Synology®

Backup Solution Guide 2023

Introducing backup solutions in different user scenarios

Contents

Synology Backup and recovery solutions

Data protection is essential in any organization. At Synology, we have made it our top priority. Our innovative backup and recovery solutions help people and organizations worldwide implement effective data protection strategies, ensuring continued operations and quick recovery in the face of system downtime, data loss events, and malicious attacks.

Our solutions protect

470,000+
Organizations

12.5 million+
SaaS Accounts

1.3 million+
Endpoints & VMs

Comprehensive workload protection

Safeguard Windows, macOS, and Linux systems, virtual machines, and file servers with an integrated backup solution, and keep physical copies of data stored on Microsoft 365, Google Workspace, Dropbox, Amazon Web Services, and other cloud services.

SaaS	Virtual Machine	Physical Server	PC/Mac
Microsoft, Google Workspace	Hyper-V, vmware	Windows Server, Linux	Apple, Microsoft

File Server/NAS

Synology | NUTANIX | NetApp | Generic File server (SMB, rSync)

Key features

Protect data scattered across public cloud services, virtual or physical servers, and employee workstations with a hybrid backup infrastructure.

Secure
Protect backup data stored locally or in the cloud with multiple layers of encryption

Intuitive
Monitor all backup tasks from a central console and manage deployments at scale

Hybrid
Protect cloud data with physical copies and backup up local infrastructure to the cloud
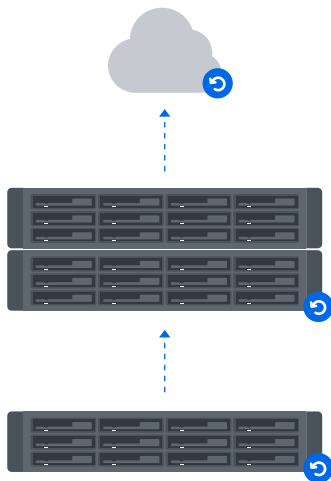
Efficient
Minimize storage and bandwidth use with built-in compression and deduplication

What makes backup different from synchronization?

Backup
- Uni-directional
- Save multiple file versions and restore previous file versions
- Optimize storage use with global deduplication and backup compression

Sync
- Uni-directional and bi-directional
- Access files in real time
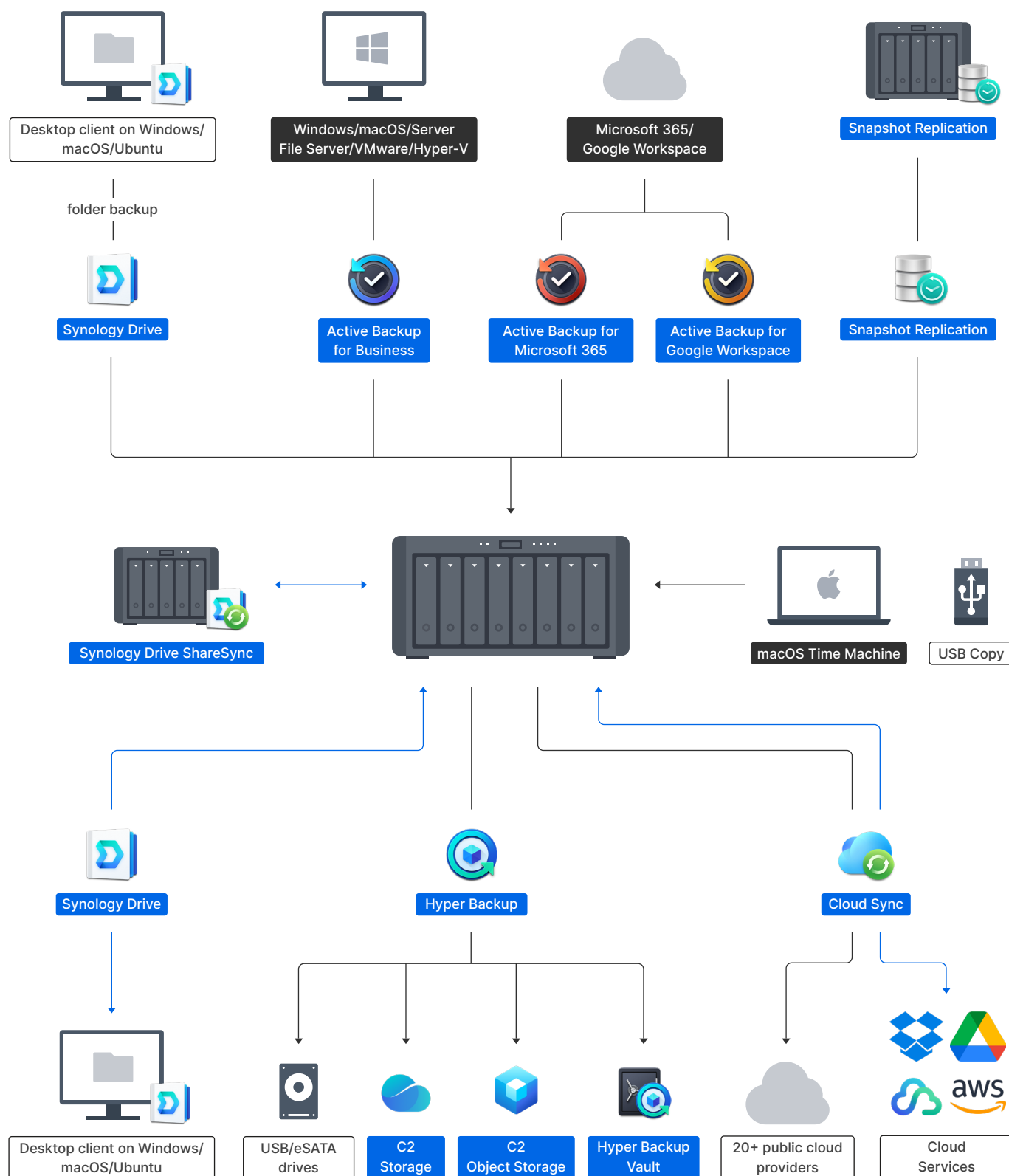- Source and destination file structure remain the same

