

Synology®

S Y N O L O G Y  
2 0 2 0

# Securing Digital Assets on Hybrid Platforms



Business Development  
Jeremie Francois



Discover  
Issues

Troubleshooting

We know Synology  
better than anyone else

# Synology Active Insight

Predict. Notify. Resolve



Customer  
Support Experience



Partners



# Some SSD drives may be unresponsive after 1,700 cumulative idle power-on hours

Applies to: Windows Server 2019 Datacenter, Windows Server 2019 Standard, Windows Server 2016 Datacenter, [More](#)

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## Symptoms

Some 1.92 TB and 3.84 TB capacities SSD may experience an NAND "channel hang" condition that could cause the drive to become unresponsive after approximately 1,700 hours of cumulative idle power-on time.

When this issue occurs on a Windows Server Storage Spaces Direct (S2D) cluster, the cluster may experience any of the following symptoms:

- Slow workload performance.
- Virtual disks in the cluster have an **Operational Status** value of **Detached** or **No Redundancy**.
- The physical disk reports a status of **Lost Communication** or **IO Error**.
- The physical disk reports a status of **Transient Error** if the cluster node is restarted while the disk is in the unresponsive state.

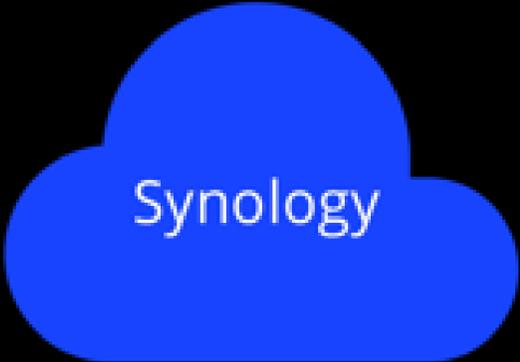
## Resolution

The NAND "channel hang" issue is currently addressed in the Maintenance Release 1 (MR1) of firmware as of March 2019. We recommend that you update to the latest firmware before the drive reaches 1,700 cumulative idle power-on hours.

Run the SSD Data Center Tool to inspect all affected disks as soon as possible, and take corrective actions as recommended. The SSD Data Center Tool is available at the following website:

[SSD Data Center Tool](#)

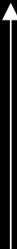
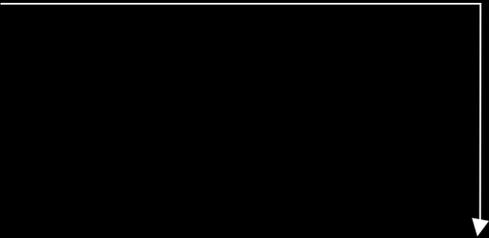
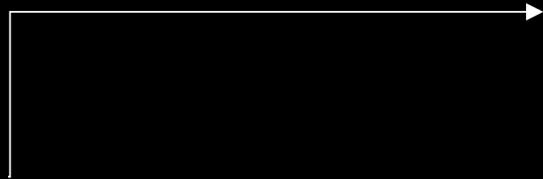
The following MR1 firmware binary is available for use together with the Storage Spaces Direct automated firmware update method, as appropriate for your device.



Actively update:

- status
- performance

Actively notify when  
problems are  
identified



# ActiveInsight

Login

Overview

Host

Event



09-14-2019 11:10:02

### Inconsistent Btrfs checksum

Checksum inconsistency caused by hardware or memory issues may result in file reading and writing errors.

UK-1

FS6400

1980PSN000543



Remind me in

1 day

2 days

3 days

4 days

5 days

6 days

7 days

10 days

20 days

30 days

Never remind again

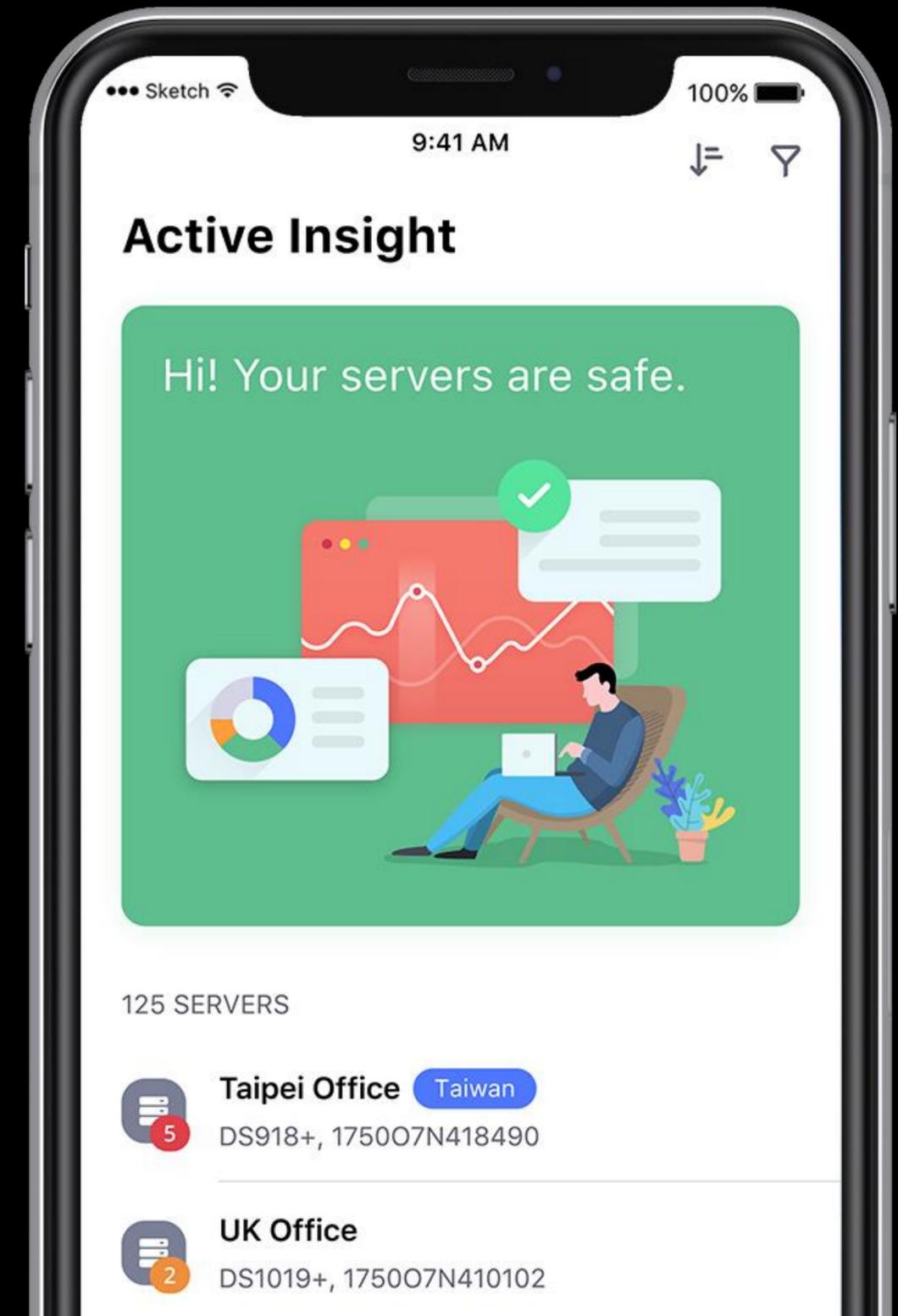
#### Recommended Solution

Please confirm your hardware health status to ensure that your information is not compromised.

1. Please open your storage administrator and select the hard disk in step 2~4 on the HDD/SSD tab.
2. After clicking on the health information and switching to the S.M.A.R.T tab, select the complete test under S.M.A.R.T and click Start.
3. When you see a non-zero value in the original value field of ID 5, 197, 198, it indicates that the hard disk is damaged. If the hard disk is damaged, please replace it.
- 4 - 1 - 1. If your RAID type does not have any fault tolerance, please install the Hyper Backup kit.
- 4 - 1 - 2. After opening the Hyper Backup package, click the new backup task in the lower left corner to open the backup wizard to back up all your data.
- 4 - 1 - 3. After the data backup is complete, open the storage administrator and go to the Storage tab to remove your current storage. Please note that you need to back up your data again after execution.
- 4 - 1 - 4. After replacing it with a healthy hard drive, create a new storage space and use Hyper Backup to restore the backup data.

# Active Insight mobile

System status in control, anytime and anywhere



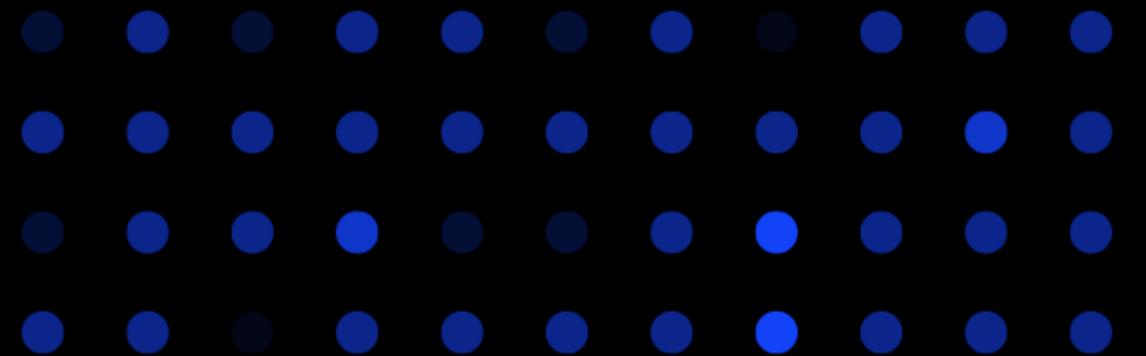
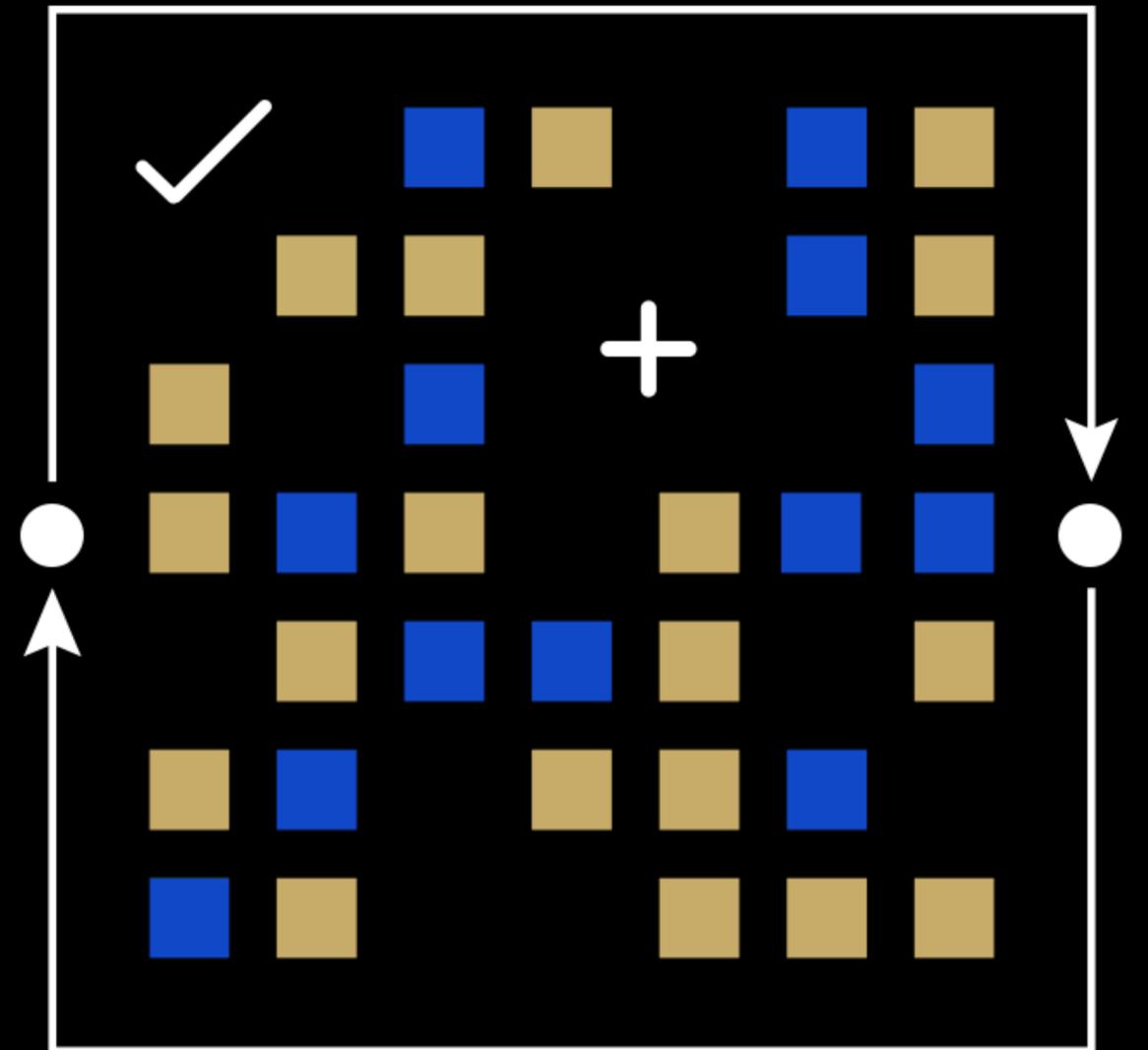
# How long can hard drives last?

