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# Synology 2020

 Managing Director  
Rosiel LEE

More Than **6 Million** Devices Worldwide

**150M** downloads  
of OS DiskStation Manager

**60** ExaByte  
of data managed worldwide

# Synology **Cloud** Services

**25,000** Users

Synology Cloud<sup>2</sup> Service

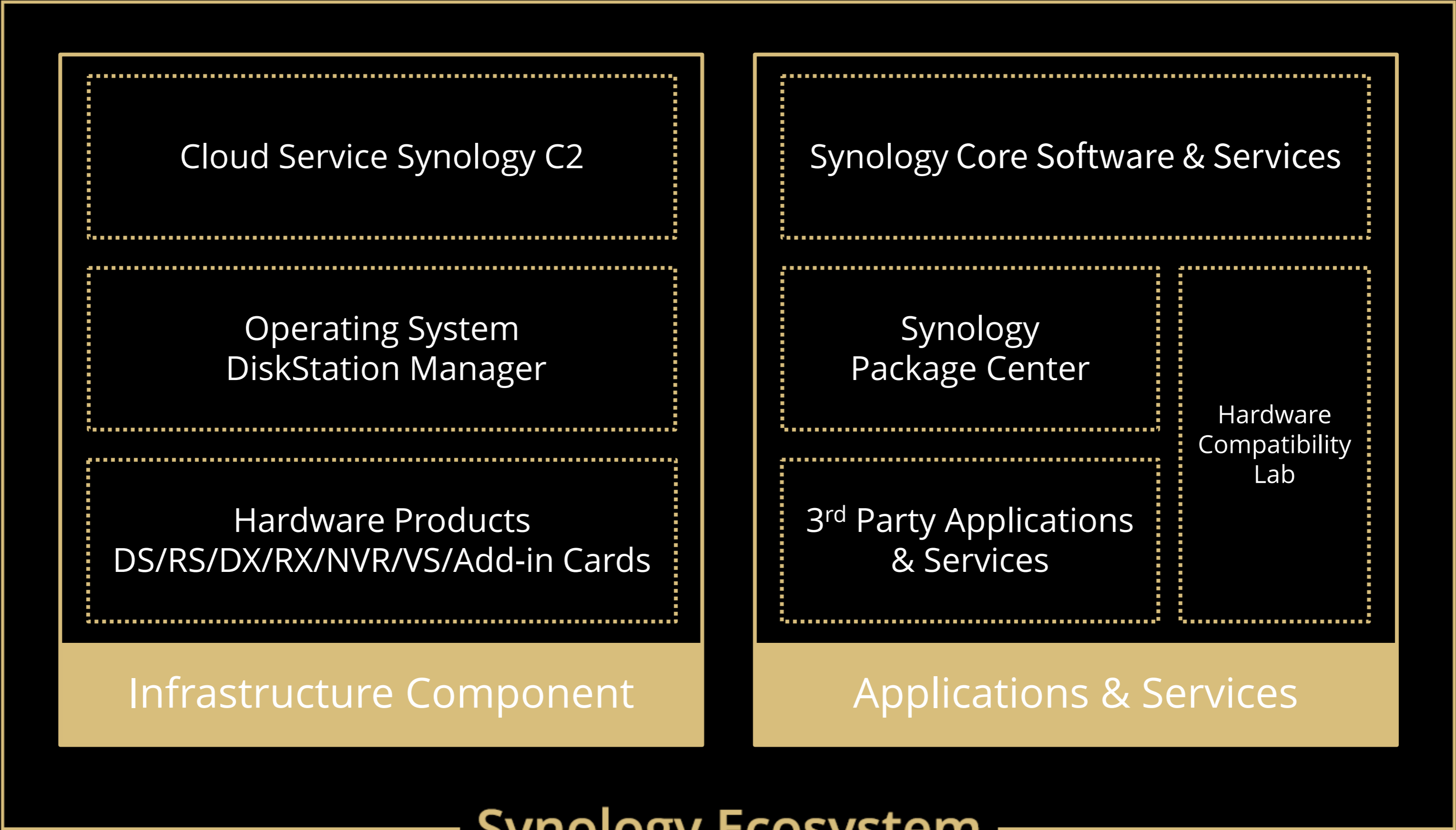
**14M** Users

QuickConnect / DDNS  
Services



# Revolve Around Software

Data management blueprint for the past 20 years



**Synology Ecosystem**





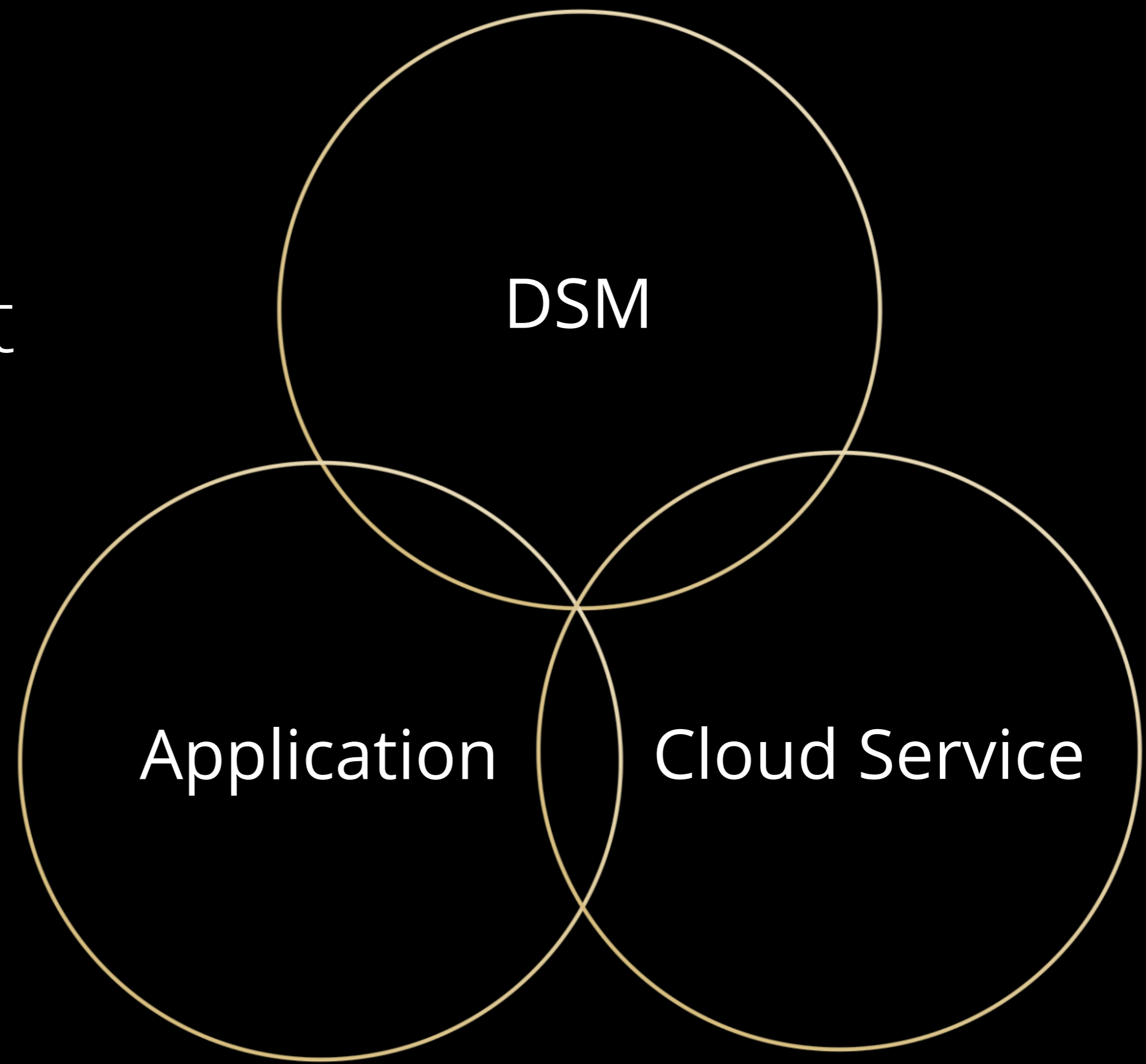
Next Step?



# Hybrid Model for Data Management




# Hybrid Model for Data Management



Safeguard your data for 2 decades

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# Build A Better World with Data

 Alexandra Bejan  
Marketing Manager



# User Empowerment



# DSM 7.0

The Next Evolution in Data Management





User  
Experience



Cache  
Technology



Resource  
Monitoring





User  
Experience



Cache  
Technology



Resource  
Monitoring



## Your connection is not private

Attackers might be trying to steal your information from **192.168.50.63** (for example, passwords, messages, or credit cards). [Learn more](#)

NET::ERR\_CERT\_AUTHORITY\_INVALID

Help improve Safe Browsing by sending some [system information and page content](#) to Google.  
[Privacy policy](#)

Hide advanced

Back to safety

This server could not prove that it is **192.168.50.63**; its security certificate is not trusted by your computer's operating system. This may be caused by a misconfiguration or an attacker intercepting your connection.

[Proceed to 192.168.50.63 \(unsafe\)](#)



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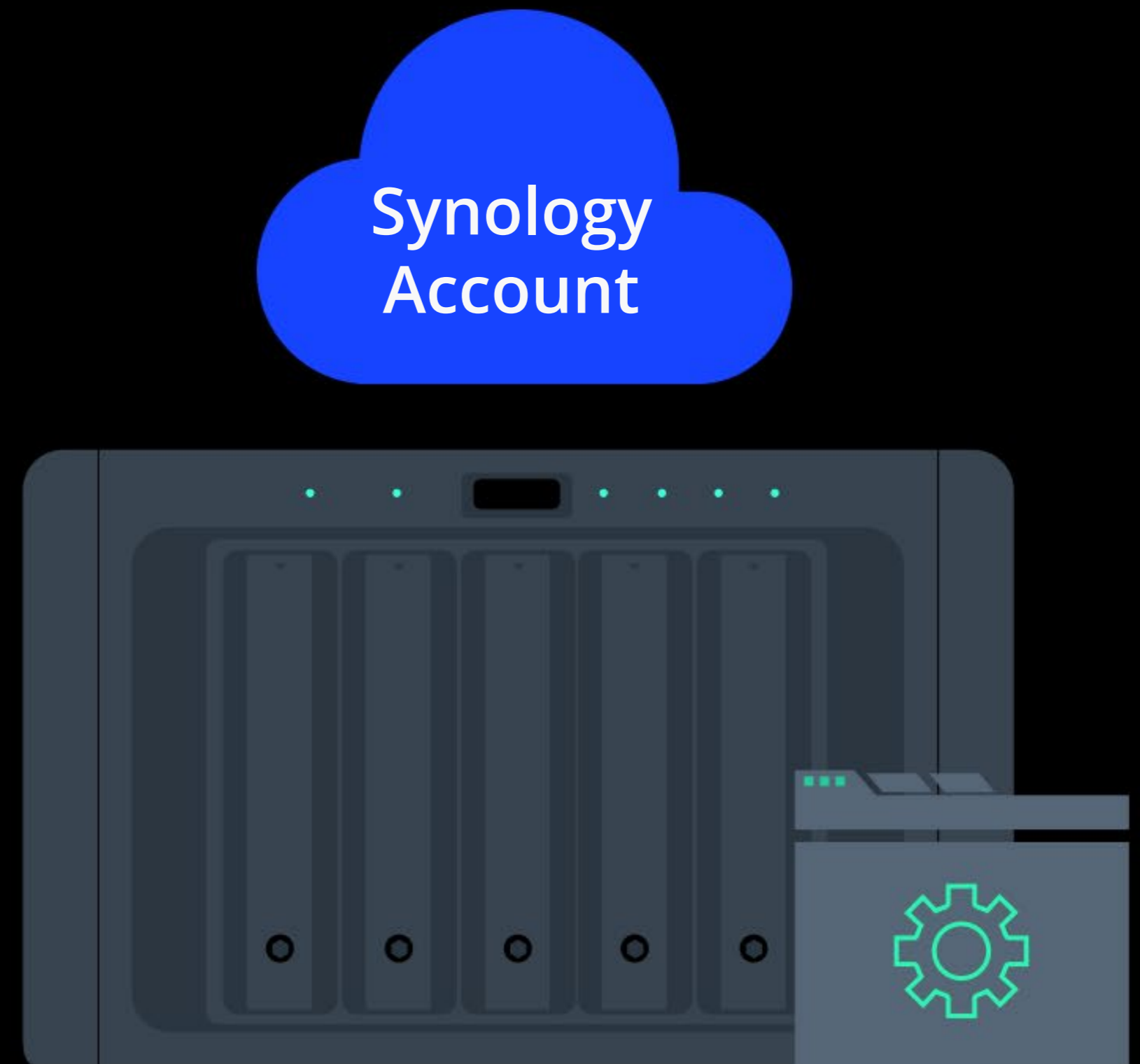