Overview of Synology backup solutions

Solutions to safeguard hybrid workloads

— Data sync direction   — Data backup direction

Desktop client on Windows/macOS/Ubuntu

Windows/macOS/Server File Server/VMware/Hyper-V

Microsoft 365/Google Workspace

Snapshot Replication

folder backup

Synology Drive

Active Backup for Business

Active Backup for Microsoft 365

Active Backup for Google Workspace

Snapshot Replication

Synology Drive ShareSync

macOS Time Machine

USB Copy

Synology Drive

Hyper Backup

Cloud Sync

Desktop client on Windows/macOS/Ubuntu

USB/eSATA drives

C2 Storage

C2 Object Storage

Hyper Backup Vault

20+ public cloud providers
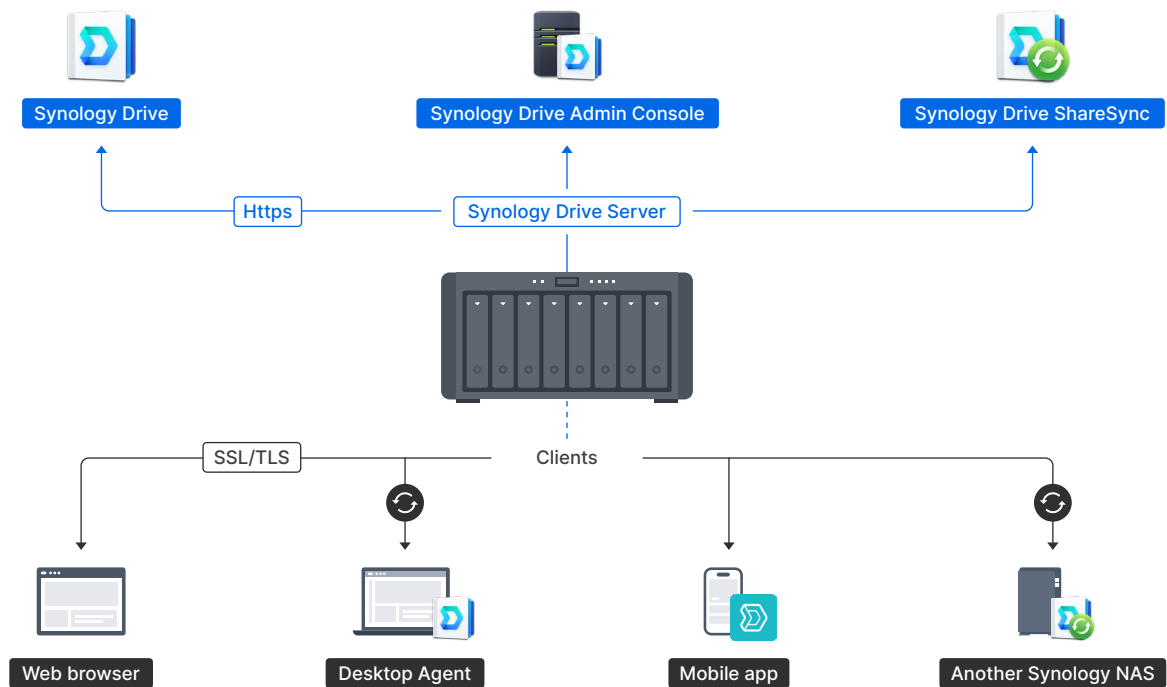
Cloud Services

Back up files and folders

Protect your PCs, servers, and virtual machines with solutions by Synology

Synology Drive Client

Boost endpoint security

- Keep individual files backed up in real time and store up to 32 historical versions of each file
- Retain the most significant changes with intelliversioning
- Reduce storage capacity with incremental backups
- Back up multiple PCs at the same time
- Compatible with Windows, macOS, and Linux

Synology Drive

Synology Drive Admin Console

Synology Drive ShareSync

Https

Synology Drive Server

SSL/TLS   Clients

Web browser

Desktop Agent

Mobile app

Another Synology NAS

Cross-device management made easy

Automatically back up data from your smartphone or tablet with the Synology Drive mobile app.
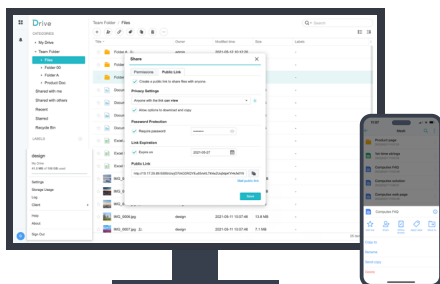
Secure data syncing

Sync files and folders between devices to keep your team on the same page.

Project			
Name	Status	Date modified	Type
Export	⊘ Downloaded	10/30/2022 9:59 AM	File folder
Frame	☁ Online	3/15/2022 4:27 AM	SVG File
Mockup	⊘ Pinned	4/30/2022 5:16 AM	PNG File
Layout	☁ Online	8/15/2022 9:30 AM	PDF File
Spec	⊘ Downloaded	9/21/2022 8:16 AM	TXT File

Back up PCs, Macs, physical servers, and virtual machines

Perform full-system backups to safeguard endpoints

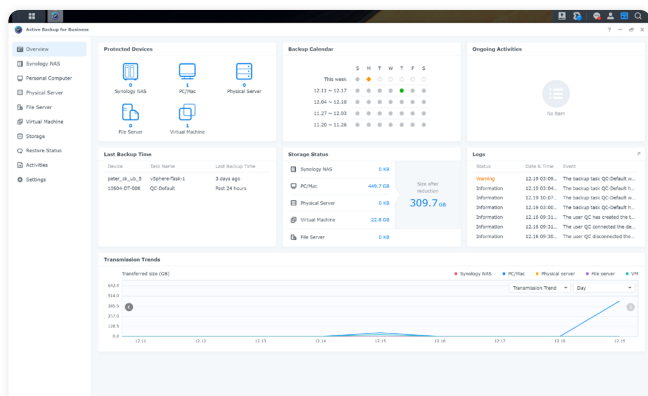
Active Backup for Business

Protect IT environments with cost-effective solutions

- Manage backup tasks from PCs, Macs, Windows and Linux servers, ONTAP and Nutanix environments, VMware, and Hyper-V via a centralized portal
- Back up and secure as many devices or instances as needed, without worrying about licenses
- Run VM images directly on Synology VMM, perform backup verification, failover tests, and more

| Comparison Table	Agentless		Agent-based	
	File	VM Hypervisor	Windows PC/Mac	Server
Image Backup	—	✓	✓	✓
Image Restoration	—	✓	✓	✓
File / Folder Restoration	✓	✓	✓	✓
Block-level Deduplication	File	Cross image	Cross image	Cross image

Centralized management

Manage backups of PCs, Macs, servers, and virtual machines from a single platform. Monitor backup tasks, receive notifications, and generate reports on an intuitive interface.