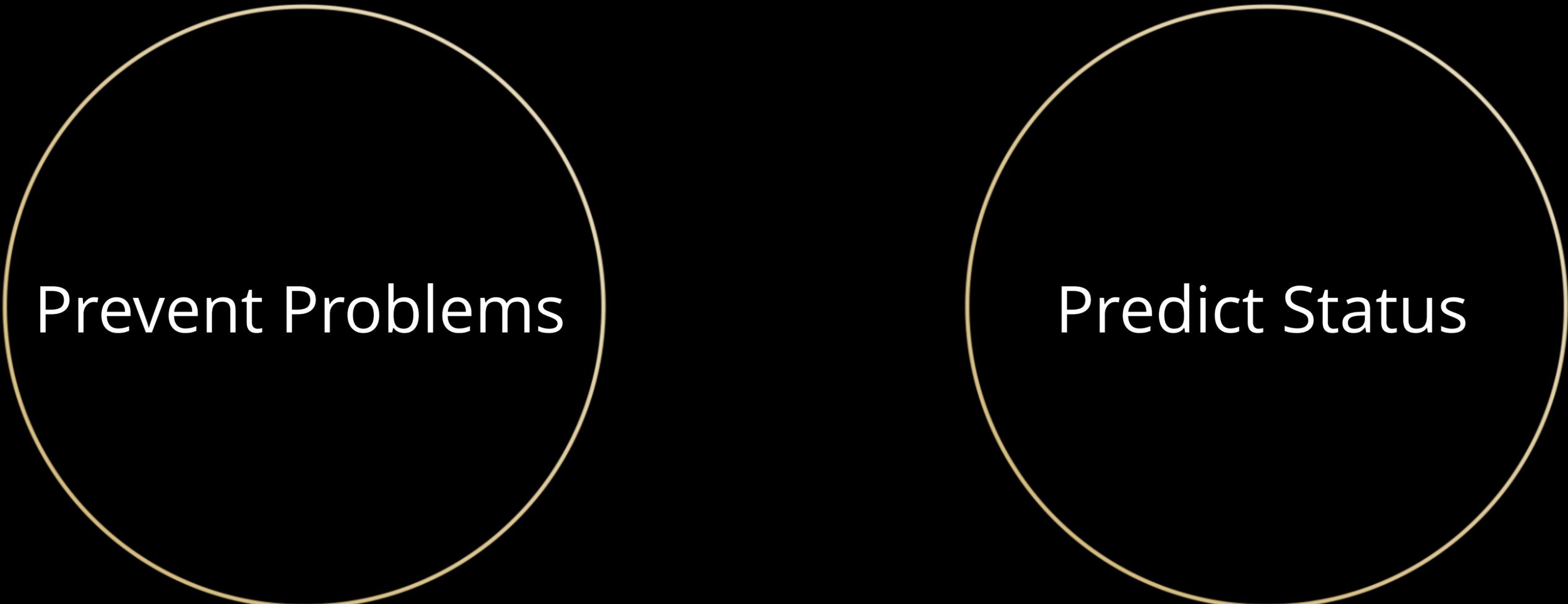
- The same batch of drives fails at around the same time
- How you use drives determines how long they'll live



# Big data analytics

Hard drive durability stats to offer replacement suggestions based on user environments





Prevent Problems

Predict Status

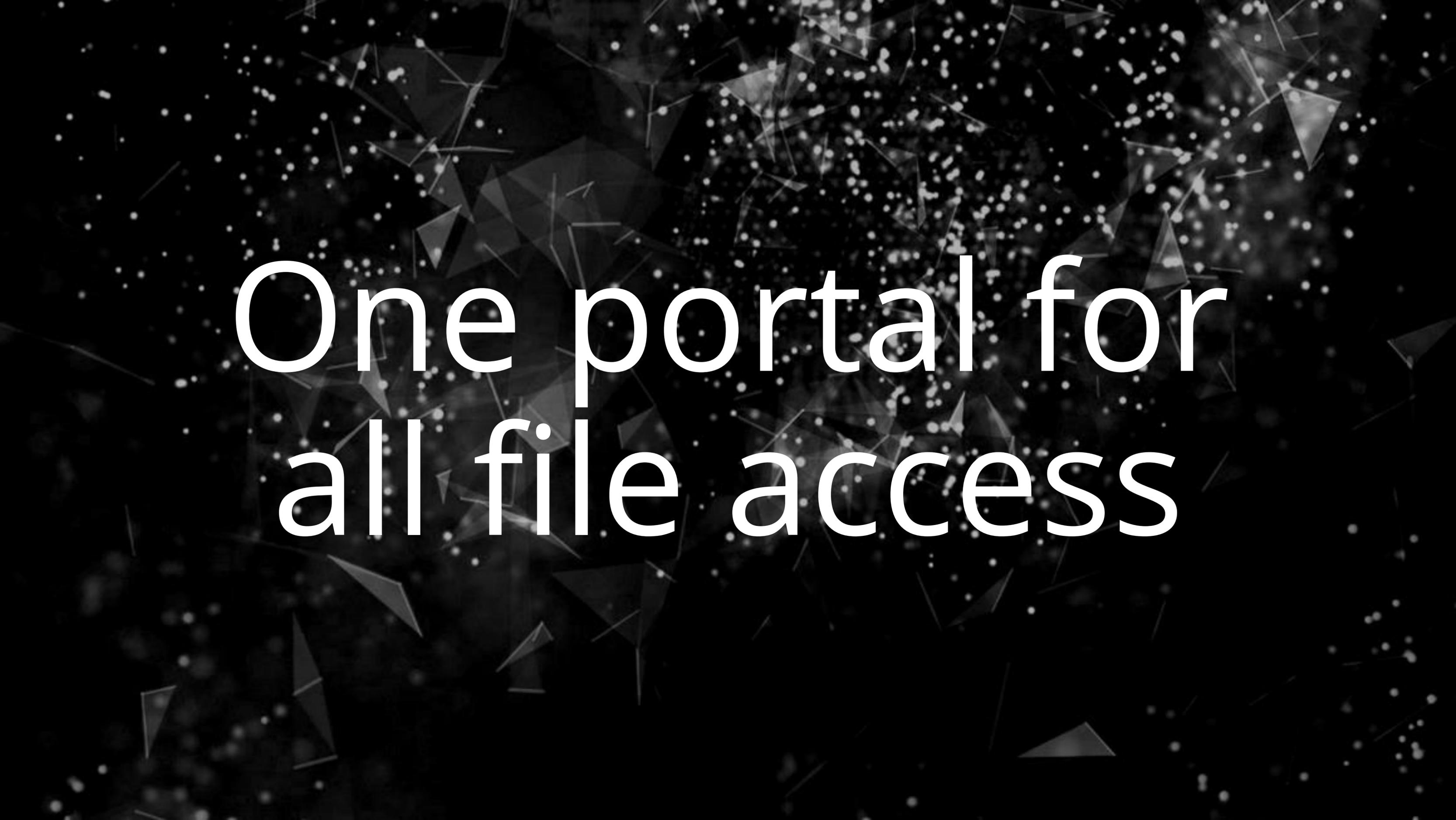


# Data Privacy & Security

# Synology Drive

Fulfilling different scales of file  
collaboration



The background is a dark, almost black, field filled with a dense pattern of small, white, circular dots and larger, semi-transparent, grey, triangular shapes. These shapes are scattered across the frame, creating a complex, geometric, and somewhat chaotic visual texture. The overall effect is reminiscent of a digital or data-driven environment.

One portal for  
all file access

# 100 million

Large file database  
Stable performance



# Control External Sharing

The screenshot displays the Synology Drive Admin Console interface. The left sidebar contains navigation options: Overview, Client list, Log, Team Folder, and Settings (highlighted in blue). The main content area is titled 'Synology Drive Admin Console' and has tabs for General, User Sync Profiles, and Sharing (selected). Below the tabs, the page is titled 'Sharing Settings for Non-admin users'. Under the 'Sharing Permissions' section, the following options are visible:

- Allow users to share files publicly and internally
  - Only allow specific user/group to share files publicly
    - Edit Haven't selected any user/group
  - Enforce password protection when users share files publicly
  - Enforce expiration date protection when users share files publicly
    - Maximum link duration (days):
- Allow users to share files internally
- Disallow users to share files

Below this, the 'internal\_sharing\_rule' section shows:

- Allow users to share files internally with links and by inviting DSM users

**Drive**

CATEGORIES

- My Drive
- Team Folder
- Shared with me
- Shared with others
- Recent
- Starred
- Recycle Bin

My Drive Q Search

+ [Share] [Link] [Tag] [Folder] [Trash] [More]

Title ^	Owner	Modified time	Size	Labels	
☆  Chroma-crystal_1920x1200.png	admin	09/12/2019 13:10:05	2.9 MB	-	
☆  f-UC3200_back.jpg	admin	09/16/2019 12:18:00	924.5 KB	-	
☆  f-UC3200_right-45-add.jpg	admin	09/16/2019 12:18:04	4.4 MB	-	
☆  PriceBookUK.xlsx	admin	03/26/2019 16:37:25	33.3 KB	-	
☆  Product videos.zip	admin	09/16/2019 13:50:51	475.2 MB	-	
☆  Synology_UC3200_Data_Sheet_...	admin	09/17/2019 09:20:17	705.5 KB	-	

LABELS +

A

6 items

Synology Drive Admin

# Advanced Logs

- Events around sharing
- Better auditing capabilities
- Search tool for auditing

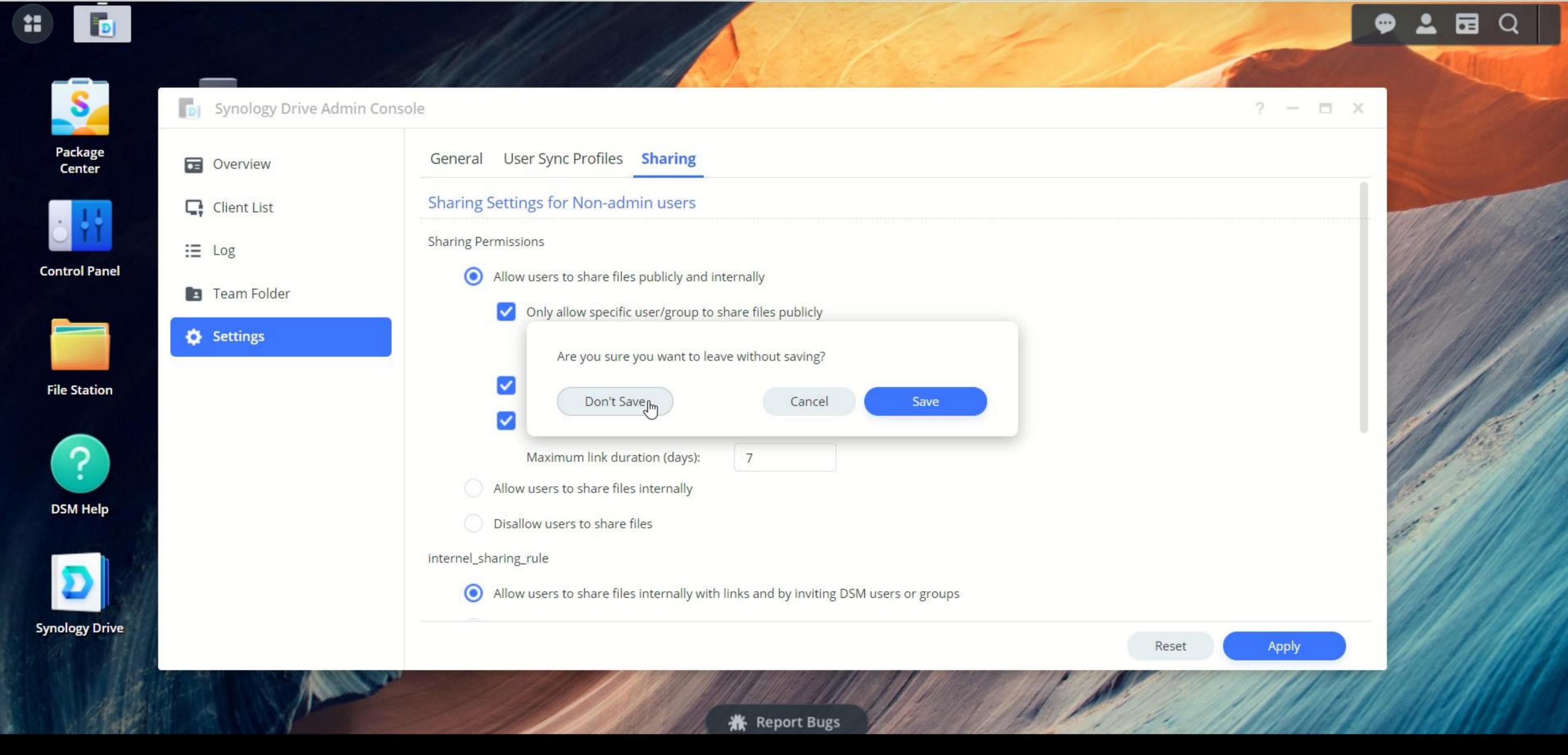
The screenshot displays the Synology Drive Admin Console interface. On the left, a navigation menu includes 'Overview', 'Client List', 'Log' (highlighted), 'Team Folder', and 'Settings'. The main area shows a table of logs with columns for 'Client Type' and 'Log'. A search filter is applied to the 'Log' column, showing a dropdown menu with the following options:

- All
- Change sharing links permissions
- Create/delete an advanced protection link
- Allow/disallow options to download and copy
- Set/remove password protection
- Set/remove link expiration
- Set/remove a user/group

The log entries include:

Client Type	Log
Web	admin renamed file <a href="#">Drive.zip</a> to <a href="#">Product videos.zip</a> .
Web	admin viewed file <a href="#">Drive.zip</a> .
Web	admin viewed file <a href="#">Synology_FS3400_Data_Sheet_enu.pdf</a> .
Web	admin viewed file <a href="#">f-UC3200_right-45-add.jpg</a> .
Web	admin viewed file <a href="#">f-UC3200_back.jpg</a> .
Web	admin viewed file <a href="#">Chroma-crystal_1920x1200.png</a> .
Web	admin viewed file <a href="#">PriceBook(2019-02-05)forIMUK(1).xlsx</a> .
Others	System edited the privileges of Satyam G's user home.
Web	Jeremie F viewed file <a href="#">Synology_FS3400_Data_Sheet_enu.pdf</a> .
Web	Jeremie F viewed file <a href="#">f-UC3200_right-45-add.jpg</a> .
Others	System edited the privileges of Satyam G's user home.
Web	Joe R viewed file <a href="#">Drive.zip</a> .
Others	System edited the privileges of Satyam G's user home.
Web	admin viewed file <a href="#">Drive.zip</a> .