# QuickConnect

All settings in one portal

# System Config Backup

- Back up your system configuration to Synology Account with auto and schedule backup.
- **Instantly** restore all your configurations in Control Panel





# Smooth User Interface for Frictionless Experience

User  
Experience

Cache  
Technology

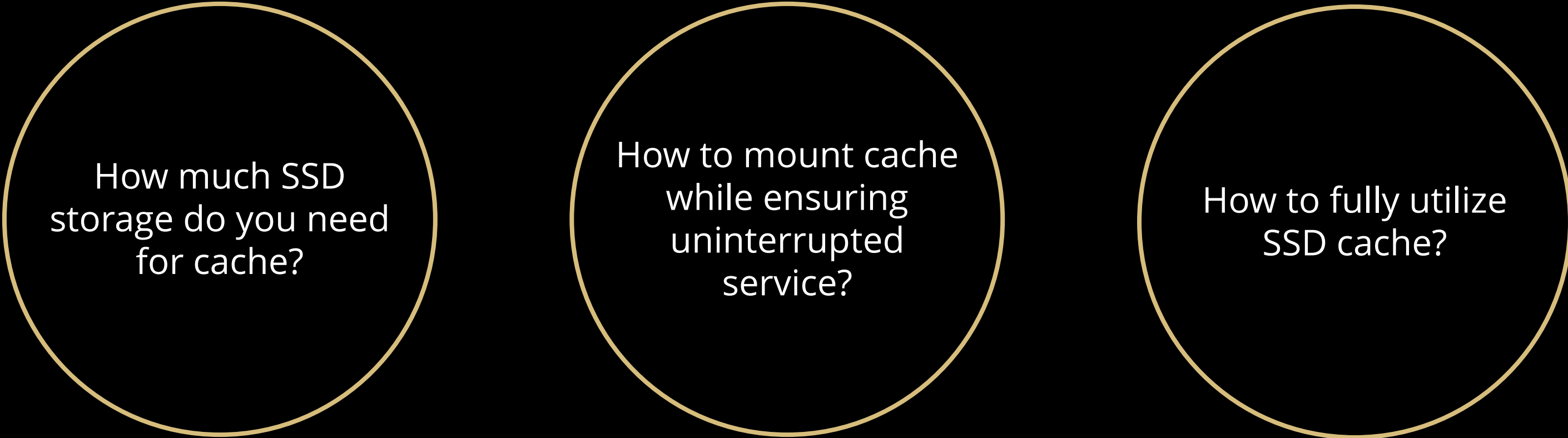
Resource  
Monitoring

The background is a dark, abstract composition of glowing white and light grey particles and lines. These elements form a central, somewhat circular data visualization or network structure, with many smaller, scattered points and faint, curved lines radiating outwards, creating a sense of depth and movement. The overall aesthetic is futuristic and technical.

20%

DS918+ users enable SSD cache





How much SSD  
storage do you need  
for cache?

How to mount cache  
while ensuring  
uninterrupted  
service?

How to fully utilize  
SSD cache?



How much SSD storage do  
you need for cache?

# Traditional Architecture

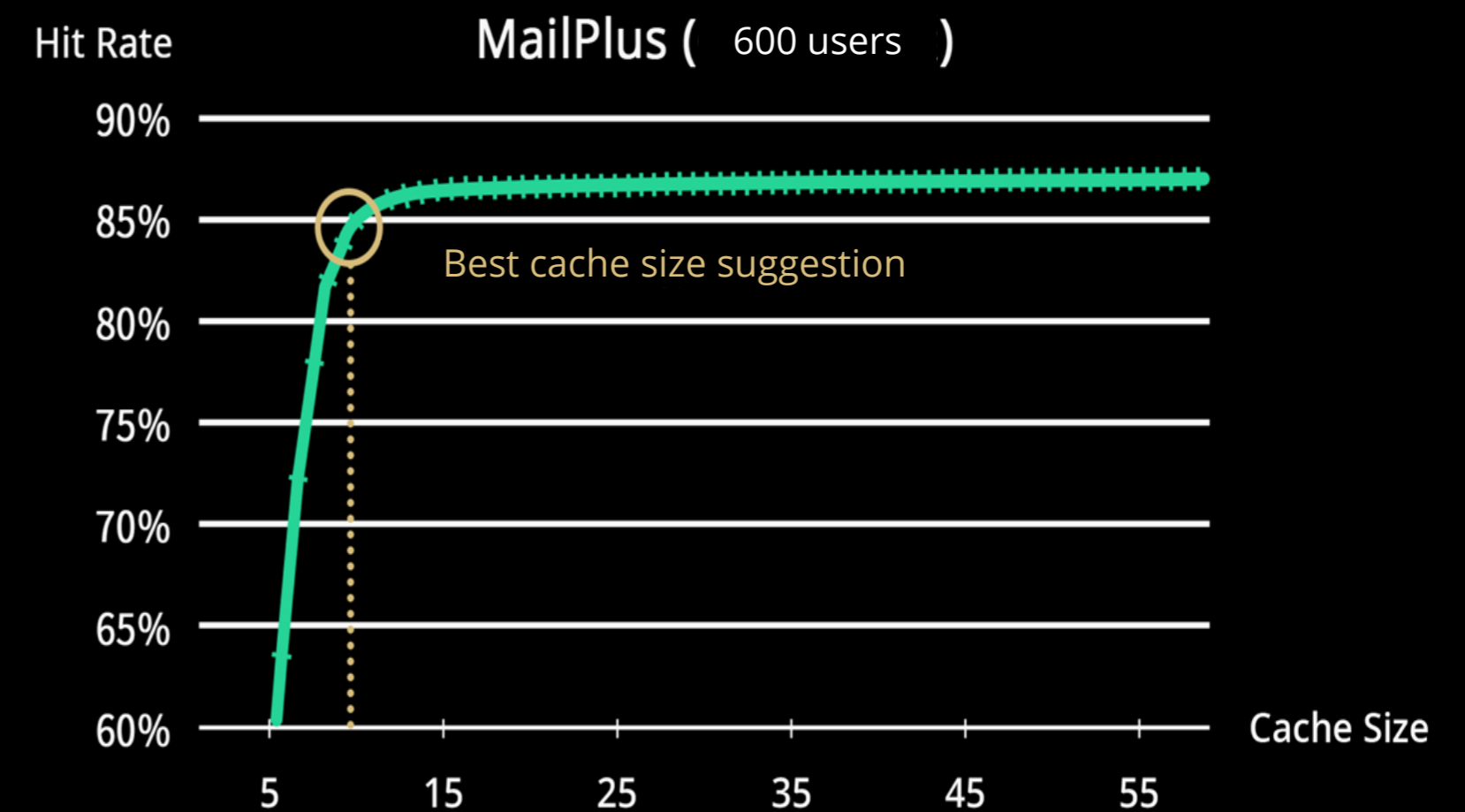
File-based  
Estimated by recent access time

# DSM 7.0

Based on 64KB block  
Estimated by multiple factors  
Simulate actual user scenarios

# All-new SSD cache advisory

- Use multiple parameters to make a more accurate capacity suggestion
- Analyze the IO pattern with actual workloads





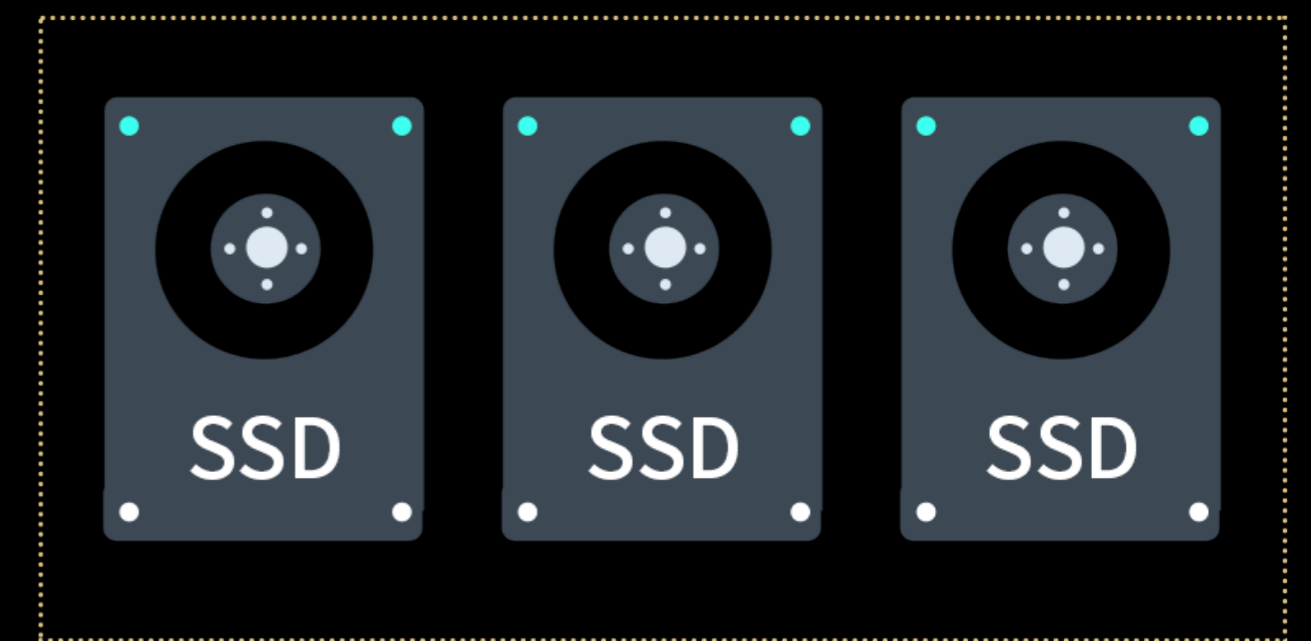
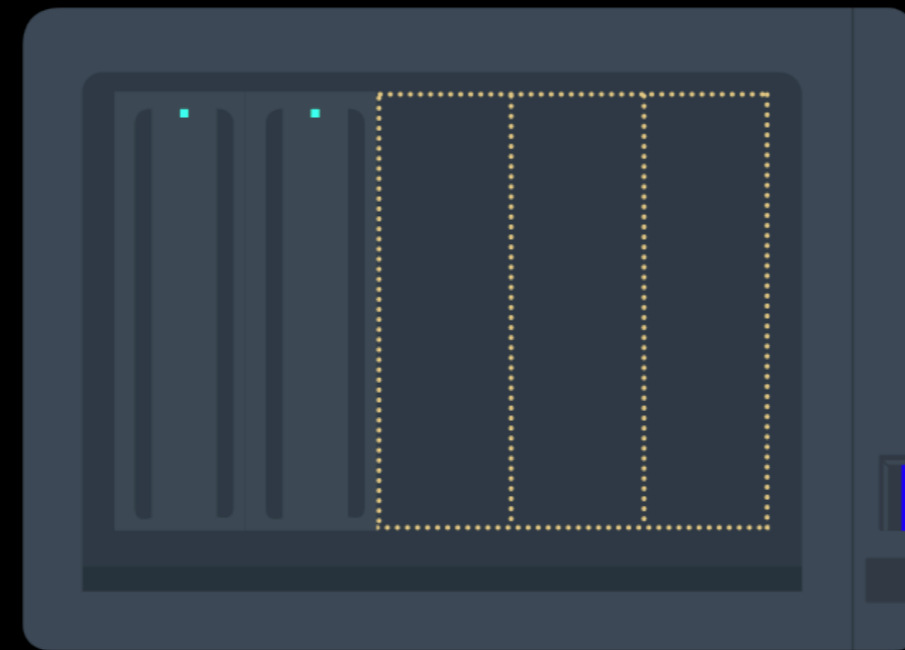
How to mount cache while  
ensuring uninterrupted service?