Backups made efficient

Reduce backup times and maximize storage space with changed block tracking (CBT), resilient change tracking (RCT), and global deduplication.
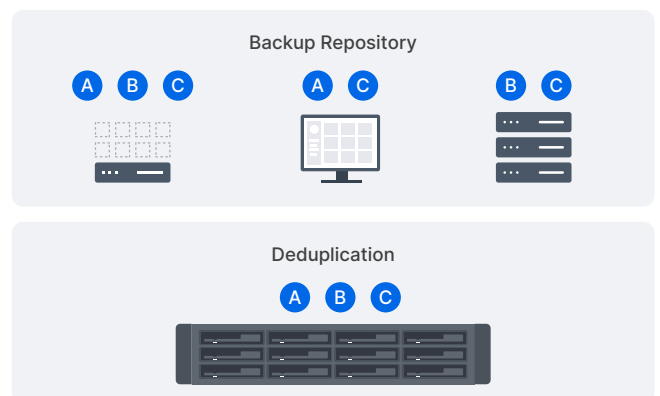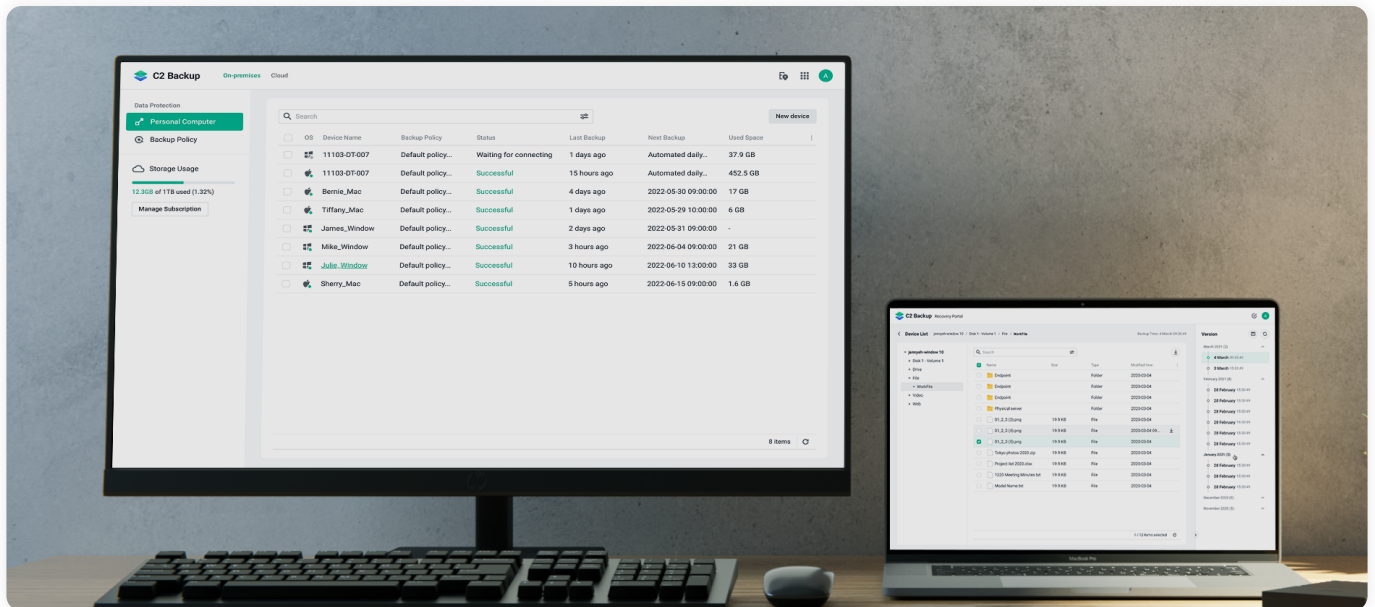
C2 Backup for Businesses

(content)

- Safeguard Windows and Mac endpoints with backups to a secure cloud platform
- Shield corporate data against unauthorized access and data loss
- Manage large-scale deployments from a centralized portal

Protect your workloads from one platform

Back up all digital data onto one platform to prevent data loss, protect against malware attacks, and ensure business continuity.

Boost backup efficiency

Reduce backup sizes with incremental backups, maximize storage efficiency with intelliversioning, and reduce overall backup times.
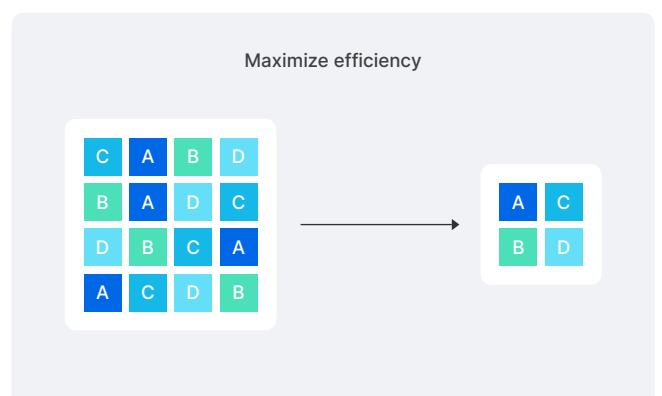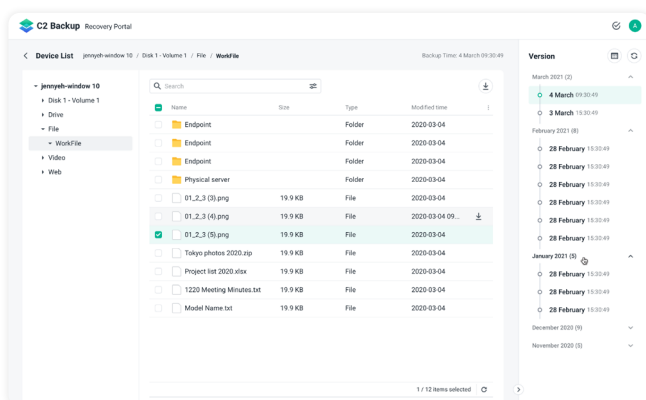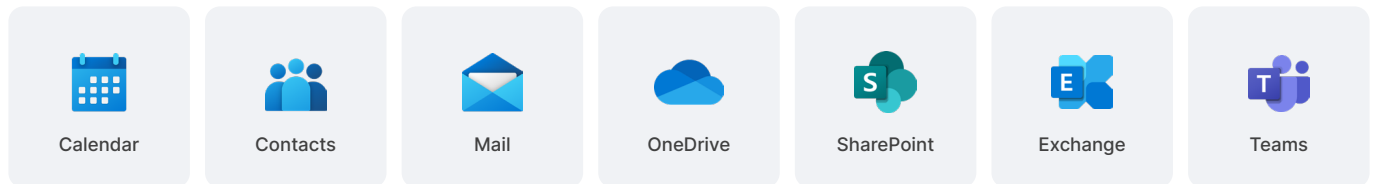
Back up Microsoft 365

Protect Microsoft 365 services including OneDrive for Business, SharePoint Online, Exchange Online, and Teams

Active Backup for Microsoft 365

Secure Microsoft 365 data with an on-premises backup solution

- Back up OneDrive files, emails, calendars, and contact lists
- User-friendly management interface
- Continuous, manual, and scheduled backups
- Flexible retention policies

| Calendar | Contacts | Mail | OneDrive | SharePoint | Exchange | Teams |

C2 Backup for Businesses

Safeguard Microsoft 365 backups by automatically backing up data to the cloud

- Protect Microsoft 365 business data
- Manage large-scale deployments from a centralized portal
- Backup data on C2 servers is kept secure with AES-256 encryption

Microsoft 365 → C2 Backup → Synology C2
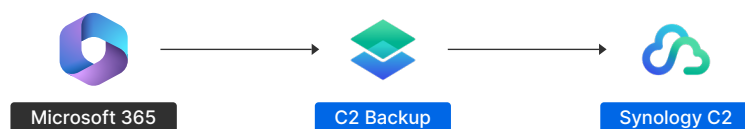
Protect user accounts with backup automation
Automated backups with adjustable schedules safeguard each new account as it is added to ensure business continuity.

