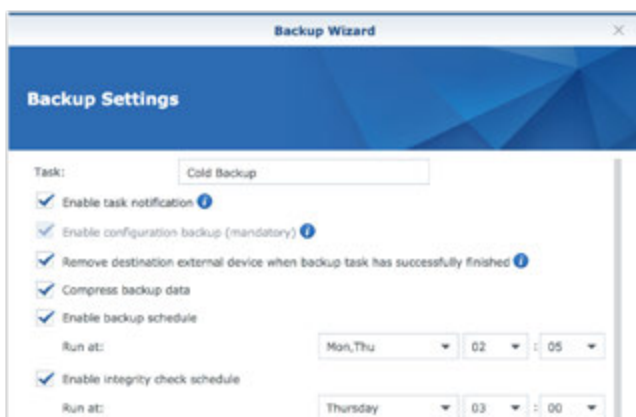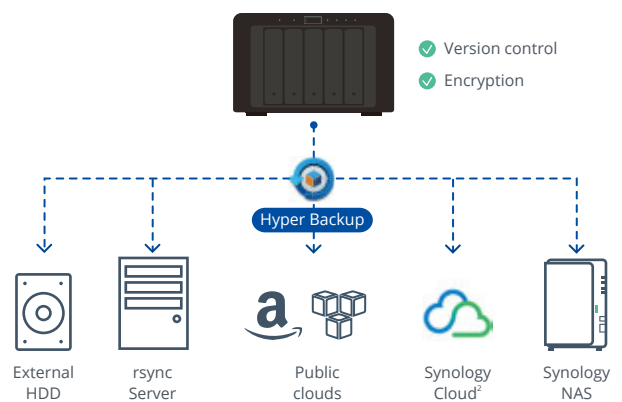
C
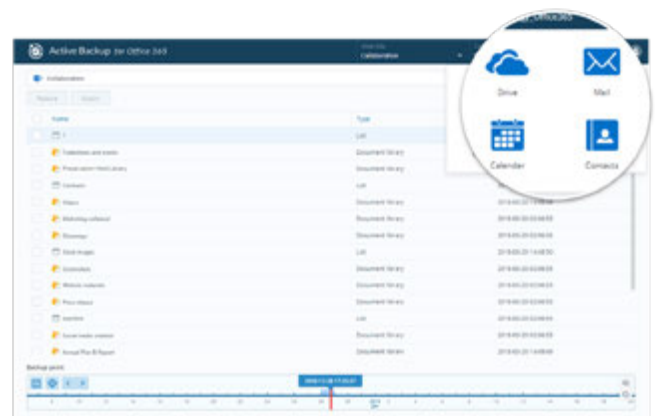
Back up your NAS to other devices

Back up the data in your Synology NAS to a remote site or other media as an effective disaster recovery or anti-ransomware solution.

Hyper Backup

Back up data and configurations on NAS to other server/media

· Synology NAS, and public cloud services can be specified as the backup destination
· Support data backup for shared folders, and application backup for packages and system settings
· Save storage space and bandwidth with high data compression rate
· Support data and transmission encryption
· Calculate the estimated amount of data, required space, and time before conducting backup tasks

✓ Version control
✓ Encryption

Hyper Backup

External HDD | rsync Server | Public clouds | Synology Cloud[2] | Synology NAS

Set up schedules to manage bandwidth efficiently

Conduct backup tasks during off-peak hours

Schedule backup tasks at network off-peak times such as midnight to avoid network bandwidth occupation during the day.
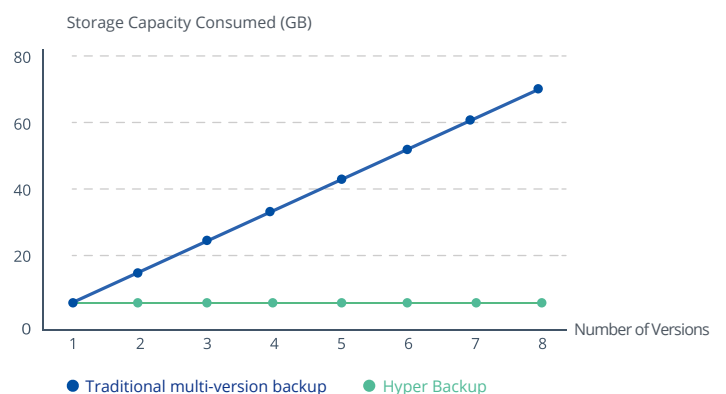
Multi-version backup

Utilize storage capacity for multiple versions

You can retain up to 65,535 versions, while incremental backup keeps the required storage even if the version number increases. Customize your own rotation policy of older versions to delete unnecessary backups.

Storage Capacity Consumed (GB)

● Traditional multi-version backup   ● Hyper Backup
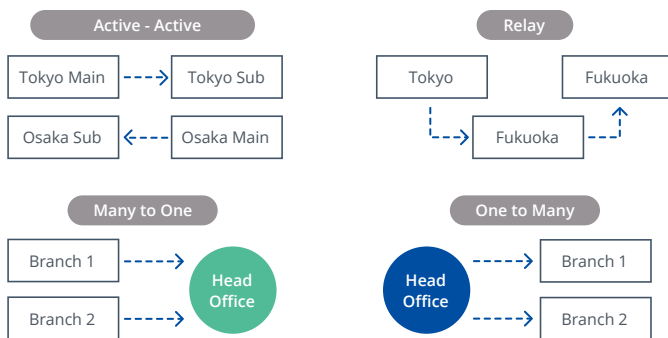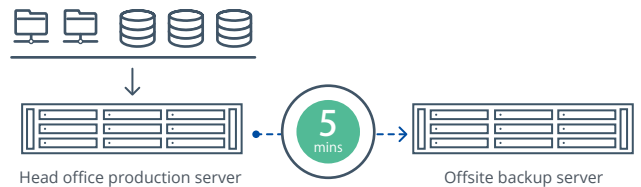
Number of Versions