# Mount Cache Online

- Mount/unmount SSD cache online *without service interruption*

## Mount Cache Online





How to fully utilize SSD cache?








Data



Metadata



-  Package Center
-  Control Panel
-  File Station
-  DSM Help
-  Storage Manager

File Station

- DSM\_7\_Backup
  - DSM7
  - Movies**
  - testfolder6

Properties

General Permission

**General**

Name: Packages

Location: /volume1/Movies/Packages

Size: 225.1 MB (236,037,267 Bytes). Contain 6 file(s), 0 folder(s)

Modified Date: 2019-09-05 14:14:59

Access Link: <http://192.168.52.62:5000/index.cgi?launchApp=S...>


**Owner**

Owner: admin

Apply to this folder, sub-folders and files

Close OK

System Health

 **Healthy**

Your VirtualDSM is working well.

Server Name: DSM\_7\_Backup

LAN 1: 192.168.52.62

Uptime: 02:27:47

---


Resource Monitor

CPU: 0%

RAM: 21%

Total: ↑ 1.2 KB/s ↓ 1.8 KB/s

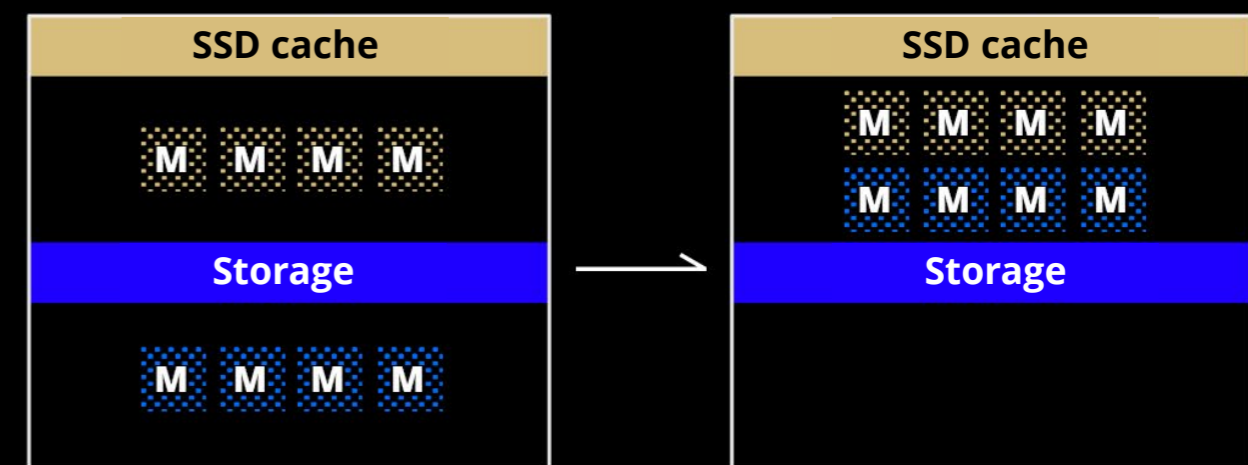


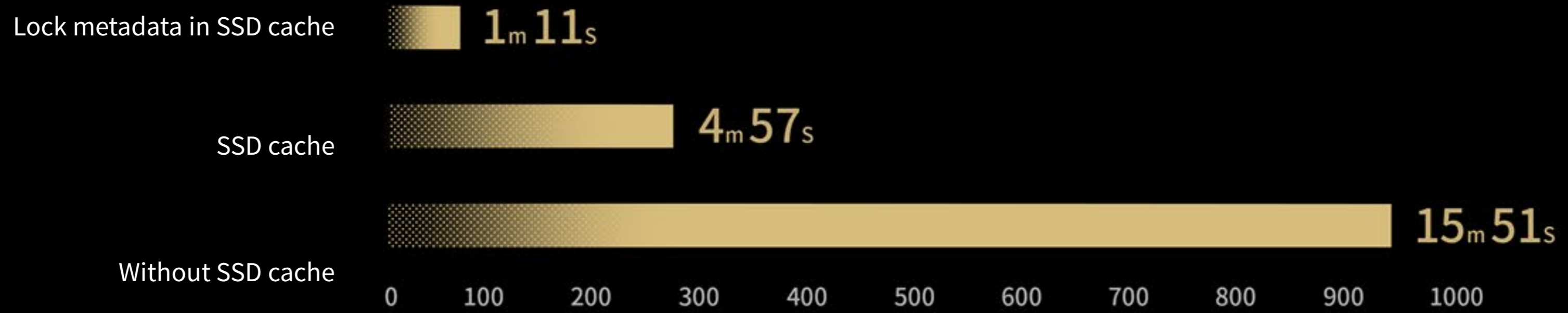
 Report Bugs




# Metadata Lock

- Lock metadata in SSD cache
- Optimize the performance of accessing cold metadata





Unleash the full power of your device.  
**FASTER THAN FAST**



User  
Experience



Cache  
Technology

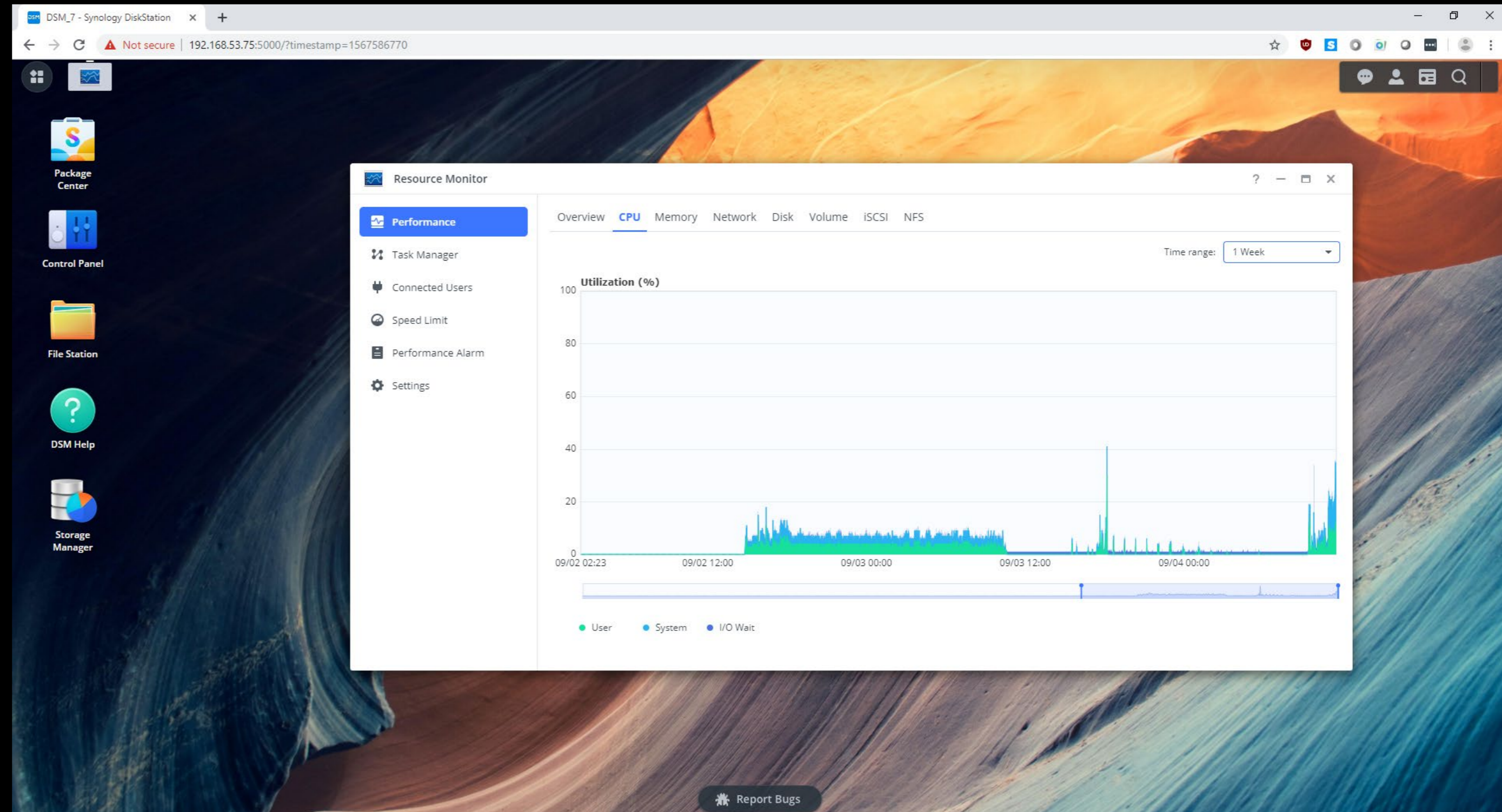


Resource  
Monitoring



# Intuitive Resource Monitor

- Precise performance history





# Intuitive Resource Monitor

- Precise performance history
- Intuitive Task Manager

The screenshot displays the Synology DSM 7 Resource Monitor interface. The browser address bar shows the URL `192.168.53.75:5000/?timestamp=1567586770`. The interface includes a sidebar with navigation options: Package Center, Control Panel, File Station, DSM Help, and Storage Manager. The main content area is titled "Resource Monitor" and features a "Task Manager" tab. A table lists various services and their resource usage.

Service Name	CPU(%)	CPU Time	Memory	Read (sec)	Write (sec)
DSM Desktop	8.1	00:01:26	375.9 MB	0 bytes	0 bytes
DSM Internal Service	1.7	00:15:57	314.1 MB	0 bytes	0 bytes
System Monitor Daemon	0.7	00:01:33	22.6 MB	0 bytes	0 bytes
QuickConnect	0.6	00:03:03	28.1 MB	0 bytes	0 bytes
Central Management System	0.1	00:00:10	6.3 MB	0 bytes	0 bytes
Central Management System Client	0.1	00:00:08	28.2 MB	0 bytes	0 bytes
AFP	0	00:00:00	10.4 MB	0 bytes	0 bytes
Backup Service	0	00:00:00	1.3 MB	0 bytes	0 bytes
FTP	0	00:00:00	1.9 MB	0 bytes	0 bytes
NFS Service	0	00:00:00	4.3 MB	0 bytes	0 bytes
Performance detection service	0	00:00:00	2 MB	0 bytes	0 bytes
RAID process	-	-	-	-	-
Synology Drive Server	3.2	00:05:54	522 MB	0 bytes	233.8 KB
Btrfs space reclamation	0	00:00:00	0 bytes	0 bytes	0 bytes
File Station	0	00:00:00	4.6 MB	0 bytes	0 bytes
SAN Manager	0	00:00:01	46 MB	0 bytes	0 bytes
SNMP	0	00:00:08	10.9 MB	0 bytes	0 bytes
SSH	0	00:00:00	2.6 MB	0 bytes	0 bytes

A "Report Bugs" button is visible at the bottom of the interface.