Back up Google Workspace

Protect Google services including Google Drive, Gmail, Google Contacts, and Google Calendar

Active Backup for Google Workspace

Protect Google Workspace data with backup to local Synology systems

- Safeguard your data against unexpected loss, service downtime, malware attacks, and other threats
- Schedule backups at convenient times to ensure availability
- Let users restore data quickly through a self-service recovery portal
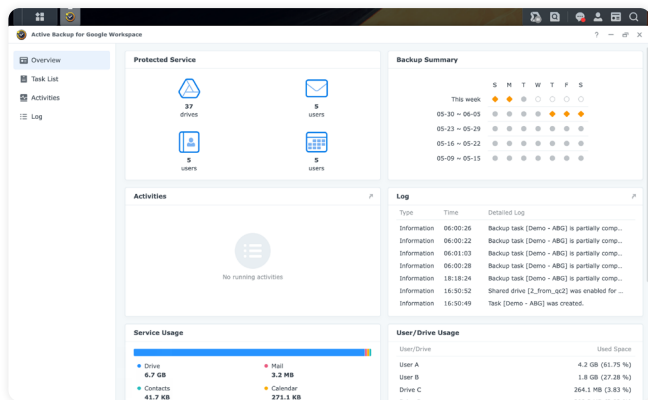
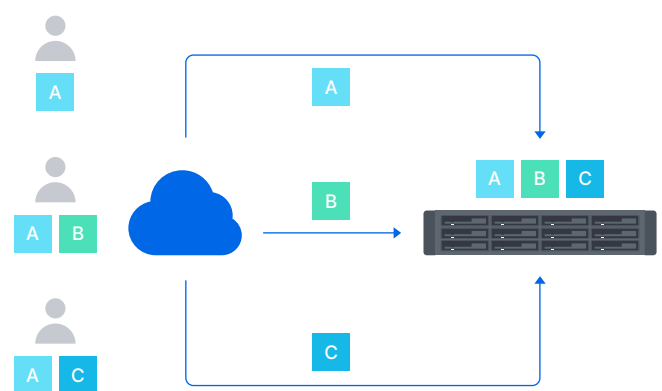| Drive	Gmail	Contacts	Calendar

Manager backups from one platform

Manage and monitor file transfers, storage space, backup histories from a central console.

Improved storage efficiency

Save storage space by backing up identical data only once with block-level deduplication.

Sync data between private and public clouds

Safeguard scattered data and keep your files synchronized

Cloud Sync

Flexibly back up and sync data from Synology servers and public clouds

- Compatible with over 20 major public cloud platforms
- Synchronize files and folders individually
- Set backup schedules and bandwidth limits
- Encrypted transmission of files and folders
- Supports backup in real time
- Protect data stored on private servers and public cloud services with uni-directional or bi-directional syncing

Microsoft Azure	Dropbox	OpenStack	Backblaze	Amazon Web Services	Drive	Synology C2

Access your files from anywhere

Deploy Synology servers as a local cache to give teams fast access to frequently used data on public and private clouds at local network speeds.
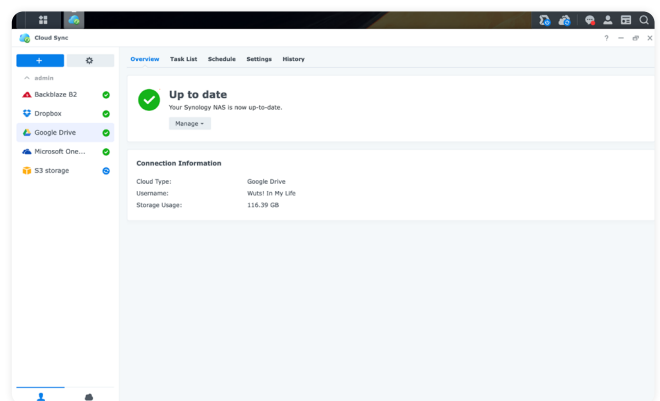
NAS

Cloud Syn

Cloud services

Management made simple

Monitor user activity to ensure that synchronization tasks comply with external and internal regulations.
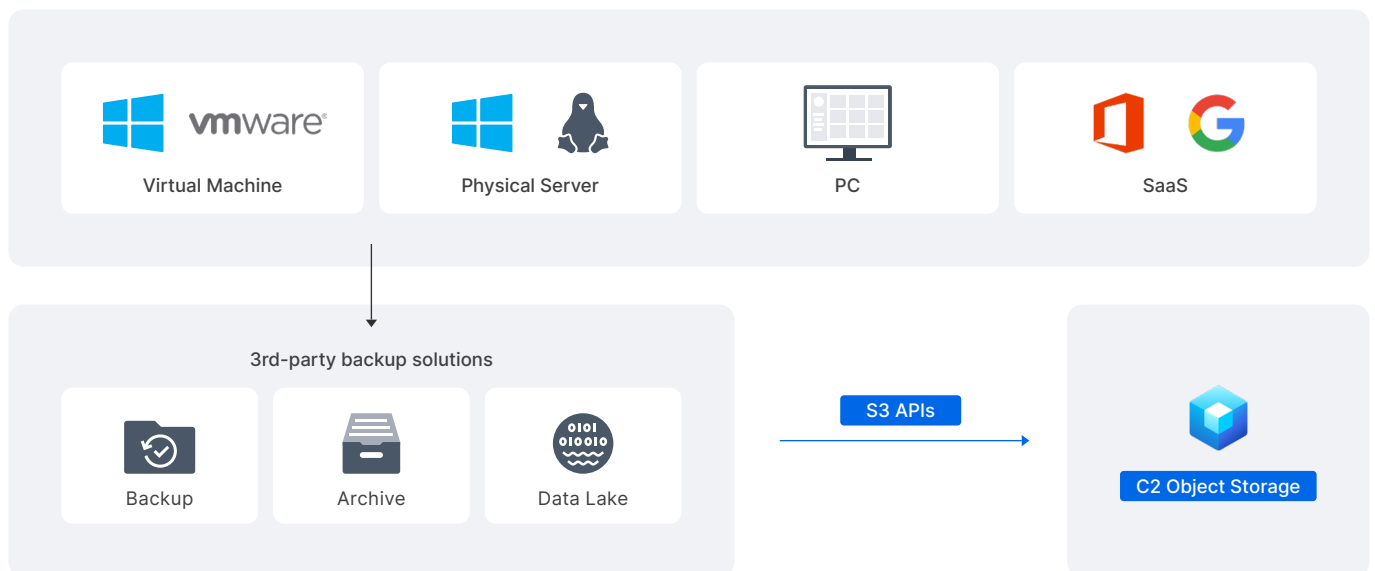
Transfer and back up files to cloud object storage