On the right side of the console, there is a search bar with a 'Search' button and a 'Reset' button. Below the search bar, there are sections for 'All Events', 'Files', and 'Sharing' (highlighted). The 'Sharing' section includes a 'Service' dropdown and 'Actions by admin' options.



Package Center



Control Panel



File Station



DSM Help



Synology Drive

### Synology Drive Admin Console

- Overview
- Client List
- Log
- Team Folder
- Settings**

General User Sync Profiles **Sharing**

#### Sharing Settings for Non-admin users

Sharing Permissions

- Allow users to share files publicly and internally
  - Only allow specific user/group to share files publicly
  - [Unreadable]
  - [Unreadable]
- Allow users to share files internally
- Disallow users to share files

Maximum link duration (days):

internel\_sharing\_rule

- Allow users to share files internally with links and by inviting DSM users or groups

Reset Apply

Are you sure you want to leave without saving?

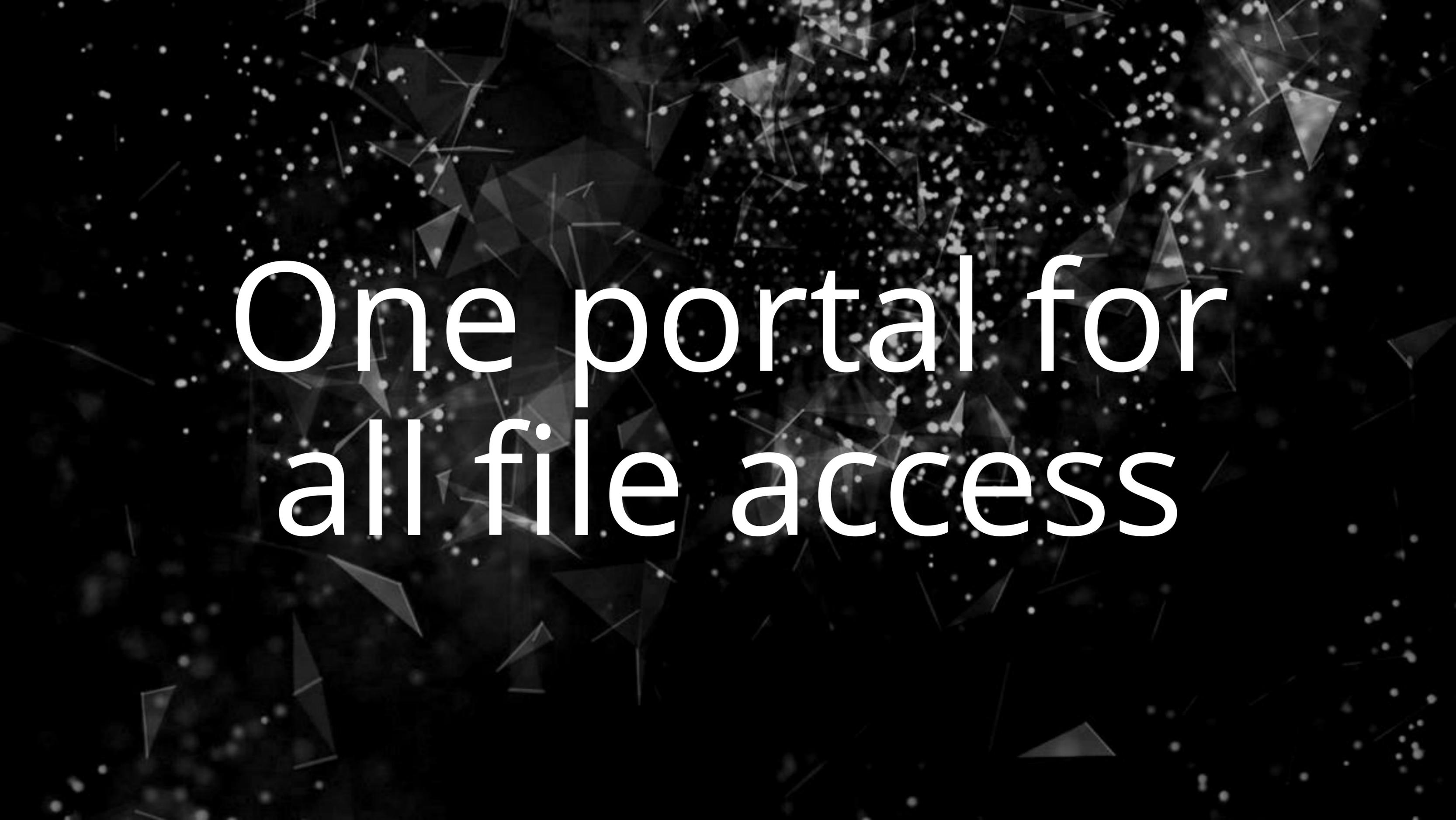
# Synology Drive

Safer enterprise file sharing solutions

Access

Admin

Audit

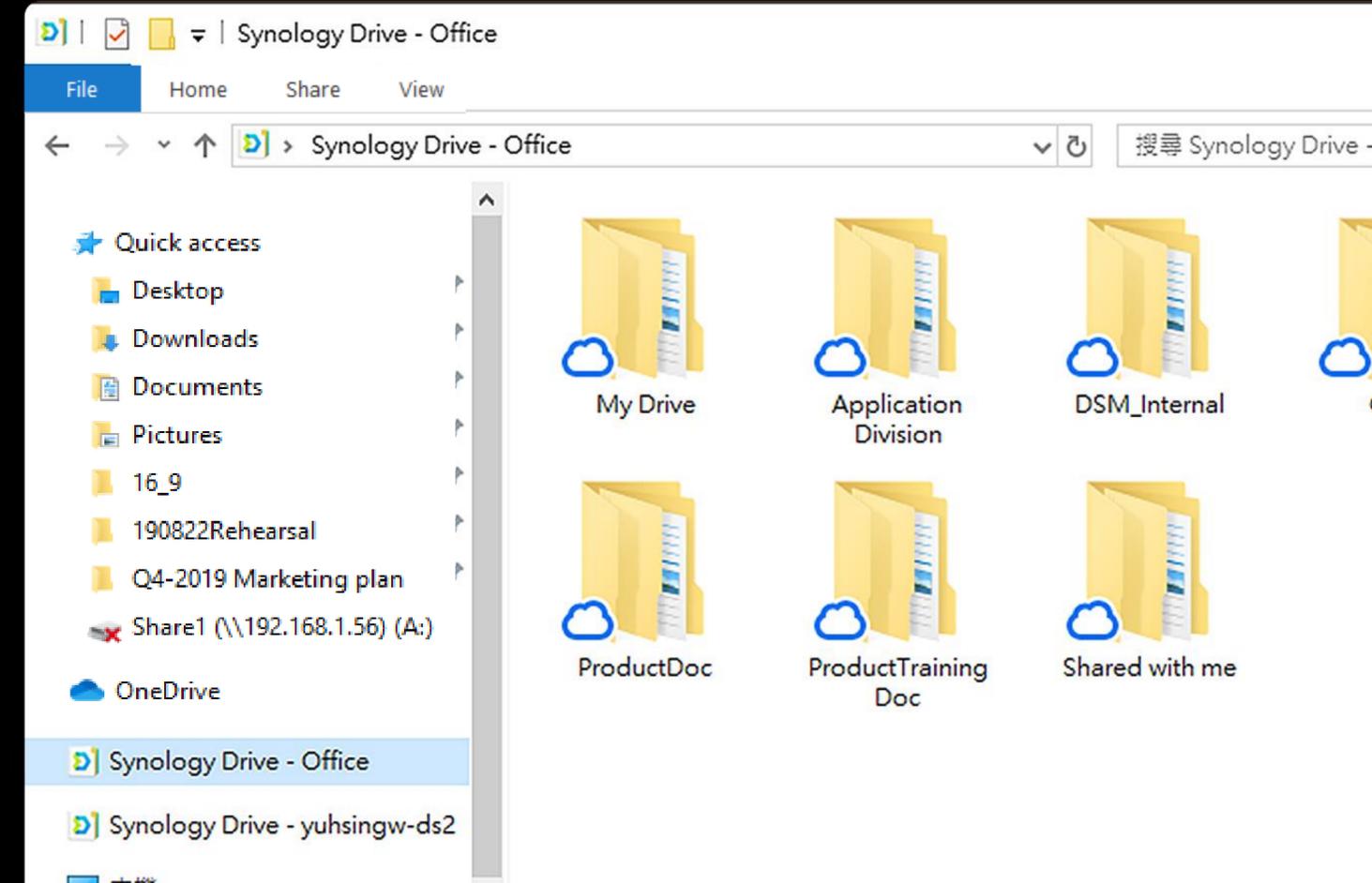
The background is a dark, almost black, field filled with a dense pattern of small, white, circular dots and larger, semi-transparent, grey, triangular shapes. These shapes are scattered across the frame, creating a complex, geometric, and somewhat chaotic visual texture. The overall effect is reminiscent of a digital or data-driven environment.

One portal for  
all file access

Synology Drive Desktop

# On-demand Sync 2.0

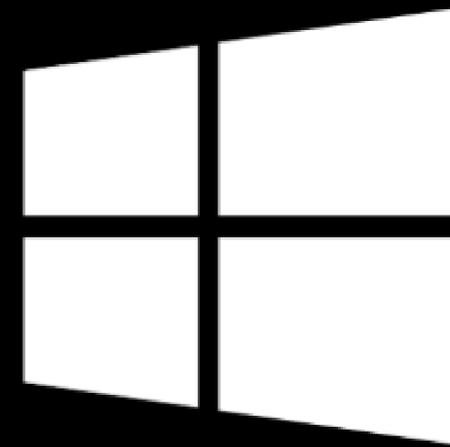
- Log in desktop to instantly access all your files on NAS
- No need to configure the sync folder
- No need to occupy local capacity



Synology Drive Desktop

# On-demand Sync 2.0

- Log in desktop to instantly access all your files on NAS
- No need to configure the sync folder
- No need to occupy local capacity



Windows



Mac



Private cloud VS Public cloud?