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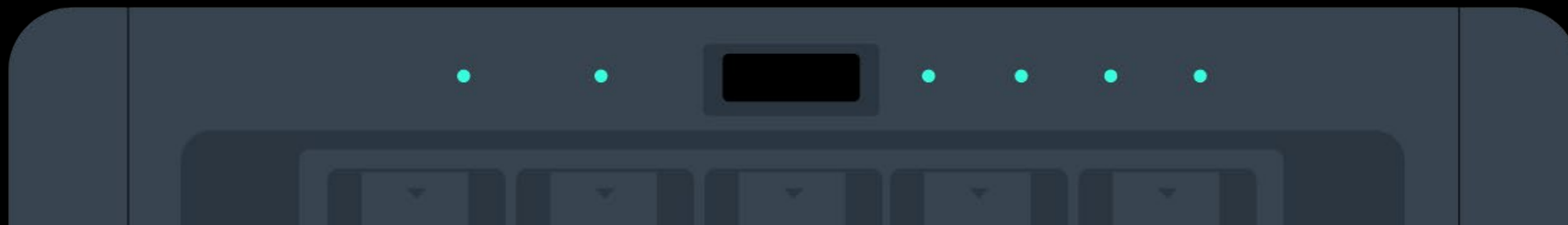
# Everything seems normal

✓ Service

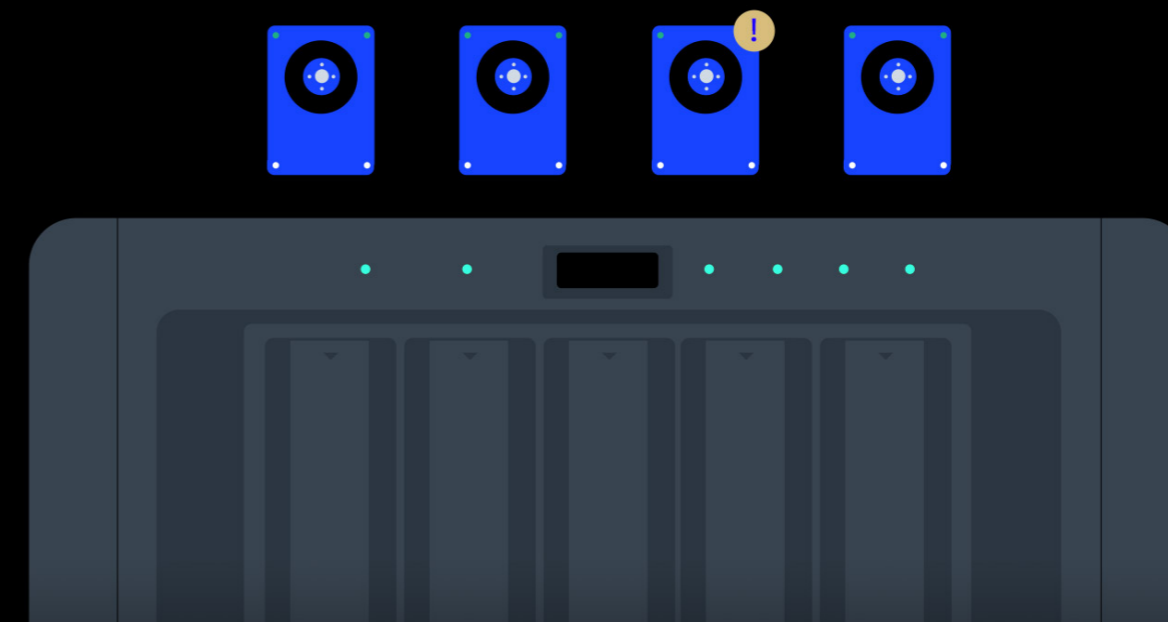
✓ Other Applications

✓ File System

✓ RAID

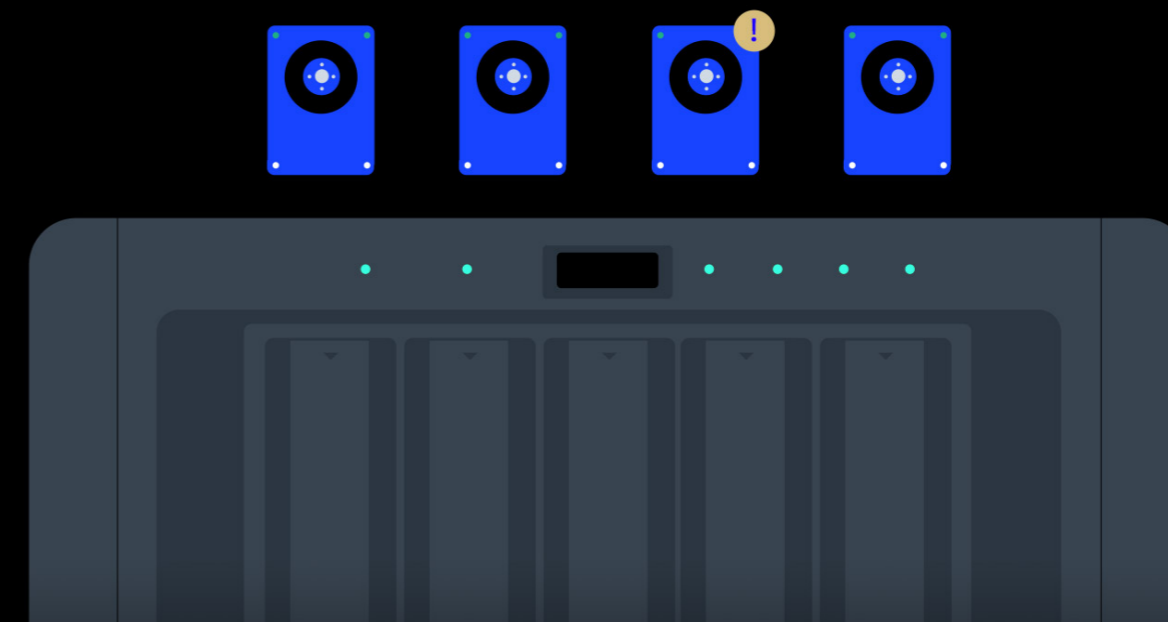


HDD causes the  
performance bottleneck



# Identify the performance bottleneck

- Schedule sampling for real-time feedback
- Identify the problematic disk for stable performance





## Compare with others

Compare with other disks in the  
same RAID

Issue an alert when a  
replacement can increase  
performance by 50%

## Compare with its own

Compare with past performance  
history

Issue an alert when  
performance drops by more  
than 50%

Rapid troubleshooting  
Intuitive. Efficient. Stable.

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Professional features, for professional users

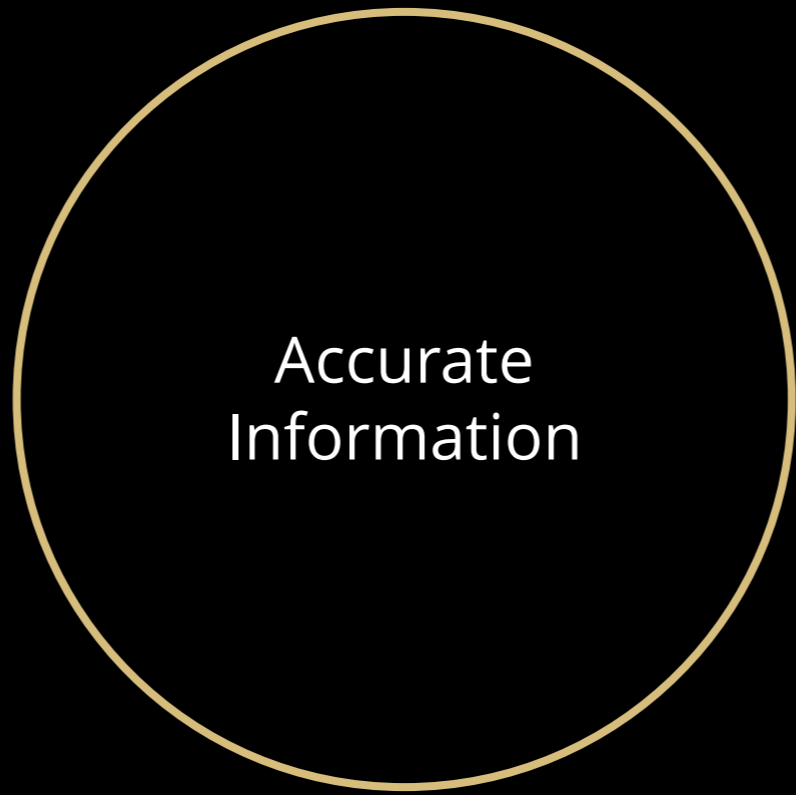


The background is a dark, almost black, field filled with a complex network of thin, white, intersecting lines. Scattered throughout this network are numerous small, bright white dots of varying sizes, some appearing as sharp points of light while others are slightly blurred, creating a sense of depth and movement. The overall effect is reminiscent of a starry night sky or a digital data visualization.

# New Storage Manager

Facilitate your management towards storage

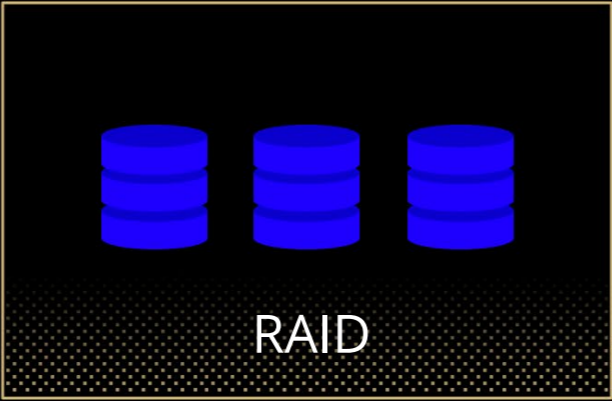




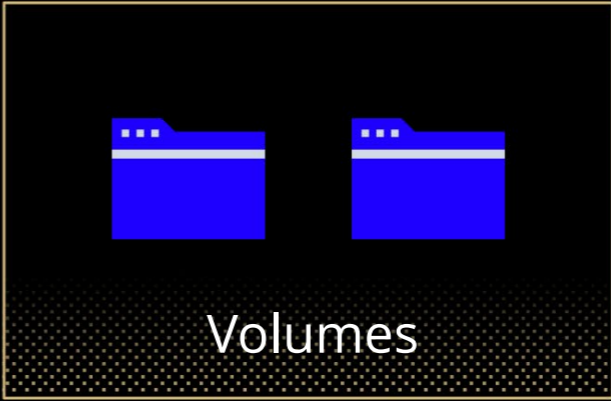




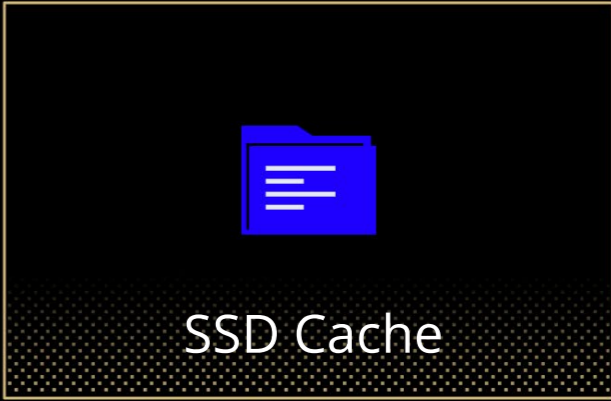
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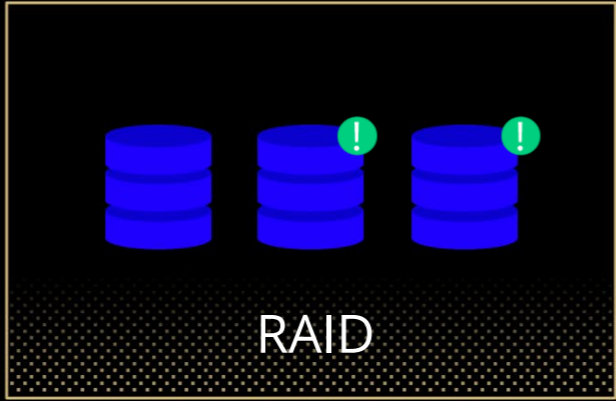