Protect your organization's unstructured data
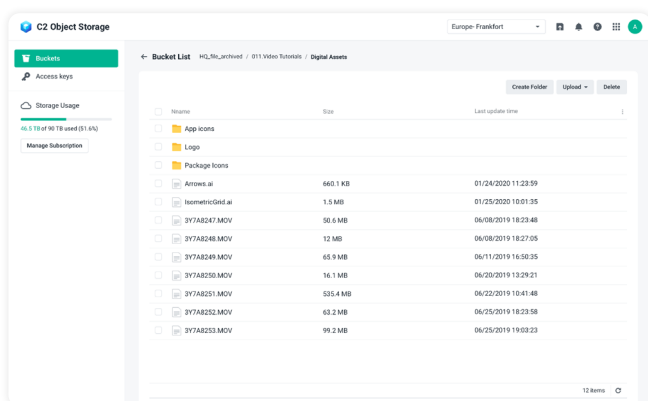
C2 Object Storage

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- Compatible with S3 APIs
- Data centers in three regions worldwide
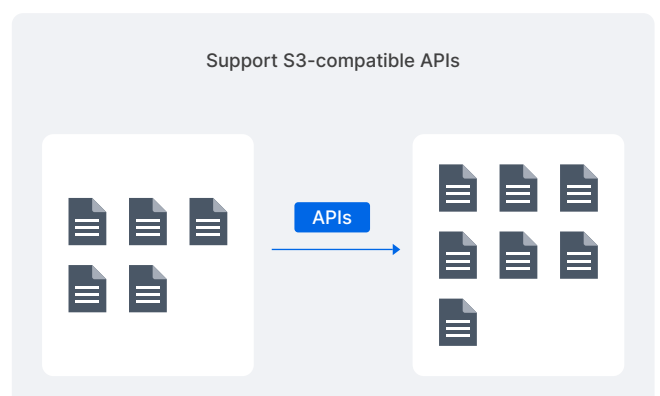- Archive, move, and retrieve data flexibly

Manage unstructured data at scale

Obtain insights from your data with big data analytics and machine learning.

Reliable backup and recovery

Store data in our EU, US, and APAC data centers with 99.999999999% data durability and 99.99% service availability.

Back up Synology servers

Protect on-premises data by backing up data onto a remote server or into the cloud

Hyper Backup

Perform folder, LUN, software, and full-system backups

- Store backups on secondary Synology servers and on public cloud services
- Maximize storage capacity with data deduplication and reduce bandwidth use with data compression
- Easily calculate the optimal storage capacity for your backup needs
- Encrypted transmission of files and folders
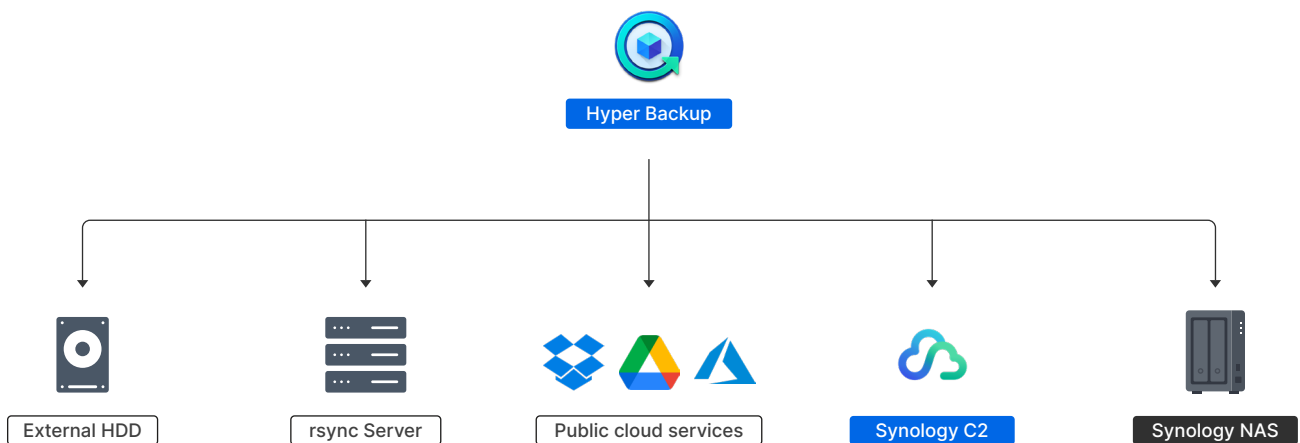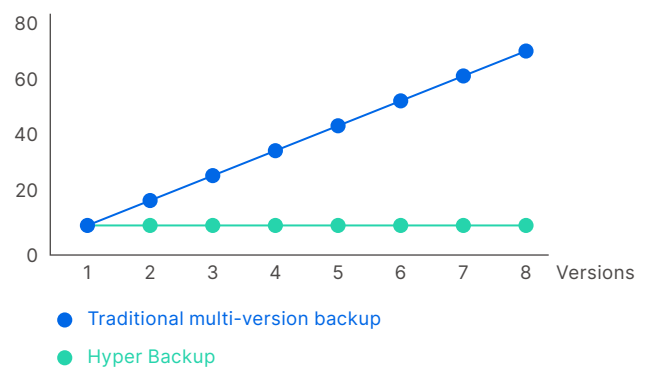

Manage bandwidth usage effectively

Schedule backup tasks after business hours to avoid network bandwidth congestion during the day.

Increased storage space for multi-version backups

Retain multiple file versions with incremental backups. Customize your retention policy to periodically remove unnecessary backup versions.
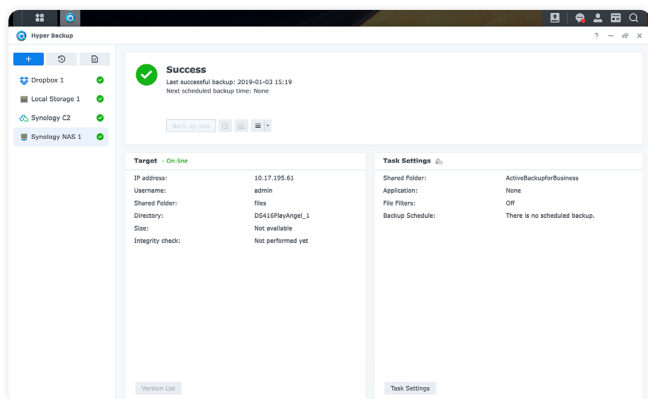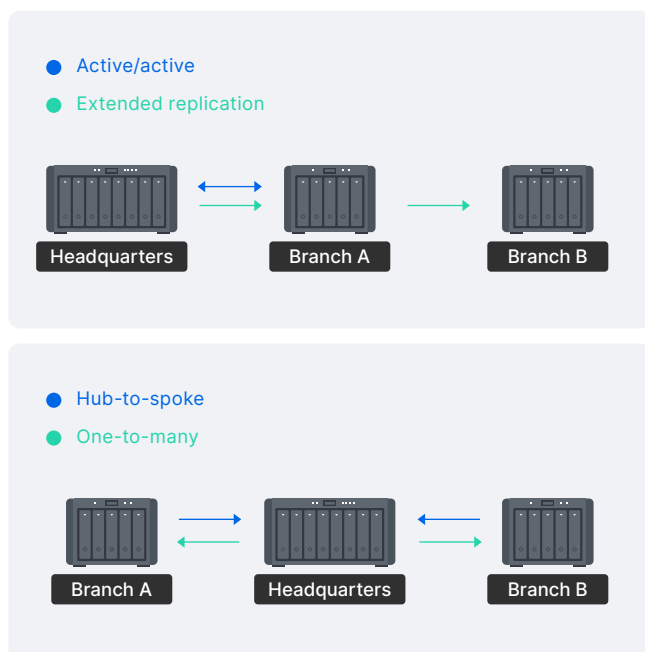
Snapshot Replication