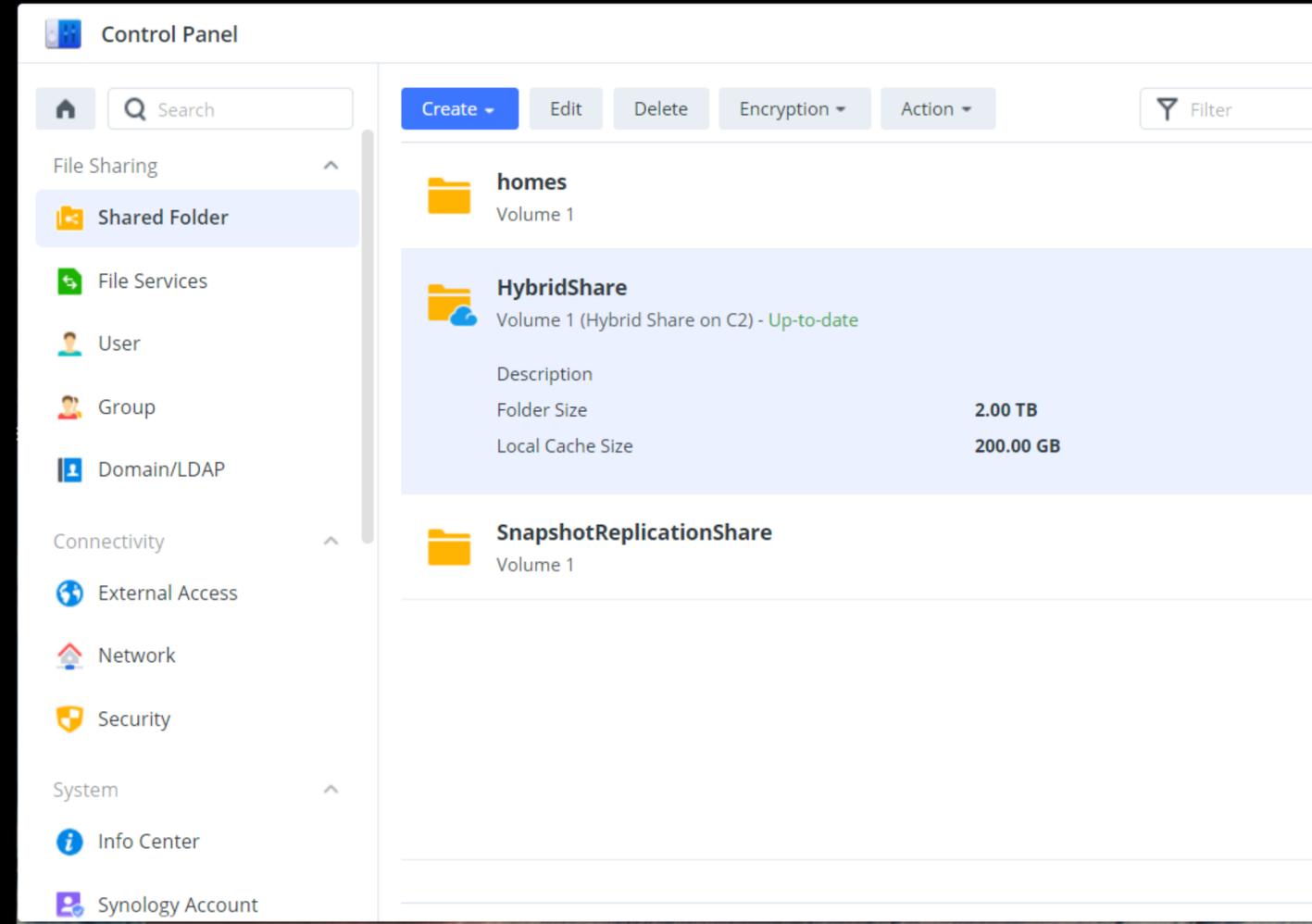


Synology C2 Public Cloud

Synology Hybrid Share

# Hybrid Share

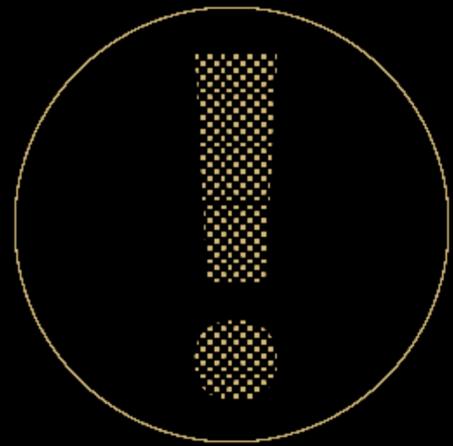
- Shared folder created on Synology C2
- Support SMB, AFP, NFS file protocol





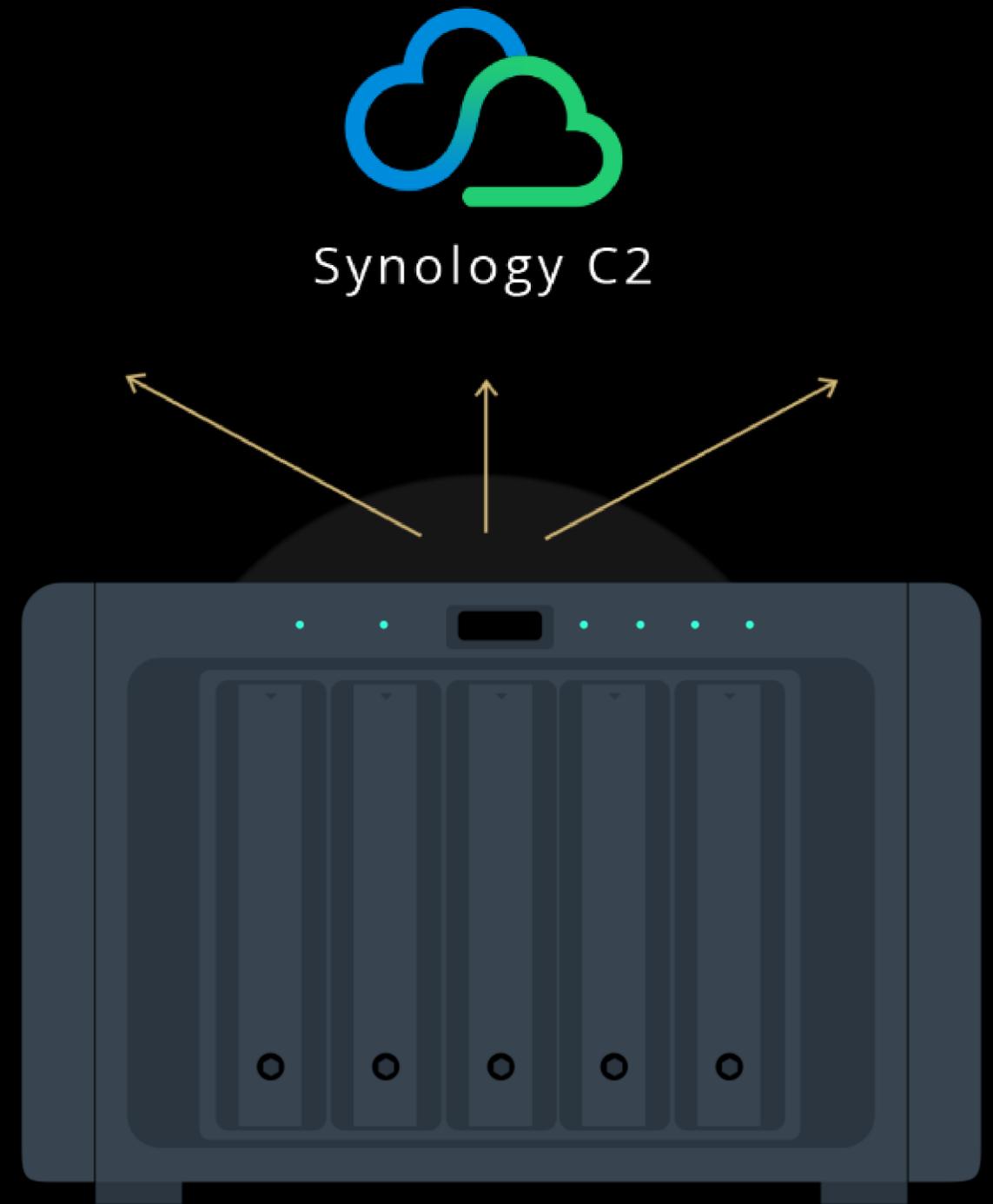
- Package Center
- Control Panel
- File Station
- DSM Help
- Central Management System
- Synology Directory Server
- Snapshot Replication
- Virtual Machine Manager
- Hyper Backup
- SAN Manager
- Resource Monitor
- DNS Server
- Storage Manager
- Synology Photos
- Synology Drive Admin Console
- Synology Drive
- Synology Drive ShareSync

# Single Site

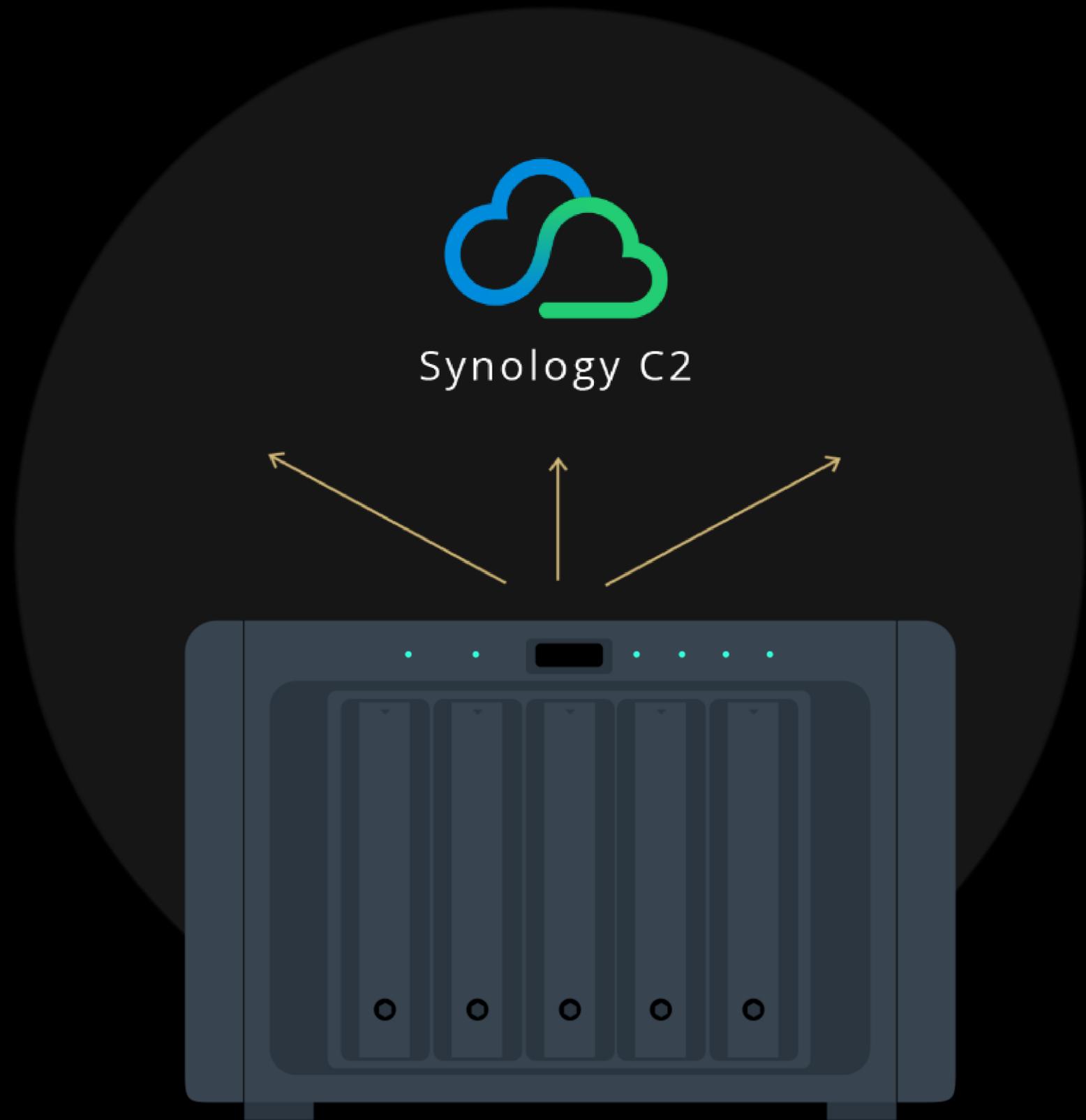


Insufficient  
Storage Capacity

Rapid expansion  
to unlimited  
Synology C2 space



Rapid expansion  
to unlimited  
Synology C2 space





Synology C2

Access Files on  
the Cloud?



# Local caching of files in the Cloud

Keep regularly used hot files on Synology NAS,  
and access at LAN speed.



Synology C2

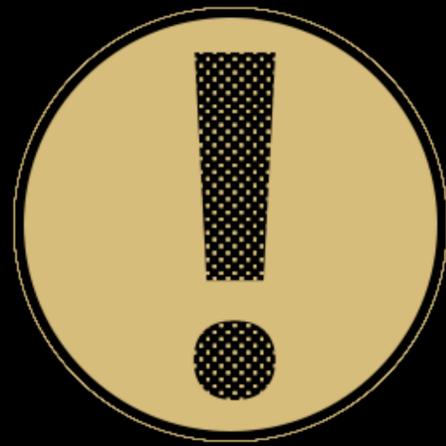


# Cache size setting

The screenshot shows the Synology Control Panel interface. On the left, the navigation menu is expanded to 'File Sharing', with 'Shared Folder' selected. The main area displays a list of shared folders: 'homes', 'HybridShare', and 'SnapshotReplicationShare'. The 'HybridShare' folder is selected, and its properties are shown in a light blue panel. The 'Local Cache Size' is set to '200.00 GB', which is circled in yellow. The 'Folder Size' is '2.00 TB'. The interface includes a search bar, a filter icon, and action buttons like 'Create', 'Edit', 'Delete', 'Encryption', and 'Action'.