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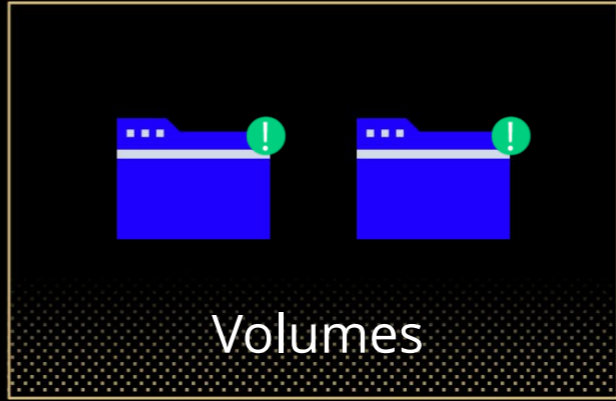




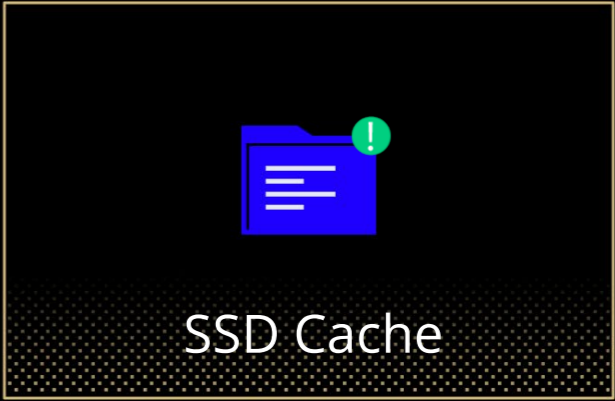
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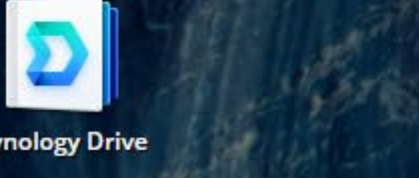
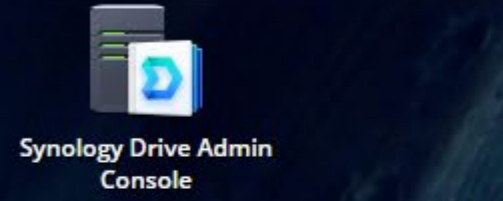
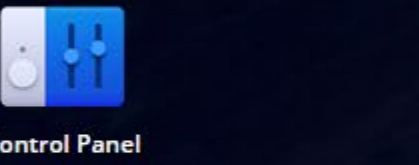
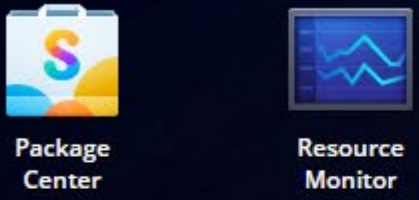
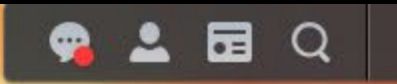


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**Storage Manager**

Overview | Storage | **Storage Pool 1** | Volume 1 | Storage Pool 2 | Volume 2 | HDD/SSD

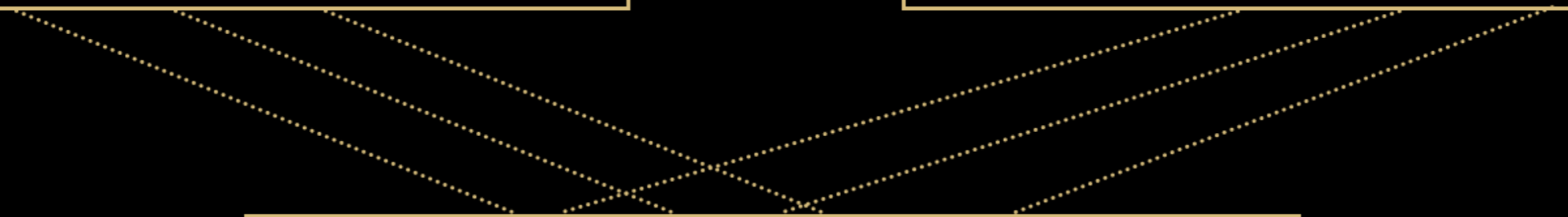
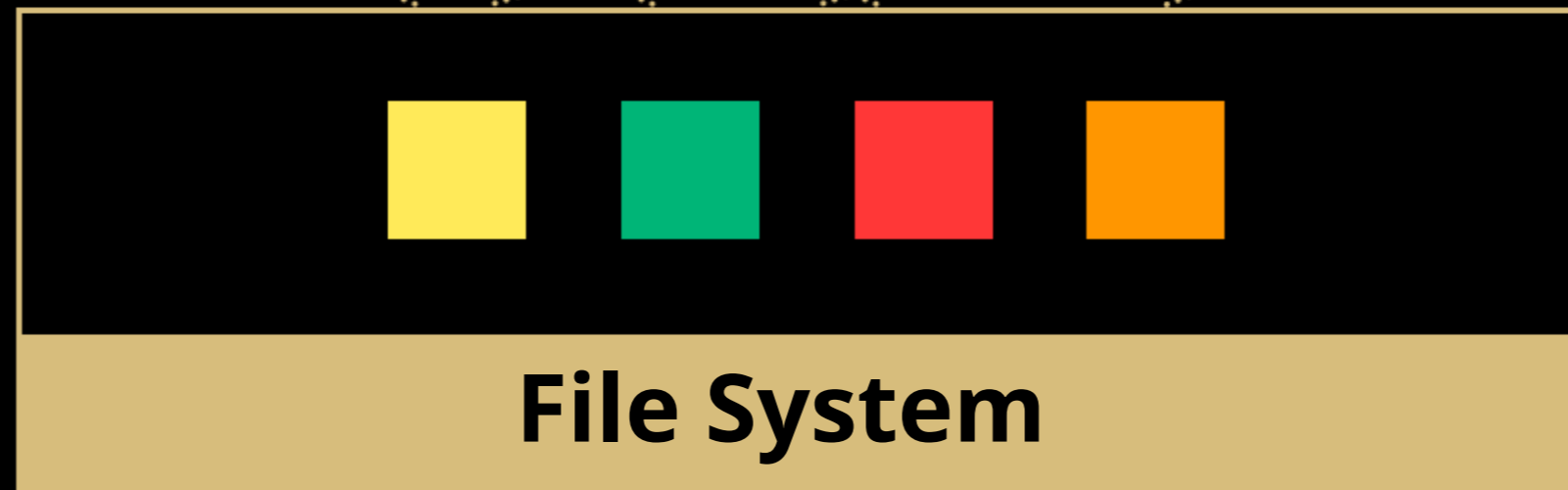
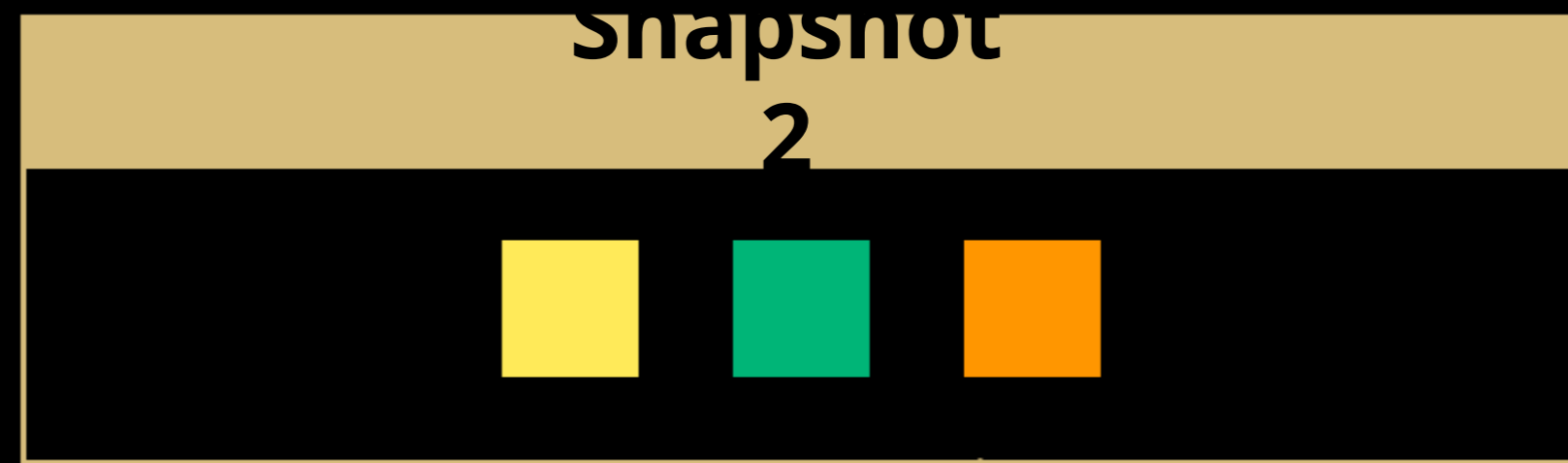
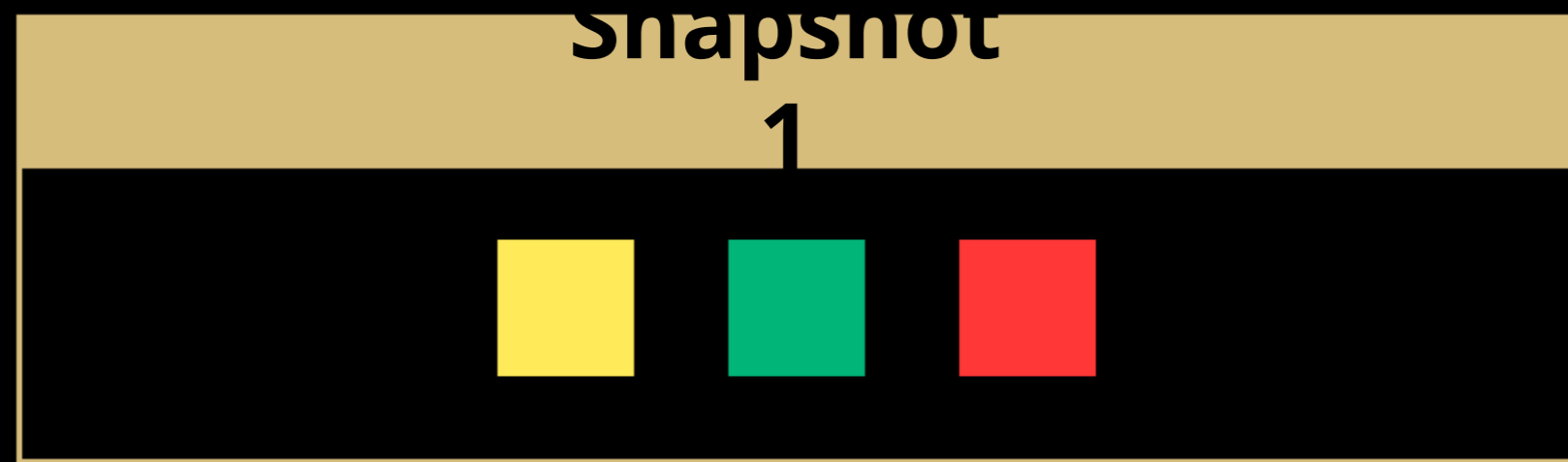
Create | Schedule Data Scrubbing | Hot Spare | SSD Cache Advisor | Settings