Powerful point-in-time snapshots to safeguard data

- Replicate shared folder and LUN snapshots instantly
- Create immutable snapshots to prevent accidental data modification
- Recover file or folder-level snapshots with File Station or Windows File Explorer without the help of IT admins
- Switch between active/passive servers if one server fails

Snapshot Replication
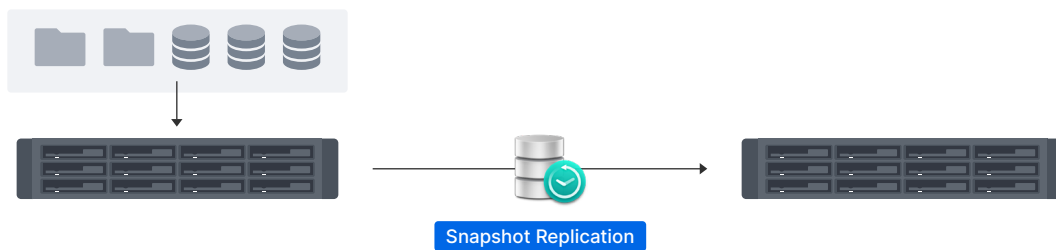
Flexible replication strategies to optimize your disaster recovery plan

Create replication rules to fit flexibly into hybrid workplaces.

- Active/active
- Extended replication

Headquarters — Branch A — Branch B

- Hub-to-spoke
- One-to-many

Branch A — Headquarters — Branch B

Reduced recovery time objective (RTO)

Streamline the restoration process with VMware Site Recovery Manager. In case of server failures, data can be restored directly via VMware vCenter.

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 |
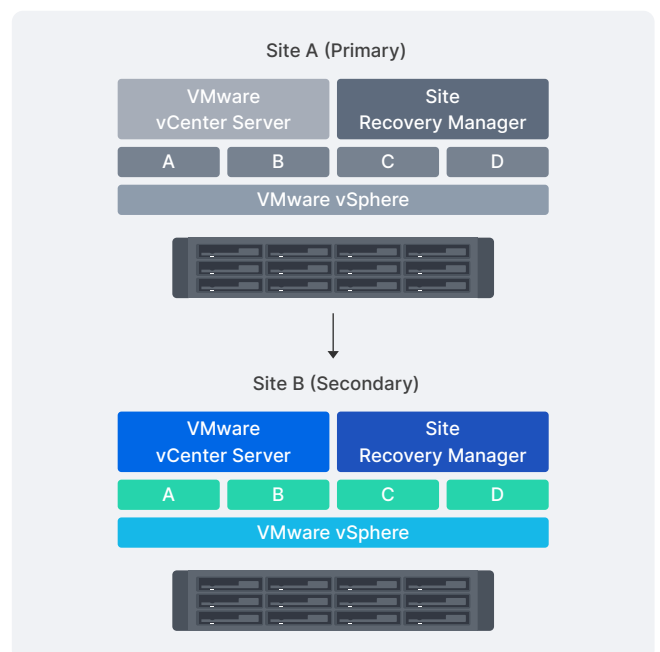
Active Backup for Business Agent (DSM)

Protect user data, system configurations, and packages

- Improve storage capacity with data deduplication and reduce backup times with incremental backups
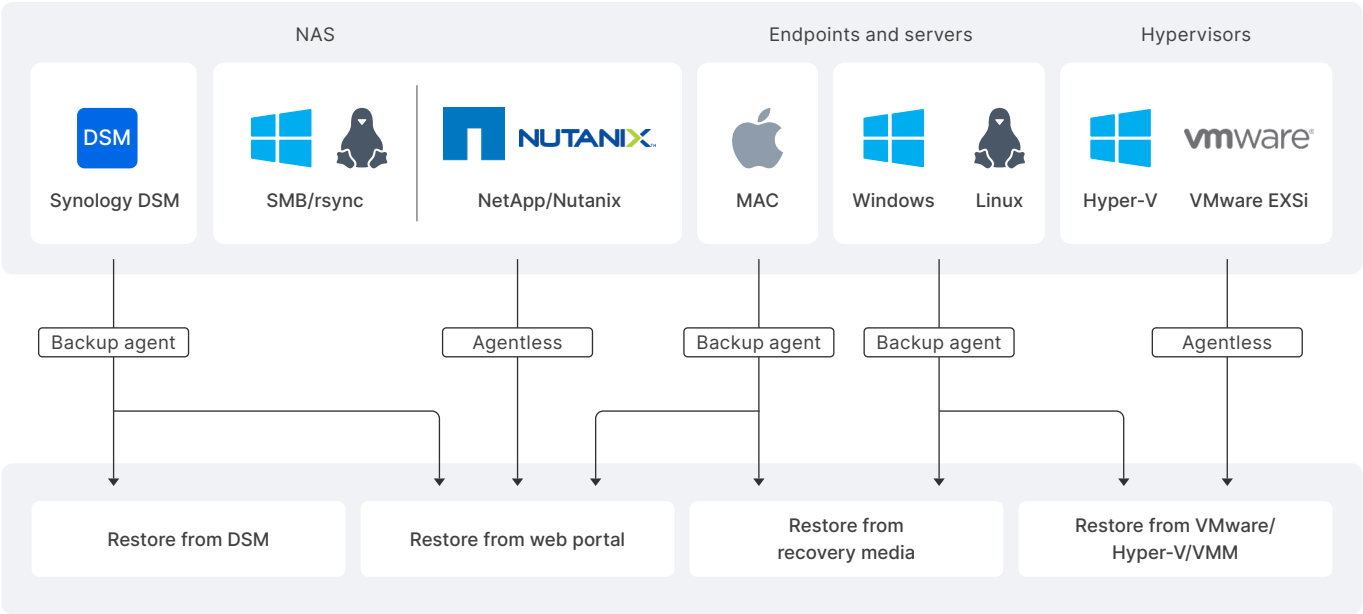- Reduce IT overhead with an intuitive user interface
- Encrypted transmission of files and folders

NAS			Endpoints and servers		Hypervisors	
DSM Synology DSM	SMB/rsync	NetApp/Nutanix	MAC	Windows · Linux	Hyper-V · VMware EXSi	

Backup agent	Agentless	Backup agent	Backup agent	Agentless

Restore from DSM	Restore from web portal	Restore from recovery media	Restore from VMware/ Hyper-V/VMM

Backup and recovery solutions for Synology servers

Find out how you can back up and recover your entire Synology server with our solutions.