Snapshot Replication

Avoid human error with snapshots and use replication as a DR countermeasure

· Take snapshots every 5 minutes for shared folders, and every 15 minutes for iSCSI LUNs in the shortest time
· Shared folder and LUN snapshot can be replicated instantly to minimize the impact on overall NAS performance
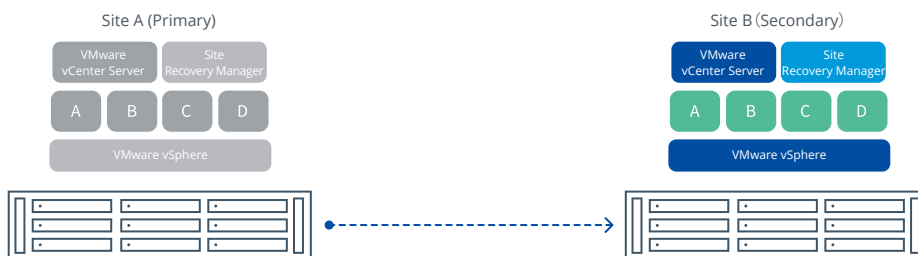· Switch services to the replicated server when the active server fails

Head office production server → 5 mins → Offsite backup server

Active - Active

| Tokyo Main | ---> | Tokyo Sub |
| Osaka Sub | <--- | Osaka Main |

Relay

| Tokyo | | Fukuoka |
| | Fukuoka | |

Many to One

| Branch 1 | ---> | Head Office |
| Branch 2 | ---> | |

One to Many

| Head Office | ---> | Branch 1 |
| | ---> | Branch 2 |

Various replication combinations

Customizable based on company's structure and policies

Configure replication with various combinations to flexibly fit into individual business environments after taking snapshots.

Shorten Recovery Time Objective (RTO)

Site A (Primary)

VMware vCenter Server · Site Recovery Manager
A · B · C · D
VMware vSphere

Site B (Secondary)

VMware vCenter Server · Site Recovery Manager
A · B · C · D
VMware vSphere

VMware Site Recovery Manager Compatible

When the active server fails, the compatible VMware Site Recovery Manager will conduct recovery directly from vCenter, simplifying the restoration process.

Other backup features

Compatible with Time Machine

NAS can be the destination for Time Machine backup destination for multiple iMac and MacBook at the same time. In order to prevent Time Machine from occupying all storage space, it is recommended to specify the size of the Time Machine folder (for example, twice or three times the storage capacity on your PC) in advance.

Copy the data of external storage device to NAS with USB Copy

NAS will recognize and conduct a copy task when a USB device is connected. Once the task is pre-configured in the NAS, the task will run automatically when the USB device is plugged into the NAS.

Back up photos from your smartphone

Back up your photos and videos from your mobile device manually or automatically to the NAS with the DS photo or Moments mobile app. You can also upload them only when Wi-Fi is connected.

Synology High Availability (SHA)

SHA combines two Synology NAS servers into one high-availability cluster (HA cluster). The active server handles all data requests and services and continuously replicates all data to the passive server. This collaboration allows the passive server to automatically take over in case of any unexpected incidents, so that services and applications can be recovered within minutes.

Spec/ Backup Types	PC/Server Backup		Cloud Storage Backup		NAS Backup	
Feature Name	Cloud Station Backup	Active Backup for Business	Cloud Sync	Active Backup for G Suite/ Office 365	Hyper Backup	Snapshot Replication
Available Synology Models	All models	plus/xs/ FS Series and Btrfs-compatible models	All models	plus / xs / FS Series and Btrfs-compatible models	All models	plus/xs/ FS Series and Btrfs-compatible models
Backup Destination	NAS	NAS	NAS or Cloud	NAS	Cloud/NAS/ External HDD/ rsync server	NAS
Backup Mode	Incremental	Multiversion Mirroring Incremental	Mirroring	Multiversion Mirroring Incremental	Mirroring Incremental	Snapshot and Replication
Number of Versions	32	256 per task	1	256 per task	65,535 per shared folder, 1 per LUN	1,024 per shared folder, 256 per LUN, 65,535 in total
Version Retention	Remove older versions with Intelli-versioning	Remove older versions with Smart Recycle	Not applicable	Remove older versions with Smart Recycle	Remove older versions with customized rules	Remove older versions with customized rules
Recovery Point Objective (RPO)	Real-time	1 time	Real-time	1 time	1	Shared folder: 5 mins LUN: 15 mins
Data Compression	—	With Agent: V Agentless: —	—	—	V	—
Transmission Enccryption	V	V	V	V	V	V
Data Encryption	V	— (Shared folder encryption)[*1]	V	— (Shared folder encryption)[*1]	V	—
Deduplication	—	V (File / Cross image)[*2]	—	V (File only)[*3]	V	—
NAS Package And System Configuration Backup	—	—	—	—	V	—
Version Browser	Cloud Station Backup Version Explorer	Web portal	Not applicable (Depending on cloud services)	Web portal	Hyper Backup Explorer	File Station/Windows File Explorer

* 1: Data backed up to NAS with Active Backup for Business/G Suite/Office 365 can be encrypted for each folder.

* 2: Cross-images deduplication is applied when backing up Windows PC/Windows Server/VMware.

* 3: Files are subject to deduplication. Meanwhile, metadata such as e-mails, contact lists, calendars are not eligible for deduplication.

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