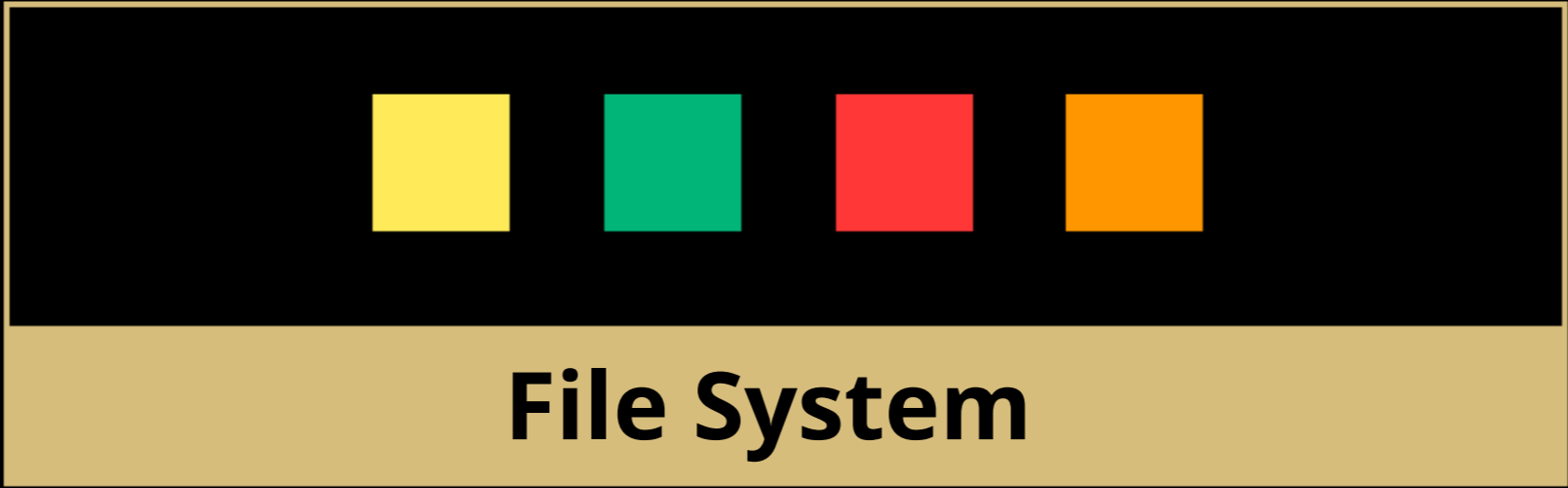
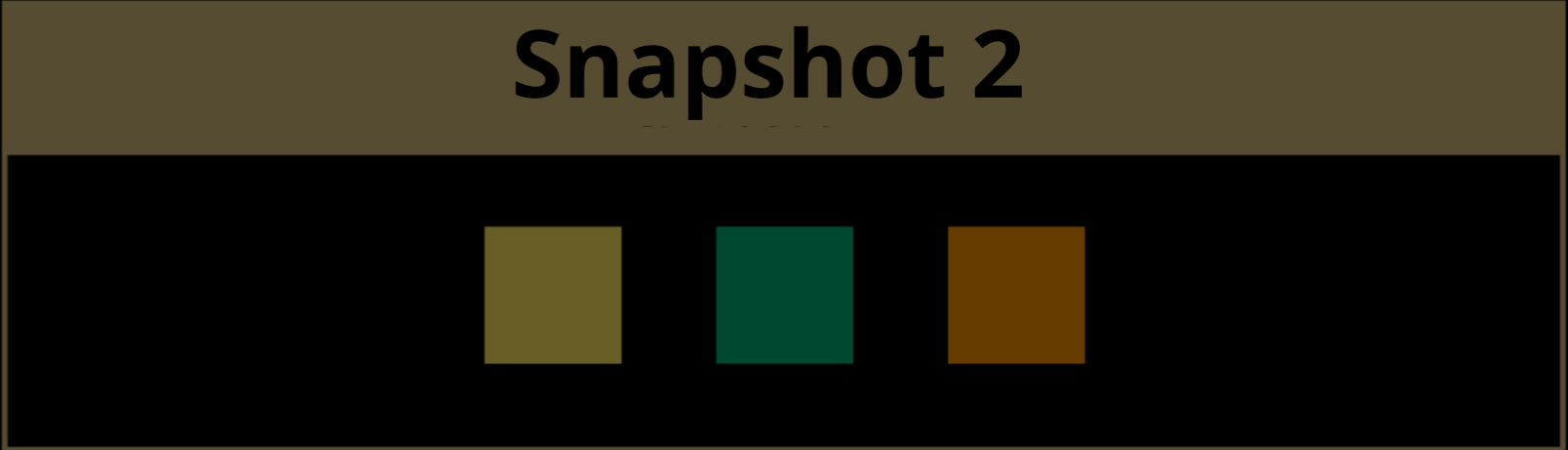
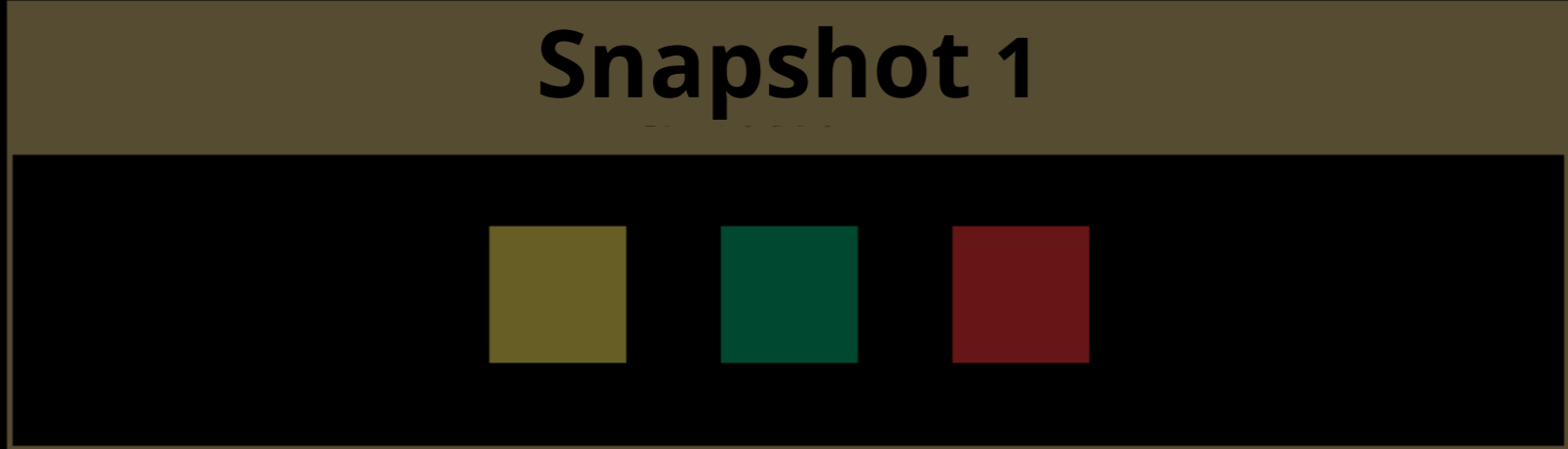
	<b>Storage Pool 1</b> Healthy	461.2 GB	...
	<b>Volume 1</b> Healthy File system: Btrfs	69.2 GB / 442.7 GB	...
	<b>SSD Cache 1</b>		...
	<b>Storage Pool 2</b> Healthy	1.8 TB	...
	<b>Volume 2</b> Healthy File system: Btrfs	497.4 MB / 1.7 TB	...





Don't know how to clean up  
for more space?





# Industry-leading Snapshot usage fast calculation

The screenshot displays the Synology Storage Manager interface. The main window shows the following information:

- Storage Pool 1:** Healthy, 1.8 TB
- Volume 1:** Healthy, 417.7 GB / 1.8 TB, File system: ext4

An "Usage Details" modal window is open, showing a donut chart at 78% usage and a table of storage components:

Category	Usage
Shared Folder	10.11 TB
LUN	1.92 TB
Synology Drive database	1.01 TB
Snapshot	2.83 TB
Others	1.42 TB
Available capacity	4.65 TB
<b>Total</b>	<b>21.93 TB</b>

At the bottom of the interface, there is a "Report Bugs" button.



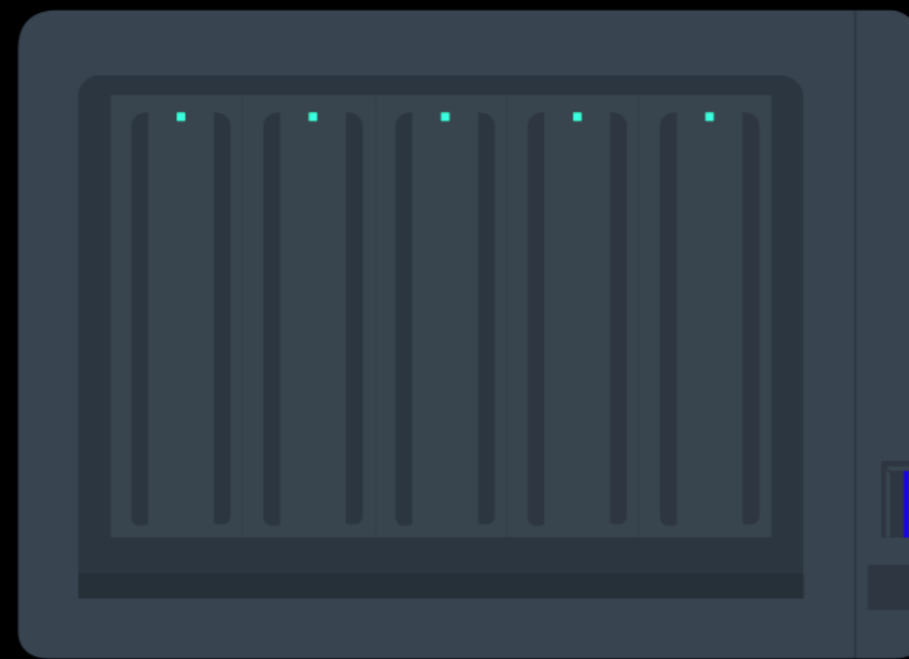


Market  
Trends



User  
Needs

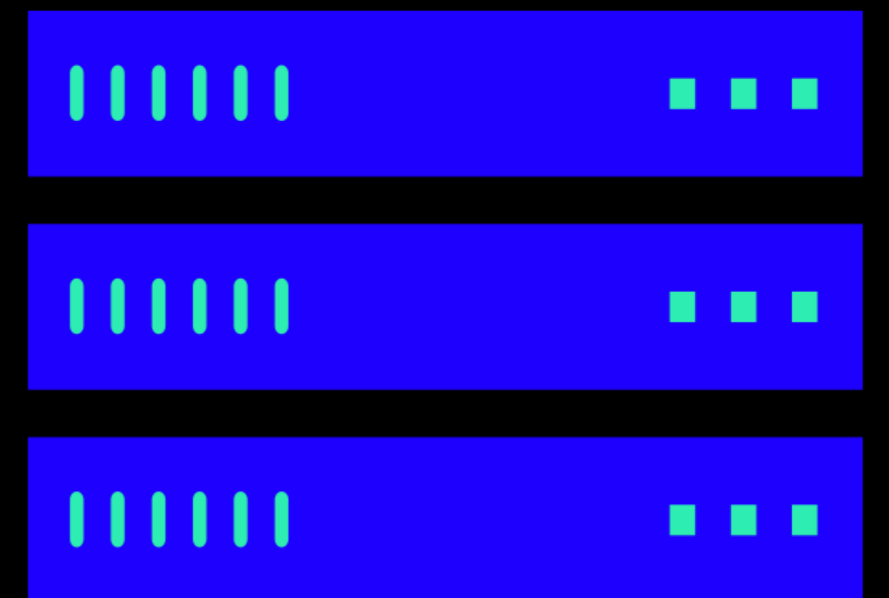
# Mount storage pools safely online



Unmount safely



Mount online



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DSM

- Create storage volumes
- Create iSCSI LUNs
- Create iSCSI Targets

VMware vCenter

- Connect to iSCSI Targets
- Mount iSCSI LUNs
- Create datastores
- Set up virtual machines