	Hyper Backup	Snapshot Replication	Active Backup for Business
Backup destination	External drive/ rsync server/ cloud/ Synology servers	Synology servers	Synology servers
Use case	Backing up data onto remote Synology servers and C2 Storage	Instant/fast disaster recovery	Backing up data onto local Synology servers

Protect your data with a 3-2-1 backup strategy

Establish a 3-2-1 backup strategy and avoid potential data loss due to ransomware attacks and other cyberthreats, data corruption, or destruction of the primary site.

1 Maintain at least 3 copies of your data

**2** Store these copies on at least 2 different types of media

3 Keep at least 1 copy of the data off-site

Implement the 3-2-1 backup strategy with Synology solutions

Single office

Team members or multiple teams operating from a single location can back up all endpoints onto a central server with Synology Drive, then copy it off-site onto Synology C2 Storage or to Hyper Backup Vault using Hyper Backup.

macOS — PC → Synology Drive → [NAS] → Hyper Backup → C2 Storage **or** Hyper Backup Vault
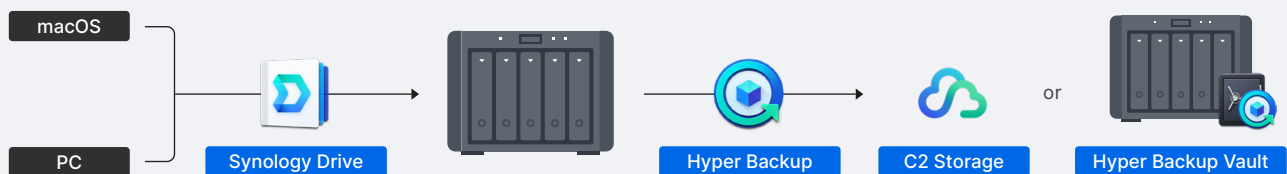
Fully remote

Teams and individuals working remotely can directly back up physical servers, PCs, Macs, as well as Microsoft 365 and Google Workspace accounts to Synology C2 Storage or Hyper Backup Vault with Hyper Backup.

Server — PC — macOS → ABB → [NAS] → Hyper Backup → C2 Storage **or** Hyper Backup Vault
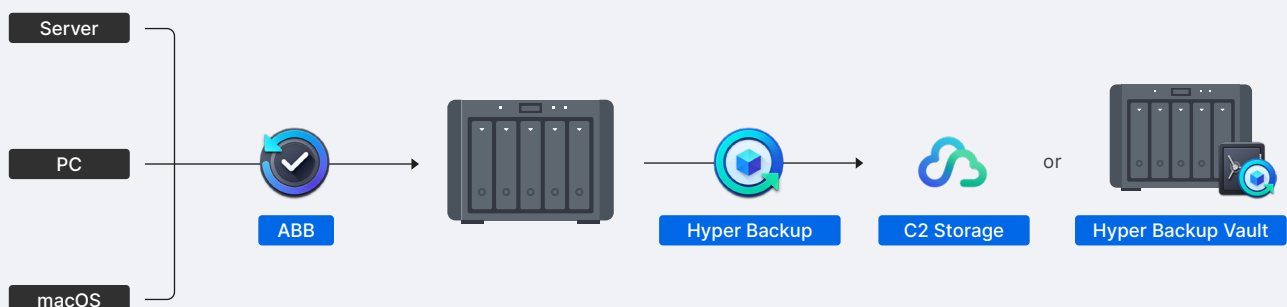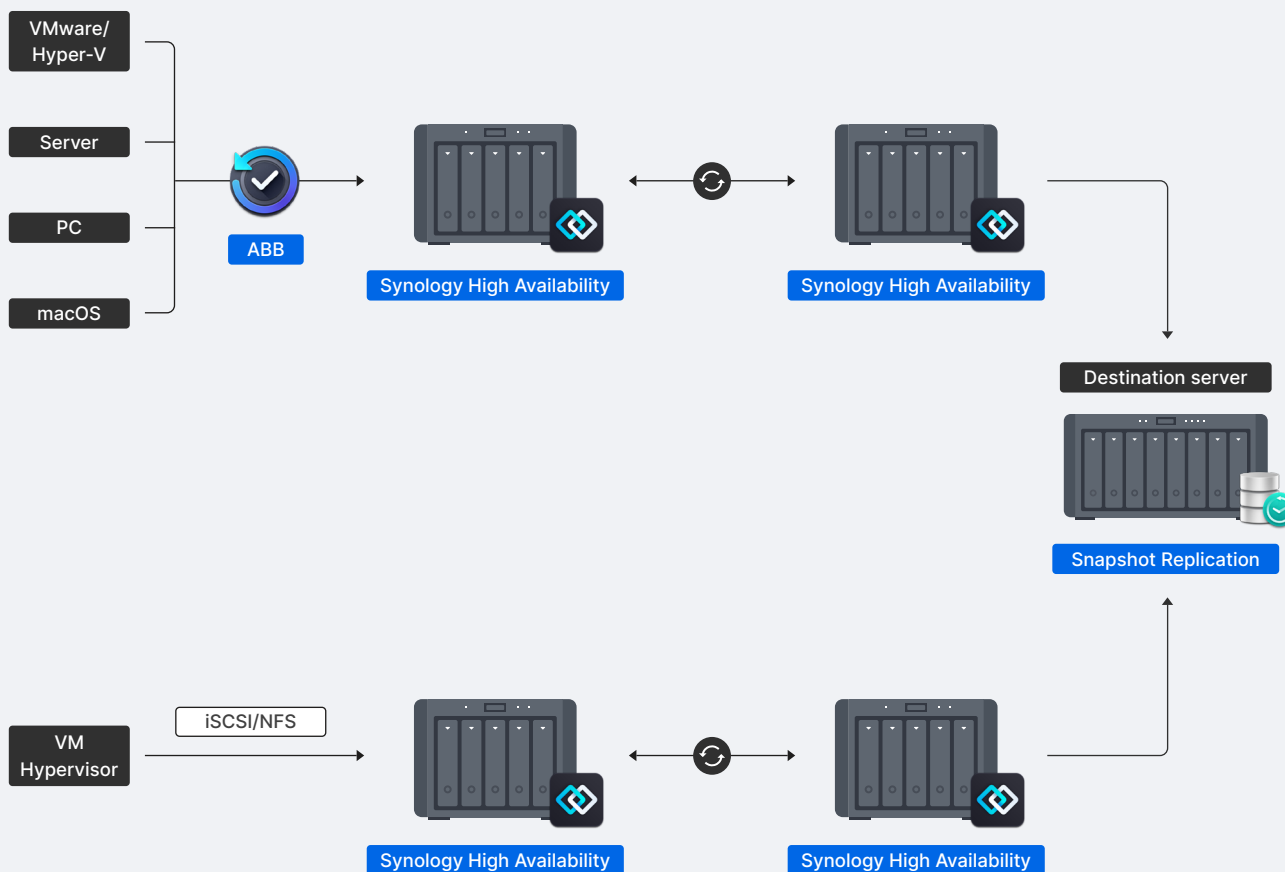
Hub-spoke model (51-200 devices)