Property	Value
Description	
Folder Size	2.00 TB
Local Cache Size	200.00 GB

# Single Site



Time-consuming  
Disaster Recovery

# Fast File Recovery

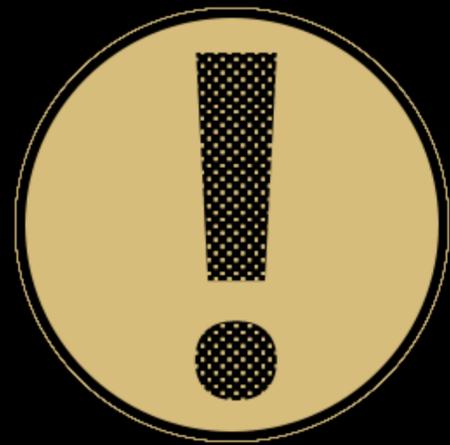
Synology Hybrid Share



# Fast Config Recovery

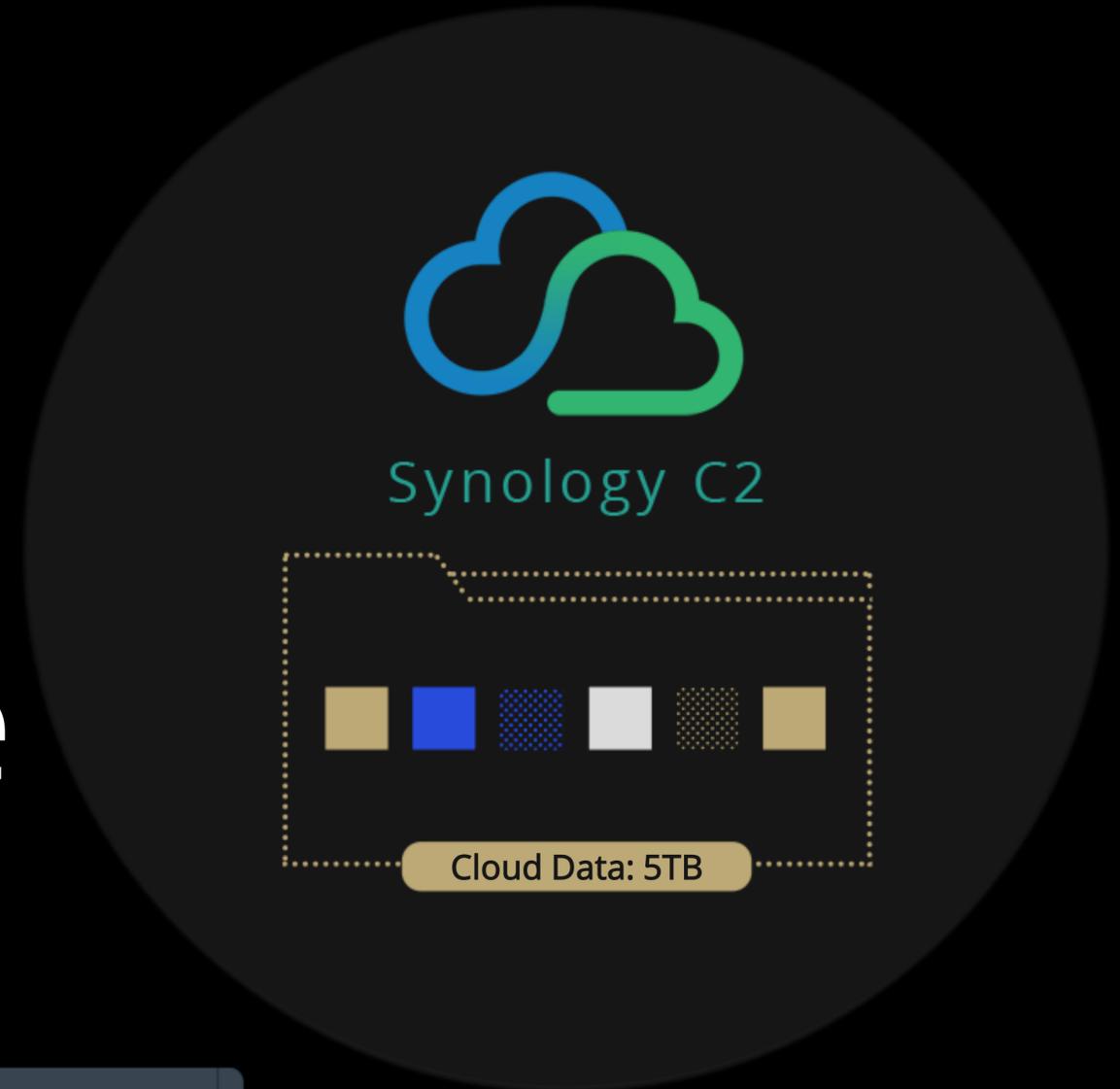
DSM 7.0 auto Config Backup

# Multi-site



Duplicate Space on Storage

# Saving storage space for individual site



Taiwan HQ



USA



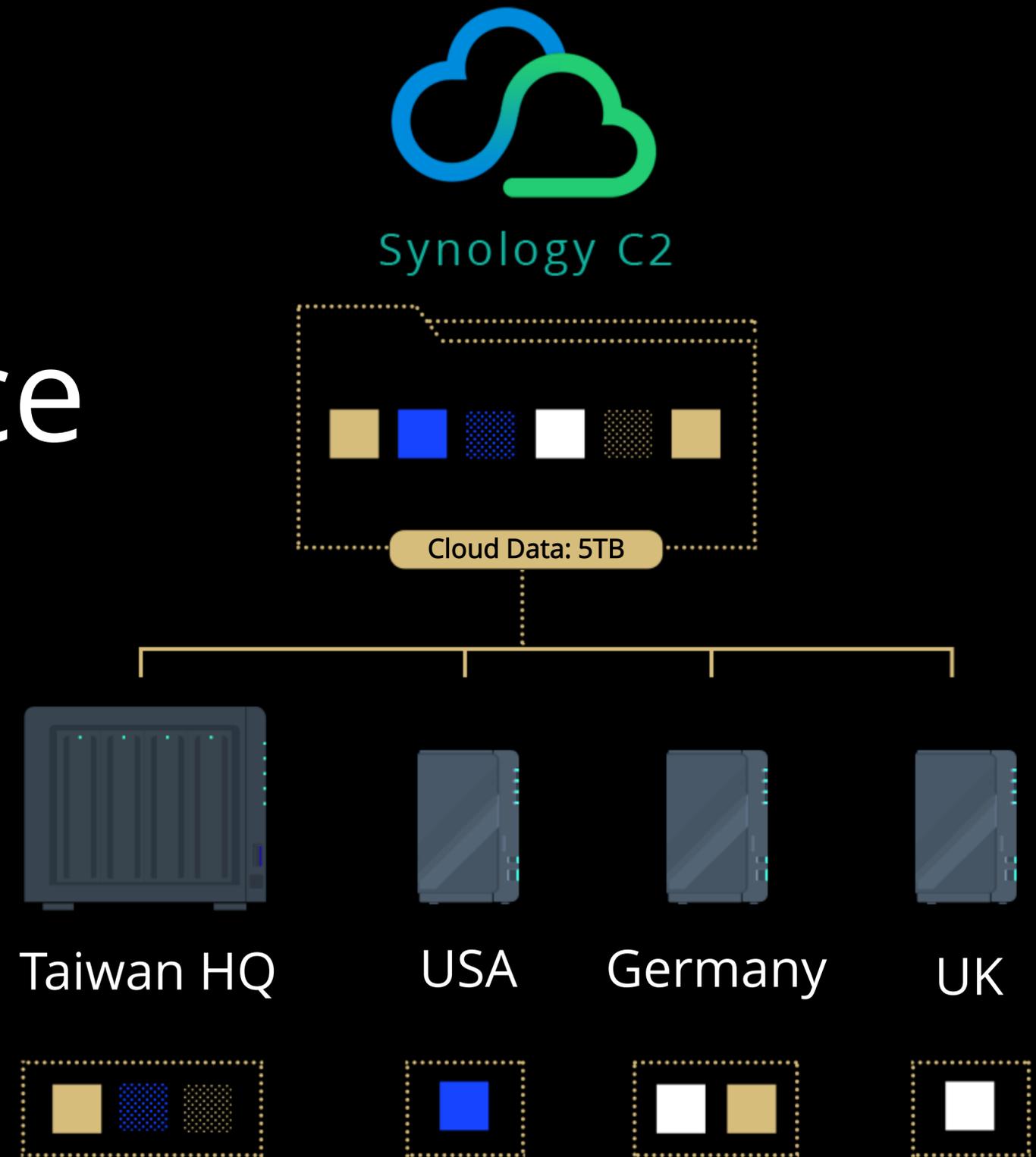
Germany



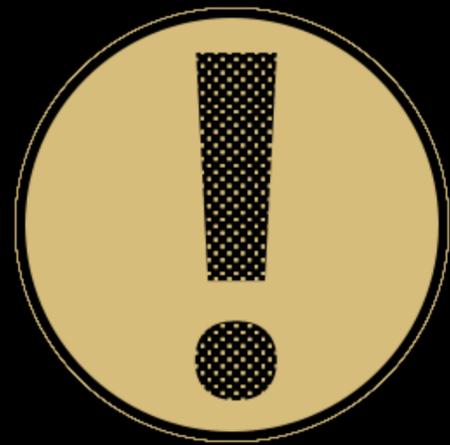
UK

# Saving storage space for individual site

Create Intelligent Frequently-Used Cache in Each Site

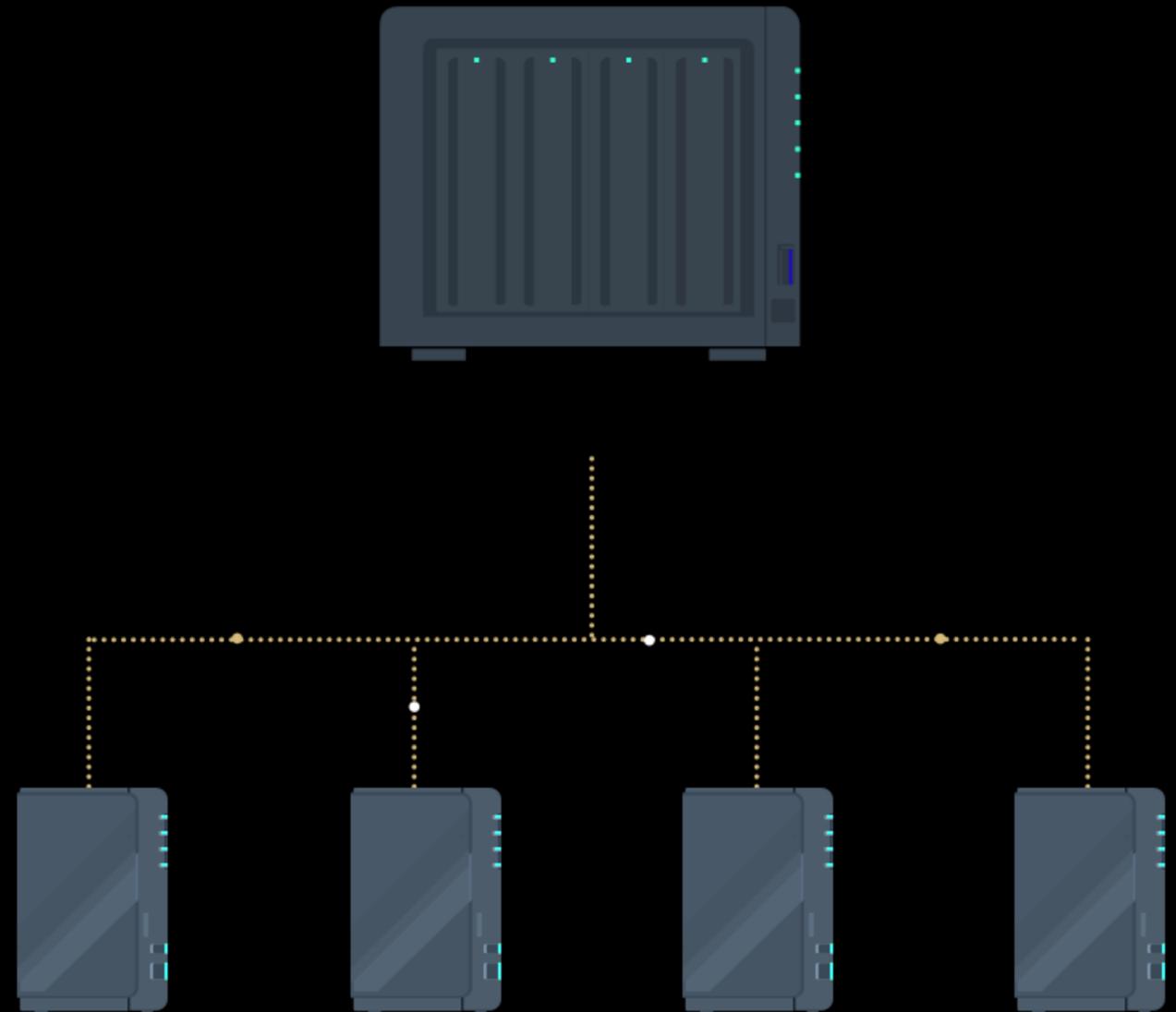