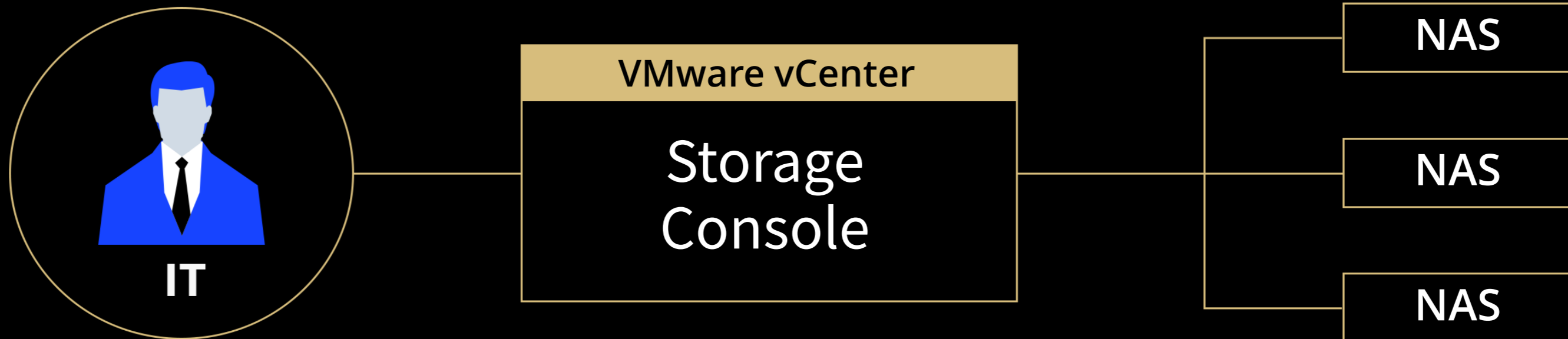
Single Interface. One Portal



# Synology Storage Console

VMware & Windows Server



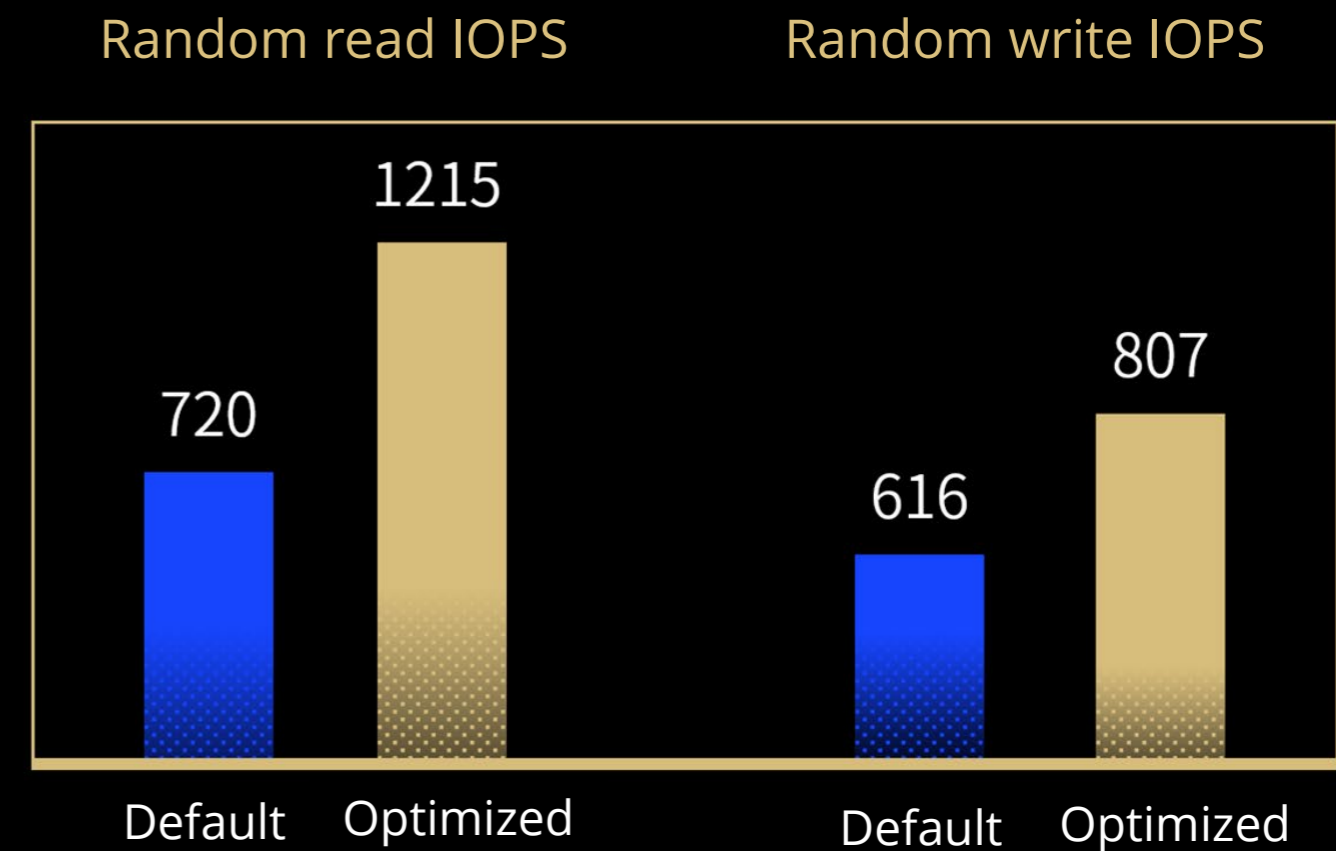


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# One-click optimization

- Auto-adjust hard disk efficiency
- Adjust the iSCSI parameters of VMware & DSM
- Improve performance, mitigate delay, and reduce offline mistakes.



- Random Read improves 50%, write improves 30%
- Sequential Read improves 20%, write improves 12%





Synology Snapshot Manager for Windows

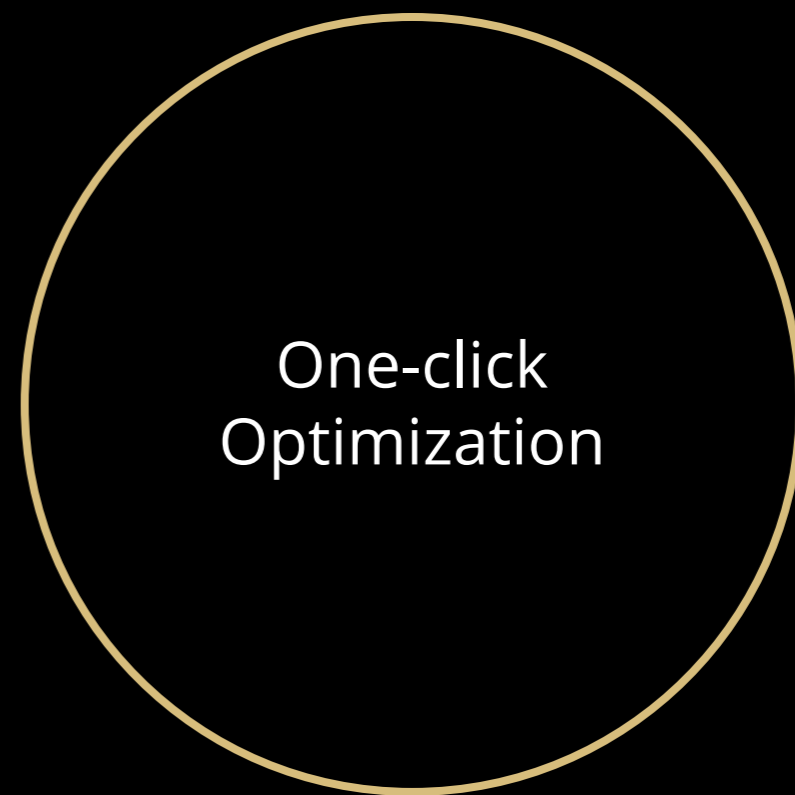
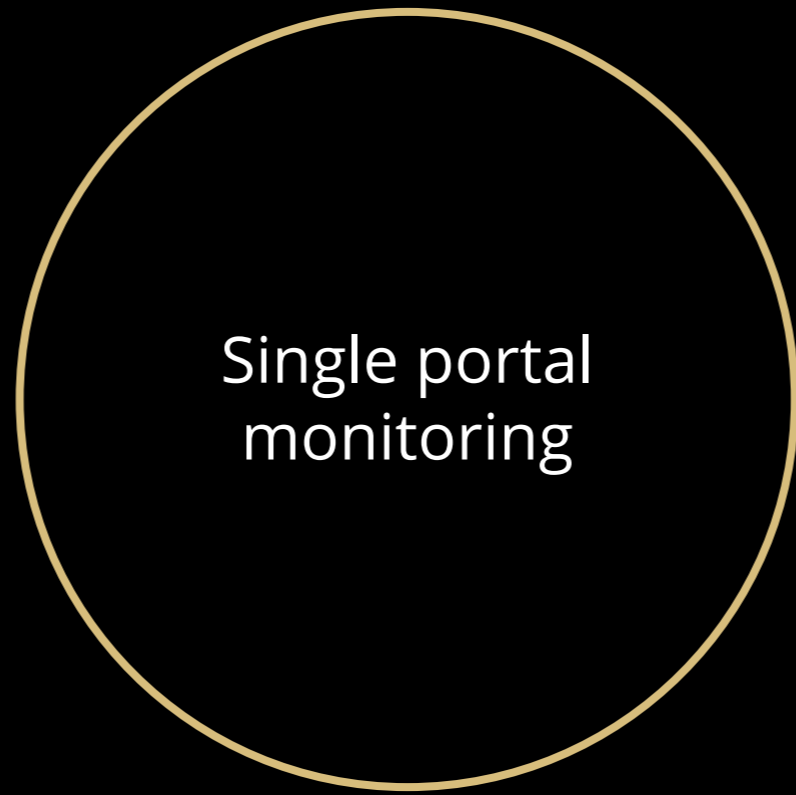
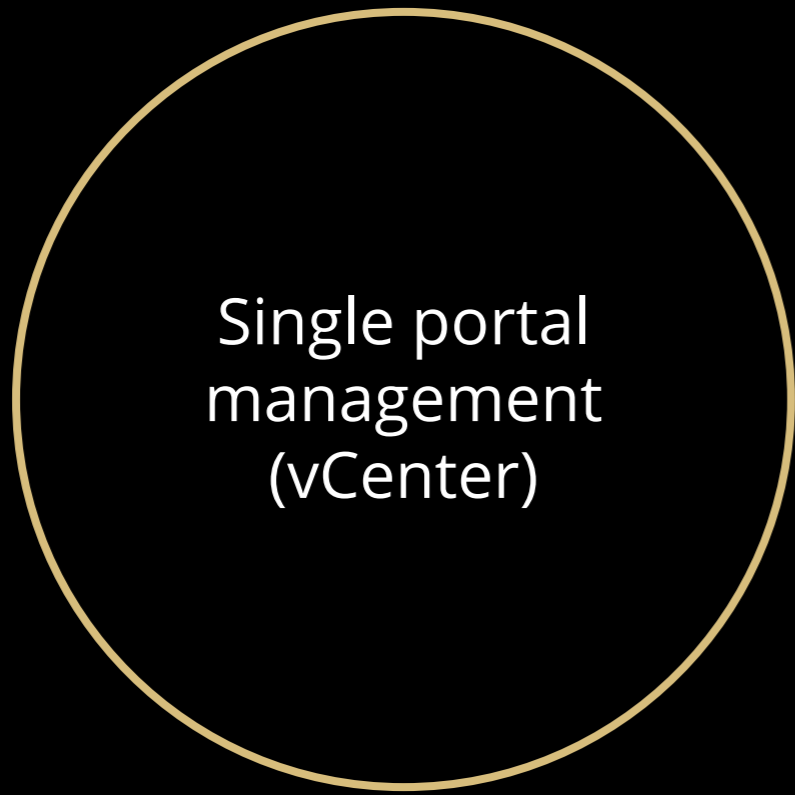
Add Edit Delete

**charlie3018**  
Normal

**DemoStorage3**  
Normal

Model: DS3018xs  
DSM Version: DSM 7.0-40351  
IP Address: [10.17.42.1](http://10.17.42.1)

Mount path	Name	Status	Size	DSM volume usage	Detail
-	LUN-5	Normal	128 GB	198.6 MB / 2.6 TB	-
-	LUN-1	Normal	10 GB	198.6 MB / 2.6 TB	-
-	LUN-2	Normal	10 GB	198.6 MB / 2.6 TB	-



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Prevention is better than cure





# Synology Active Insight

Predict. Prevent. Notify. Resolve.