Organizations operating across multiple locations can sync data from each local server onto a central server at headquarters and continuously back up this data onto a secondary off-site Synology server.
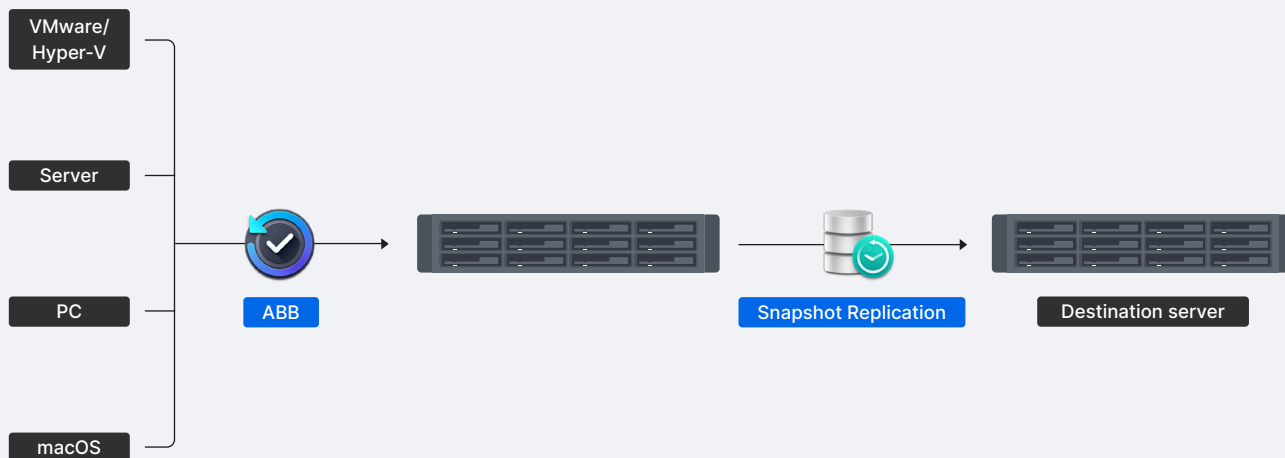
Enterprise model (200+ devices)

Large organizations can back up endpoints, VMs, and more with Active Backup for Business onto central servers and back this data onto a secondary off-site Synology server to ensure continued operations at all times.

Backup type	Files and folders	PCs/Macs/servers/VMs		SaaS			
Package	Synology Drive	Active Backup for Business	C2 Backup for Businesses	Cloud Sync	Active Backup for Google Workspace	Active Backup for Microsoft 365	C2 Backup for Business
Models	All models	Plus/XS/XS+/ SA/ FS series	—	All models	Plus/XS/XS+/ SA/ FS series	Plus/XS/XS+/ SA/ FS series	—
Backup source	Windows, Macs, and Ubuntu	Windows PC, Macs, physical and virtual servers, and file servers	Windows and Macs	20+ cloud storage[1]	Google Workspace	Microsoft 365	Microsoft 365
Backup destination	Synology servers	Synology servers	C2 Backup for Business	Synology servers	Synology servers	Synology servers	C2 Backup for Business
Backup mode	Incremental backups	Incremental backups	Incremental backups	Mirroring	Incremental backups	Incremental backups	Incremental backups
Maximum versions	32	Unlimited	Unlimited	1	Unlimited	Unlimited	Unlimited
Retention policy	Intelliversioning technology	Grandfather-Father-Son retention policy[2] and/or remove older versions after a set period of time.	Grandfather-Father-Son retention policy[2] and/or remove older versions after a set period of time.	—	Remove older versions after a set period of time.	Remove older versions after a set period of time	Remove older versions after a set period of time
Backup frequency	Real-time or scheduled backups (day or hour)	Scheduled backups (hour)	Scheduled backups (day)	Real-time	Real-time or scheduled backups (hour)	Real-time or scheduled backups (hour)	Scheduled backups (day)
Data compression	—	✔	—	—	—	—	—
Transmission encryption	✔	✔	✔	✔	✔	✔	✔
Data encryption	✔	— (Shared folder encryption)[3]	✔	✔	— (Shared folder encryption)[3]	— (Shared folder encryption)[3]	✔
Deduplication	—	✔ (File/cross image)	—	—	✔ (File-level per task)[4]	✔ (File-level per task)[4]	—
Packages and system configuration backup	—	—	—	—	—	—	—
Recovery portal	Synology Drive Client	Active Backup for Business Recovery Portal	C2 Backup Recovery Portal	Depends on the cloud service	Active Backup for Google Workspace Recovery Portal	Active Backup for Microsoft 365 Recovery Portal	C2 Backup Recovery Portal

Backup type	Existing applications	Synology servers		
Package	C2 Object Storage	Hyper Backup	Snapshot Replication	Active Backup for Business
Models	—	All models	Plus/xs/xs+/SA/FS series using the Btrfs file system	18 series and above Plus/xs/xs+/SA/FS series using the Btrfs file system
Backup source	• Veeam Backup and Replication • Cyberduck • MSP360 Cloudberry	Synology NAS	Synology NAS	Synology NAS
Backup destination	C2 Object Storage	Cloud/Synology servers/external HDD/ rsync server	Synology servers	Synology servers
Backup mode	Depends on cloud service provider	Incremental backups and mirroring	Snapshot replication and immutable snapshots (WORM feature in DSM 7.2)	Incremental, multi-version backups, and mirroring
Maximum versions	Depends on cloud service provider	65,535 per shared folder, 1 per LUN	1,024 per shared folder, 256 per LUN, 65,535 in total	Unlimited
Retention policy	Depends on cloud service provider	Remove older versions after a set period of period	Grandfather-Father-Son (GFS) retention policy	Grandfather-Father-Son (GFS) retention policy
Backup frequency	Depends on cloud service provider	Scheduled backups (day or hour)	• Shared folder Every 5 minutes • LUNs Every 15 minutes	Scheduled backups (day or hour)
Data compression	—	✓	—	✓
Transmission encryption	✓	✓	✓	✓
Data encryption	Encryption at rest	✓	—	—
Deduplication	—	✓	—	✓
Packages and system configuration backup	—	✓	—	✓
Recovery portal	Self-service recovery portal	Hyper Backup Explorer on Windows, Macs, Ubuntu & Synology C2 web portal	File Station and Windows File Explorer	Self-service recovery portal

1. Cloud Sync supports public cloud services such as Alibaba Cloud Object Storage Service (OSS), Amazon S3 Cloud Object Storage, hicloud S3 and SFR NAS Backup, Backblaze B2, Baidu Cloud, Box, Dropbox, Google Cloud Storage, Google Drive, Microsoft OneDrive, Microsoft Azure, OpenStack Swift compatible cloud services (IBM SoftLayer, RackSpace, RackSpace UK), and more.
2. The Grandfather-Father-Son (GFS) retention policy is available for backing up on-prem servers only.
3. Folders backed up to Synology servers with Active Backup for Business/Active Backup for Google Workspace/Active Backup for Microsoft 365 can be encrypted.
4. Files, excluding metadata such as e-mails, contact lists, and calendars, are subject to deduplication.

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