# Multi-site



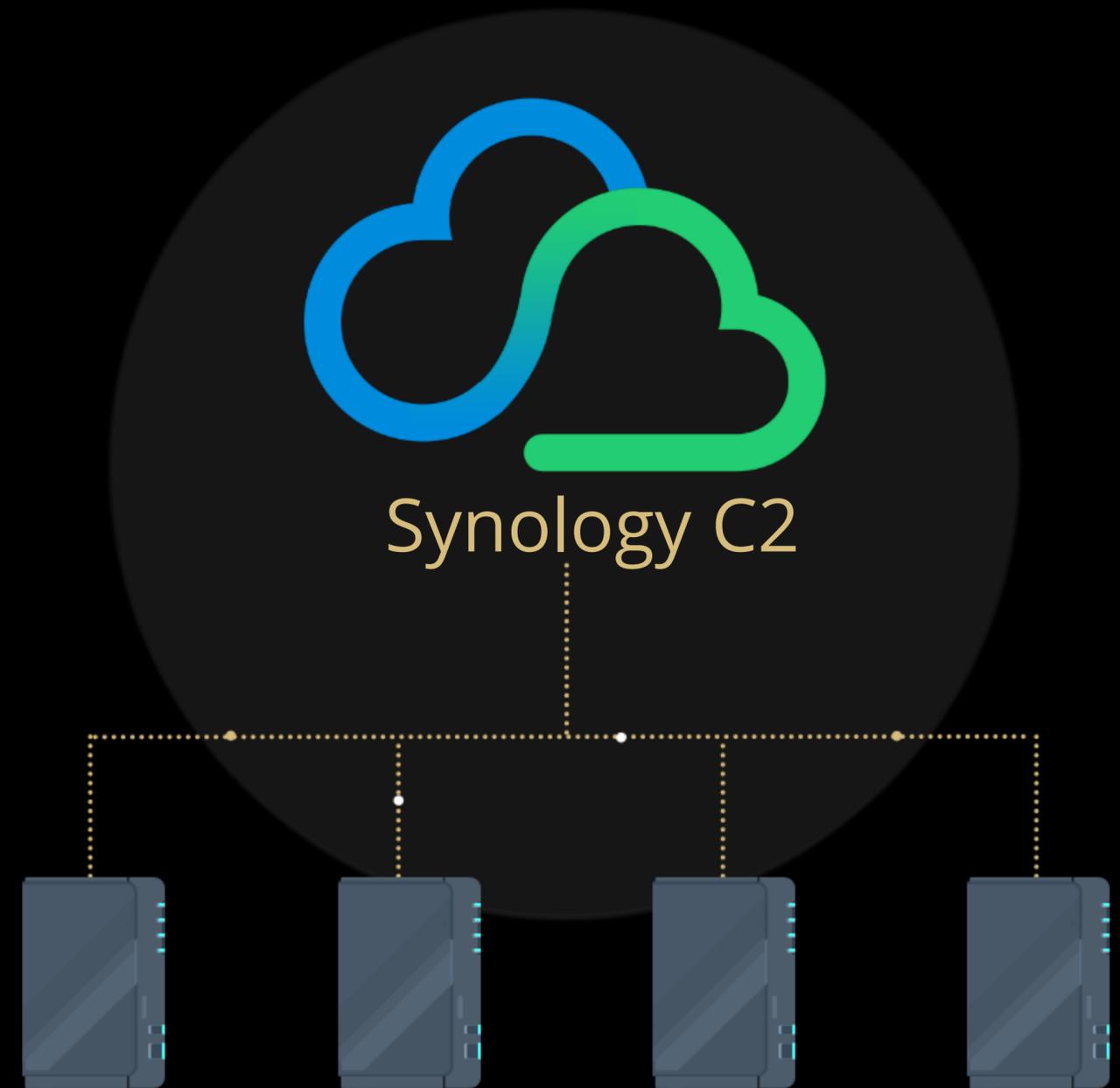
## Inefficient File Exchange

# Occupied HQ External Bandwidth



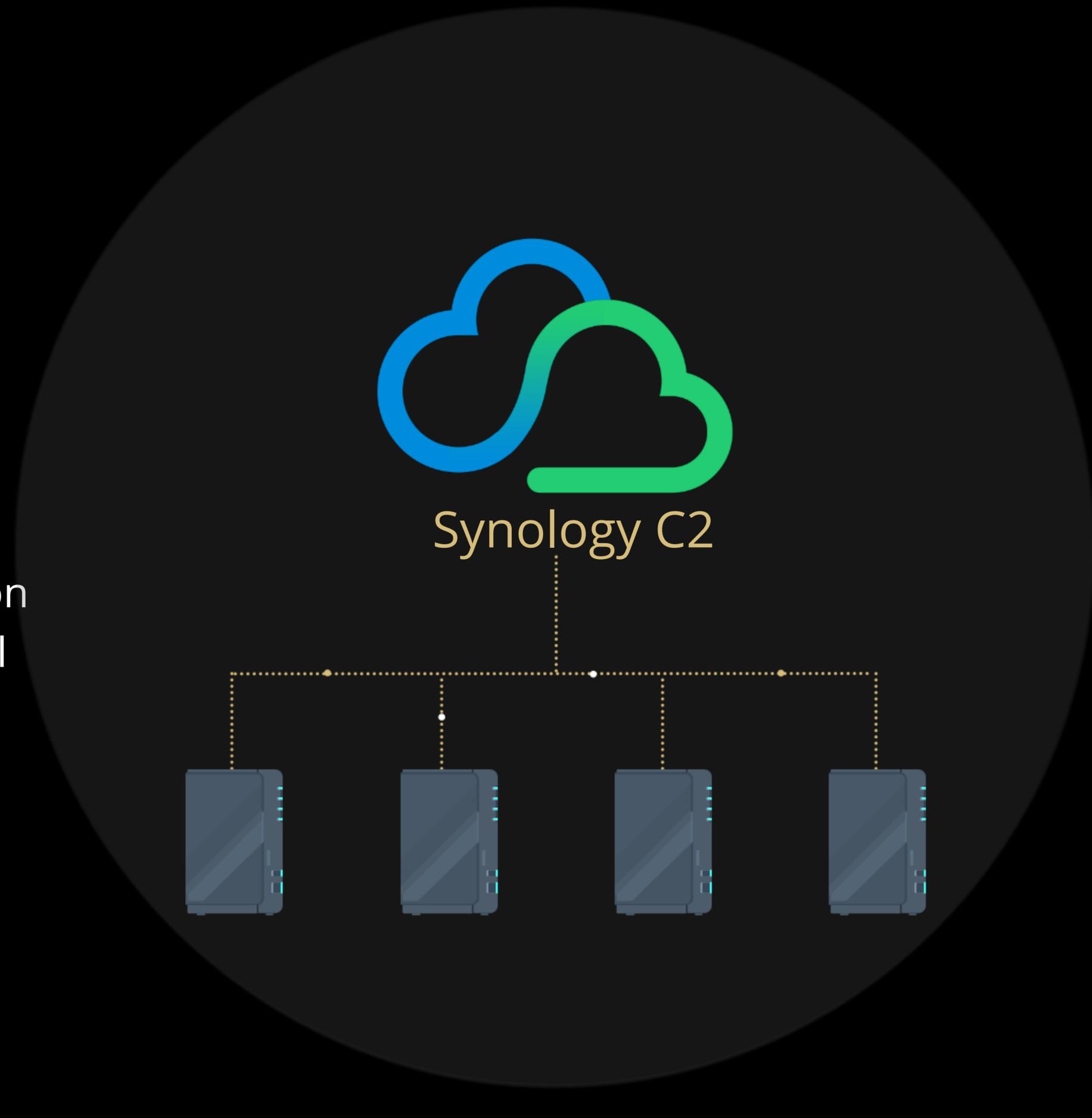
# Hybrid Share

- Does not occupy headquarters external bandwidth



# Hybrid Share

- Real-time file version change notification
- Does not occupy headquarters external bandwidth





Scalability

Fast data  
recovery

Distributed  
setups

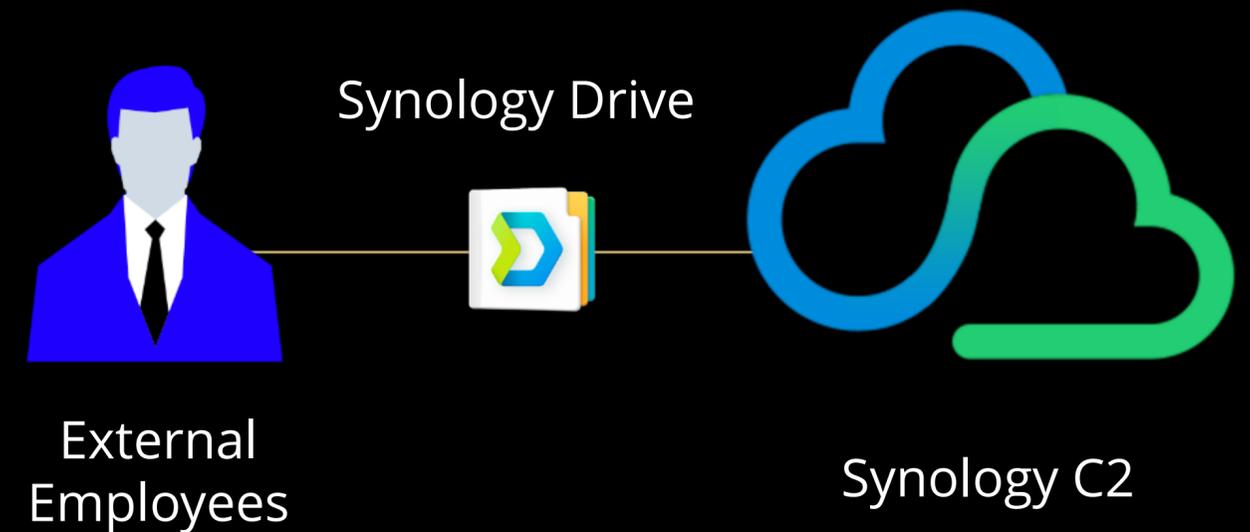
Hybrid Share



Synology Drive

# Saving External Sharing Bandwidth

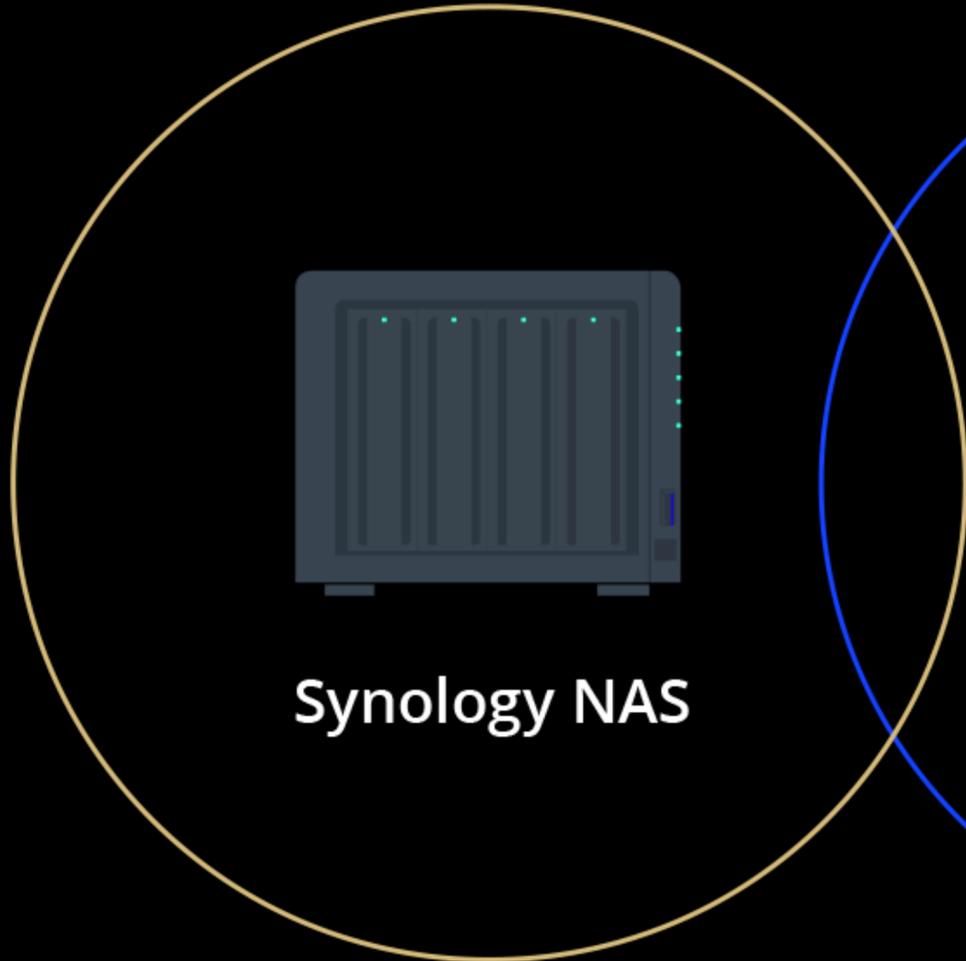
- Integrate sharing with Synology Drive
- For external access, file downloads will be through Synology C2



Privacy

Security

Speed



Availability

Scalability

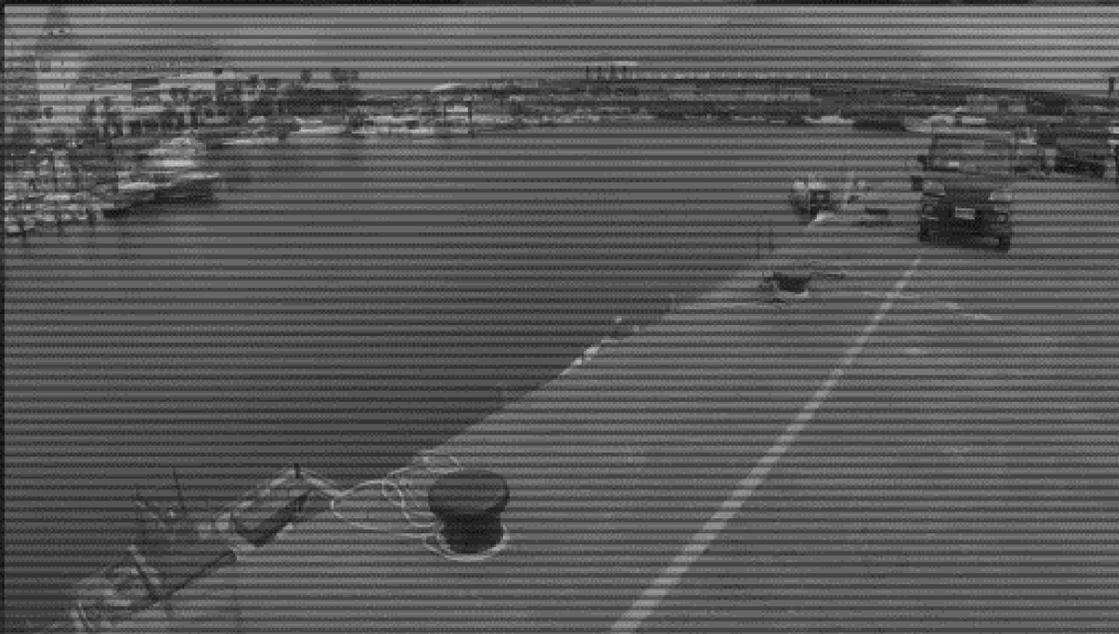
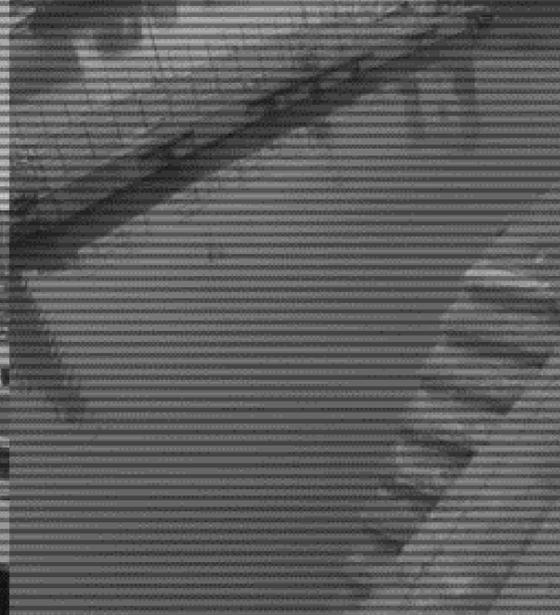
Bandwidth

The Best of both clouds

# Synology Hybrid Share

# Surveillance Station

2017-12-12 23:16:30



10-14-2017 Sat 10:39:53

2017-12-12 16:43:59





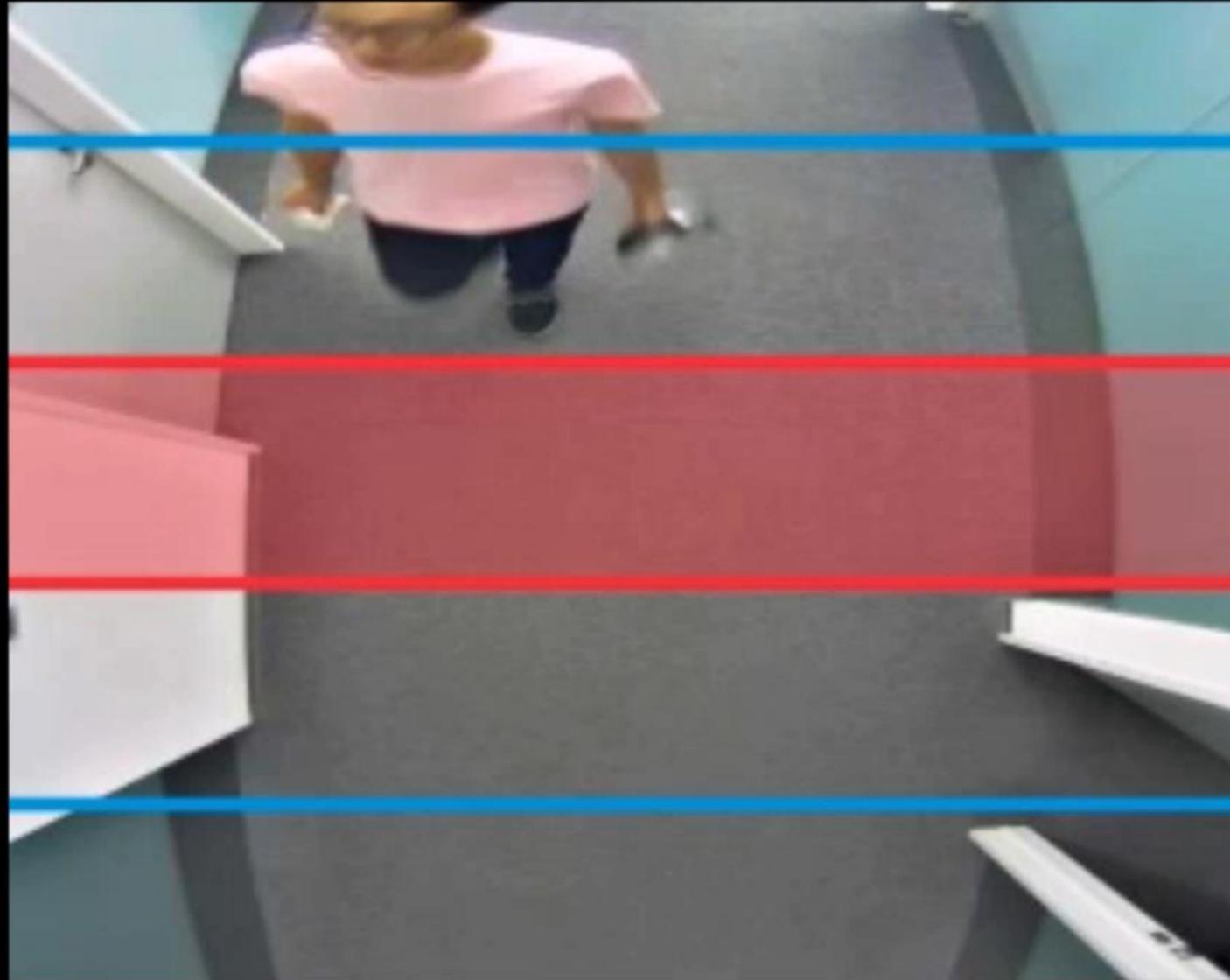
Deep Learning NVR

# DVA3219

- Real-time on-premises analytics
- Ensure surveillance privacy
- Zero hidden costs

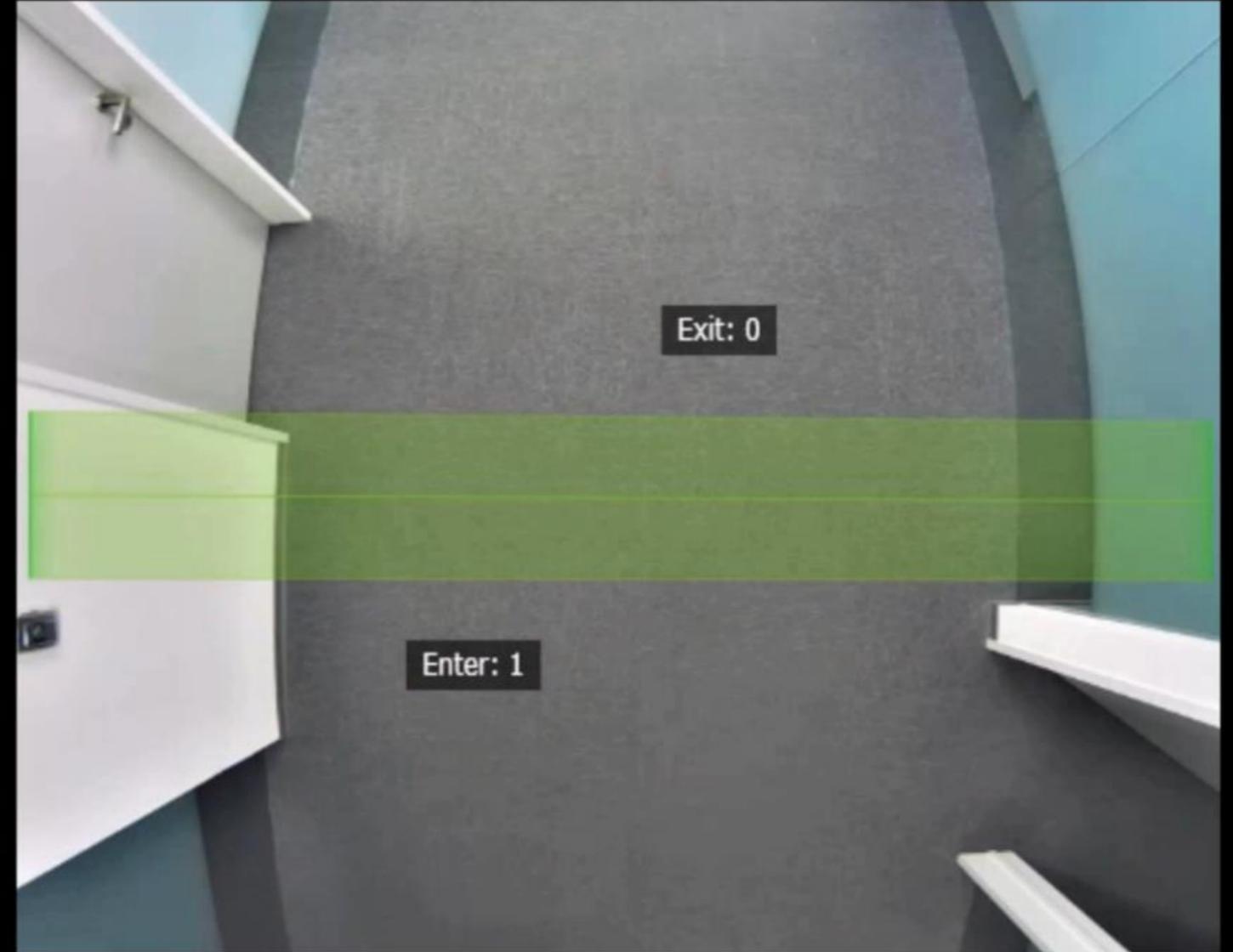


# Traditional Analytics



▼ 0 0 ▲

# Synology DVA3219



▼ 1 0 ▲

# Challenges in the real world





# Camera Selection

# DVA Configuration

# Camera Selection

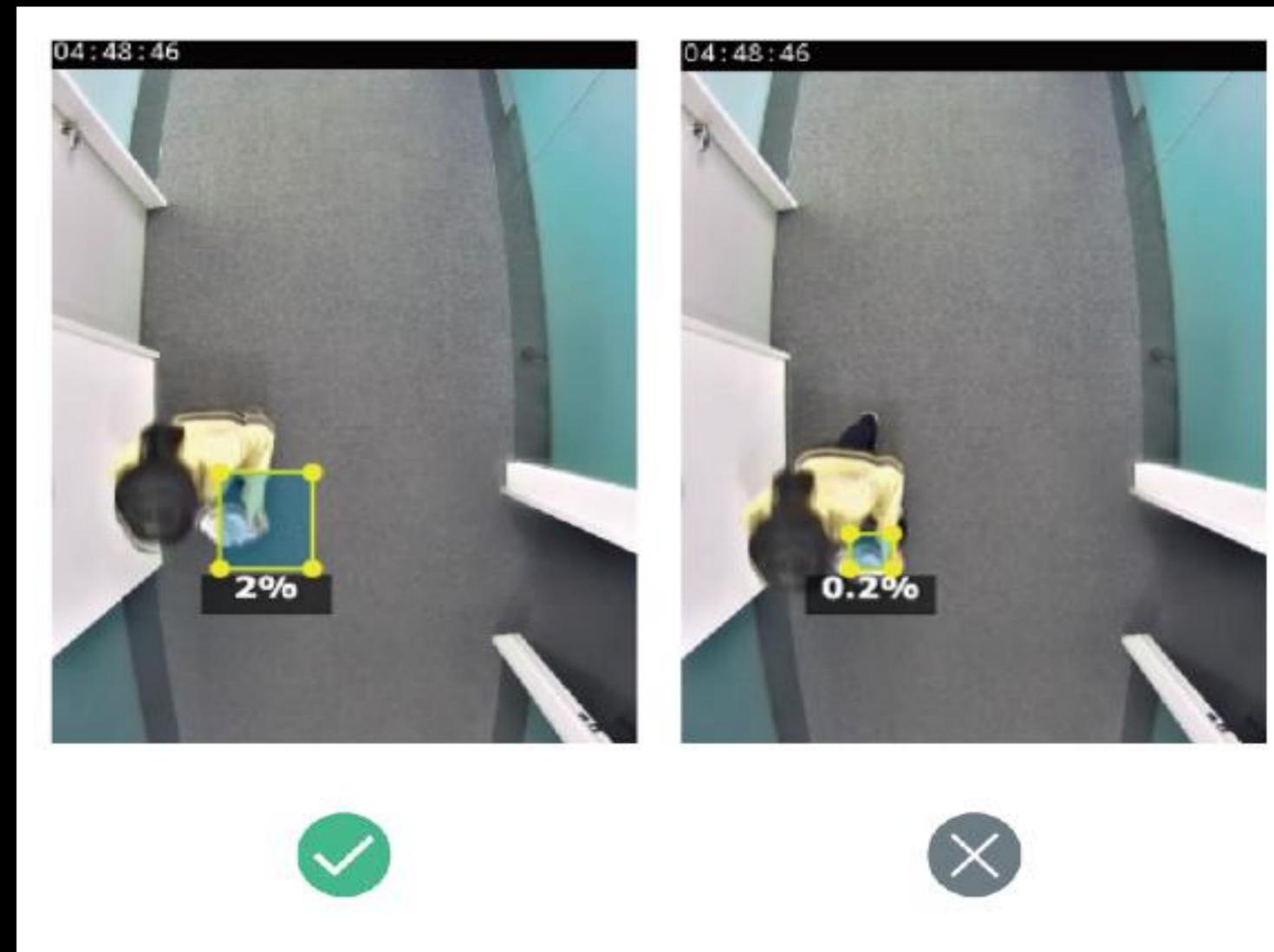


20 FPS



10 FPS

# DVA Configuration



# Taipei Station Front Metro Mall



# 97% People counting accuracy



# Intrusion detection

- Alert if human
- A dog entering won't trigger notification



# No-idle zone

- Parking VS traffic stop



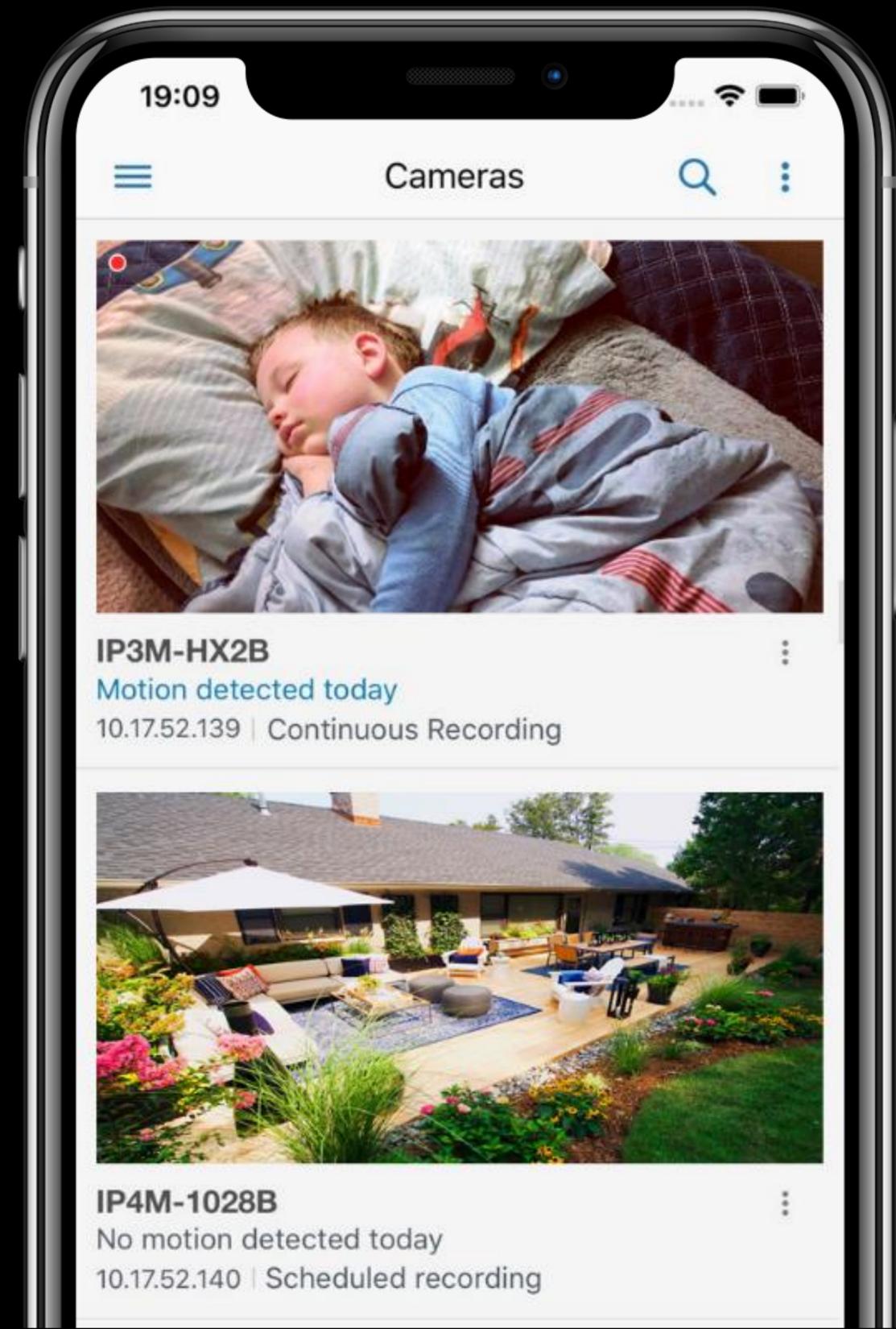
# Motion detection

- Only alert suspicious activity
- Natural movement of trees filtered out



# Surveillance in control

- 260K monthly active users
- Real-time monitoring with DS cam

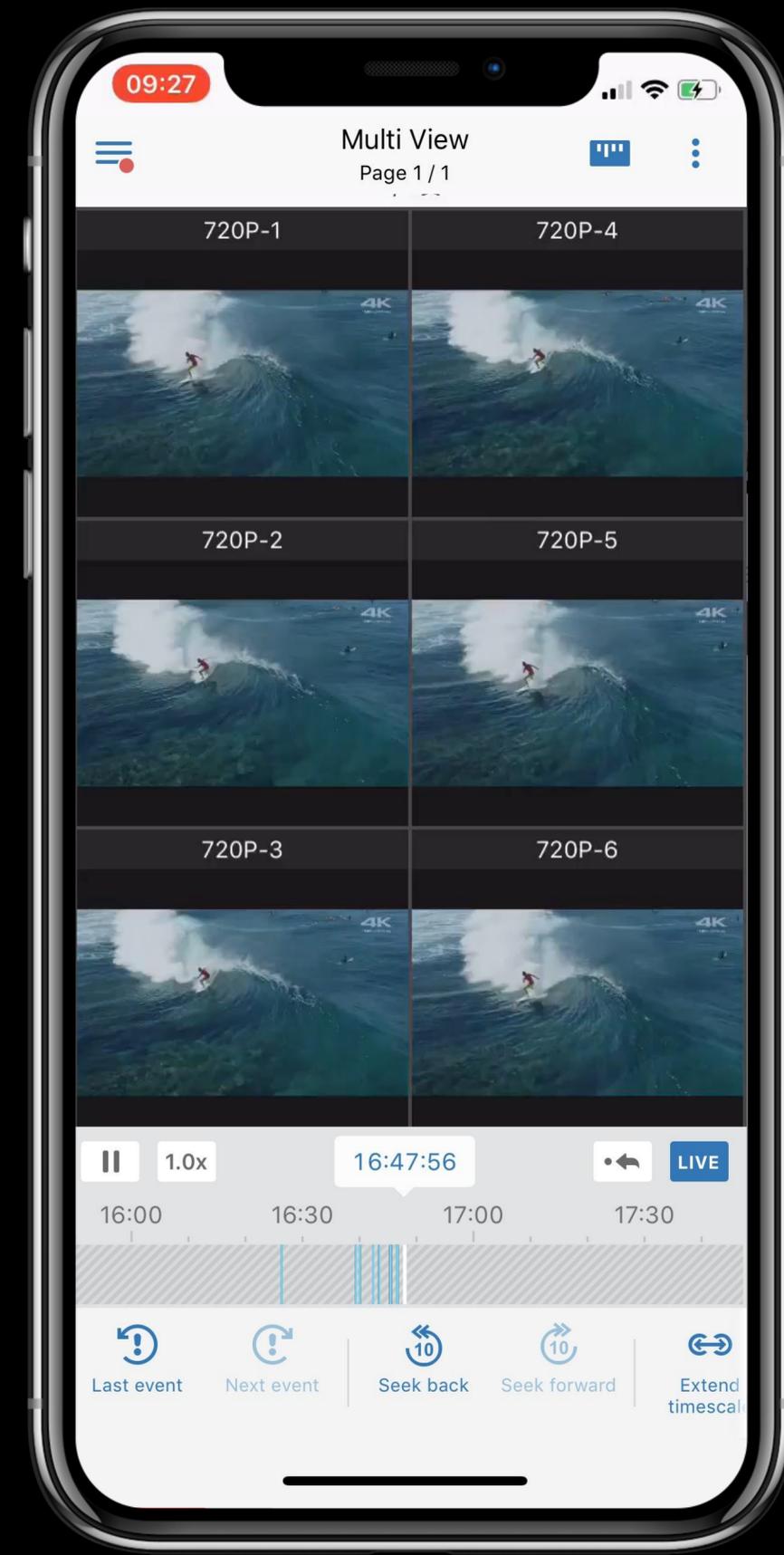


Enhance  
Playback  
Performance

Optimise  
User  
Experience

# Enhance Playback Performance

- iOS/Android mobile hardware acceleration
- Fast playback with key frame

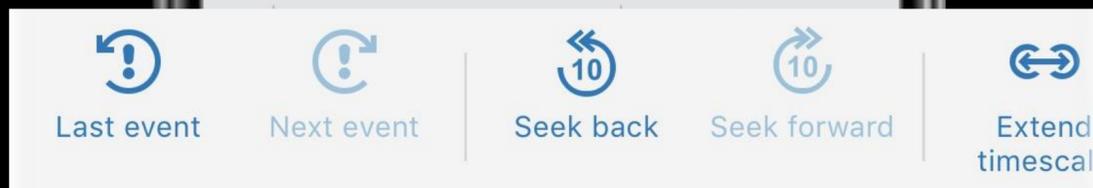
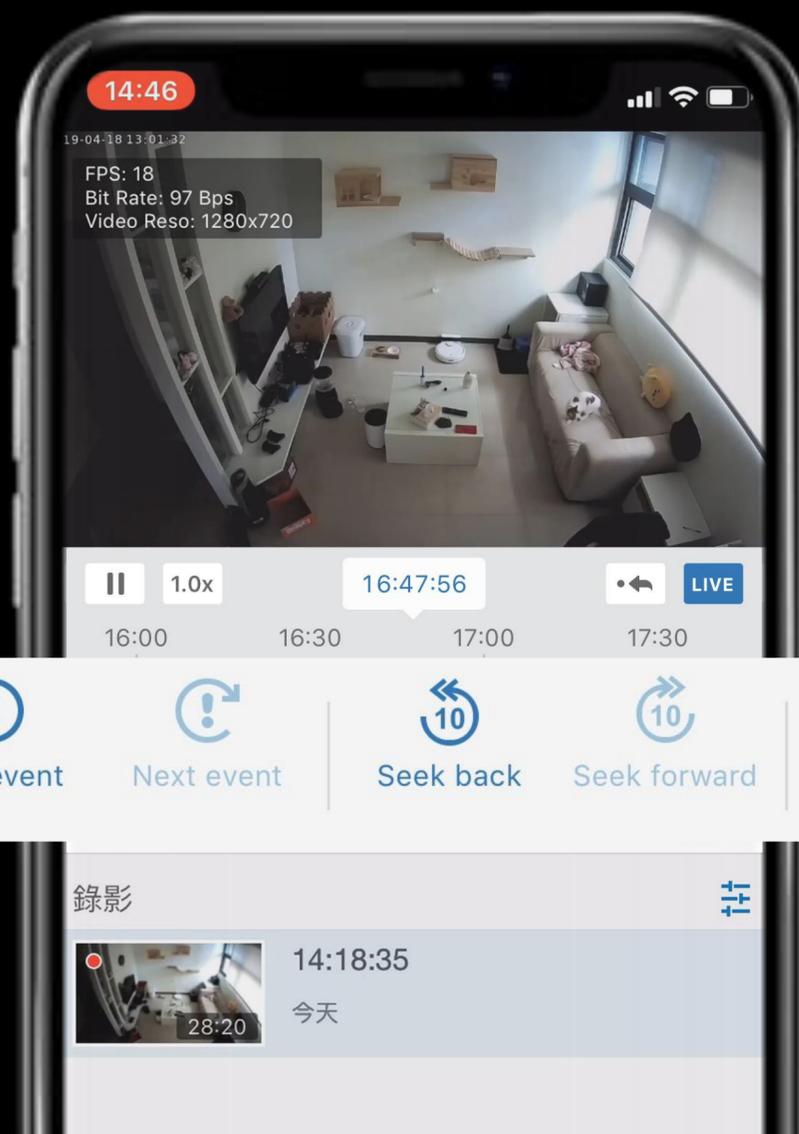


# Optimize User Experience

Multiple Operations

Layout Adjustment

Support AirPlay





# Synology<sup>®</sup> 20th Anniversary

Synology<sup>®</sup>

S Y N O L O G Y

2 0 2 0

# Secure Digital Assets on Hybrid Platforms



Business Development Team  
Jeremie Francois