We know *Synology* better than anyone else





# 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](#)

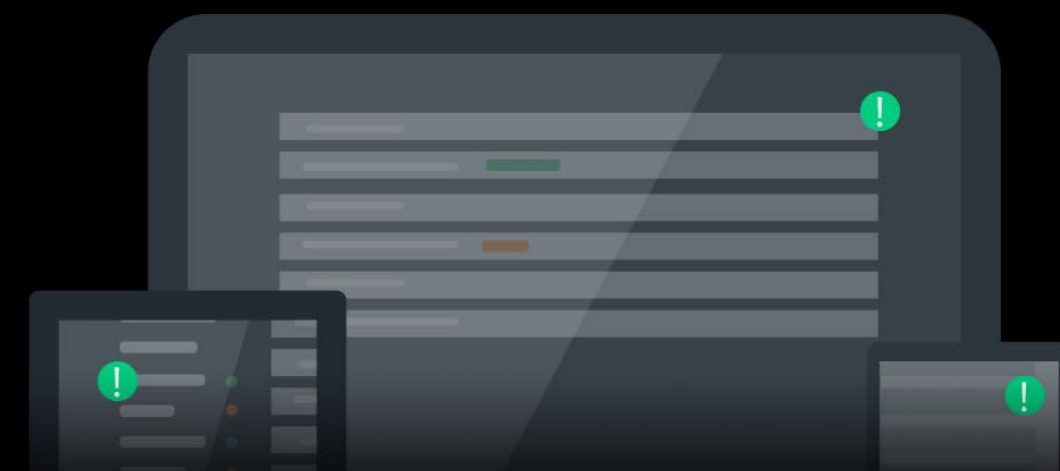
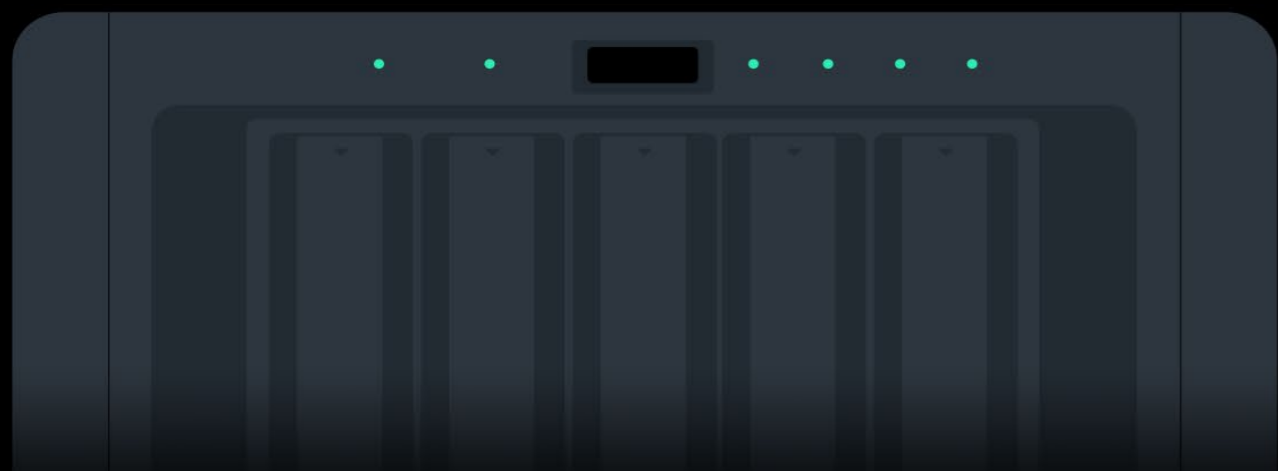
The following MR1 firmware binary is available for use together with the Storage Spaces Direct automated firmware update method, as appropriate for your device.

# Synology's Solution

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Actively update to problem list  
(status and performance figures)

Actively notify when problems  
are identified



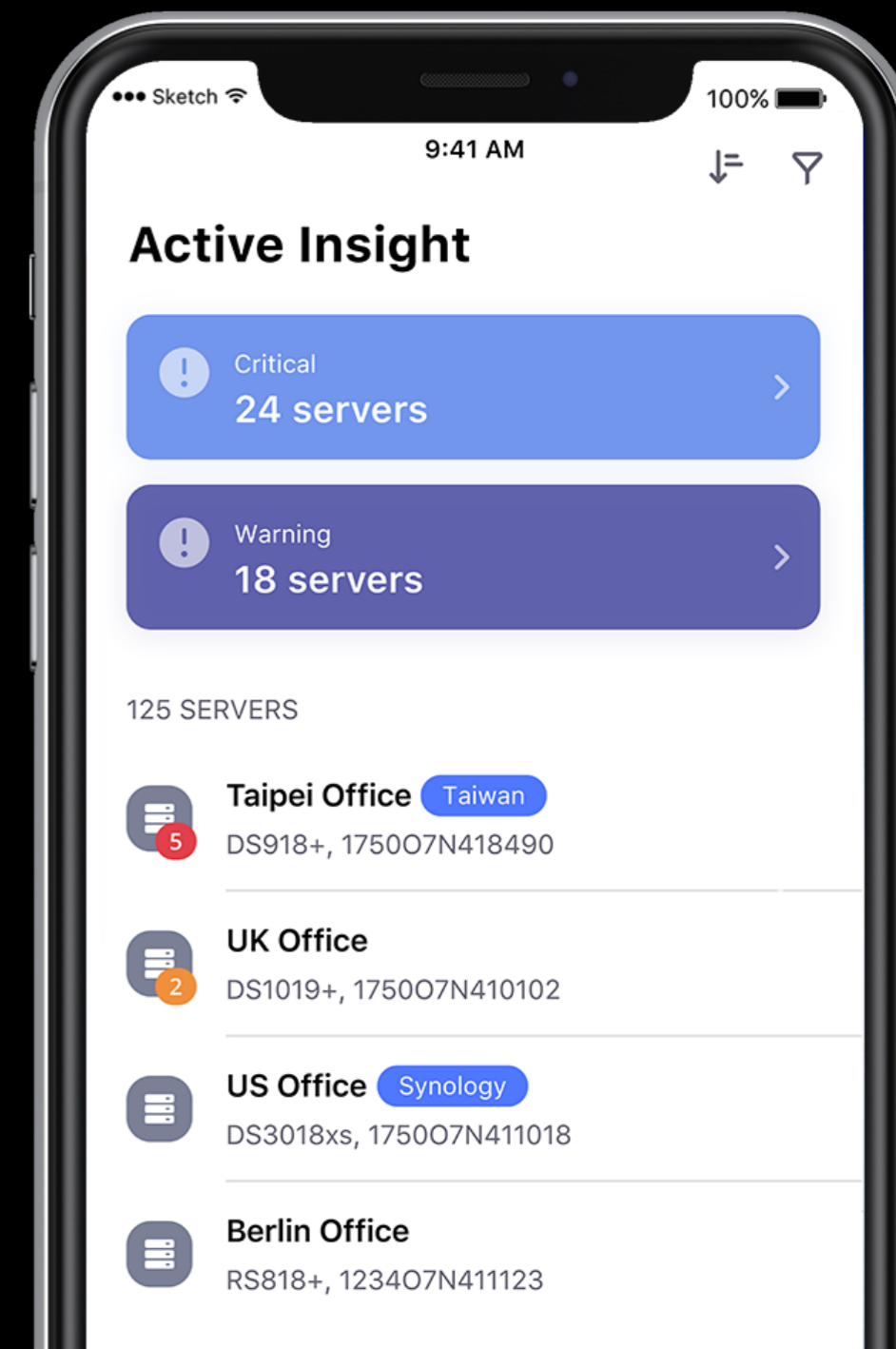
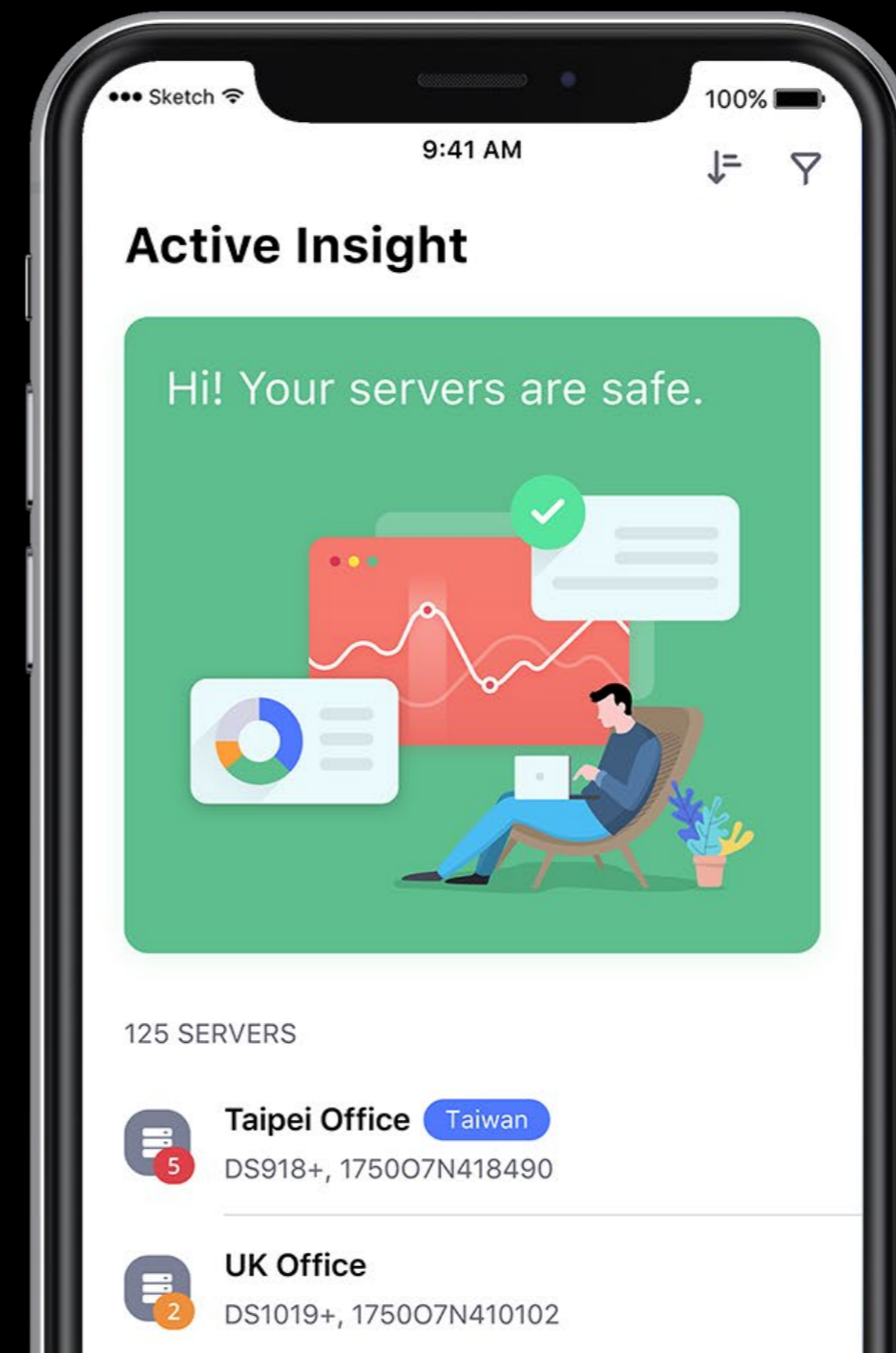


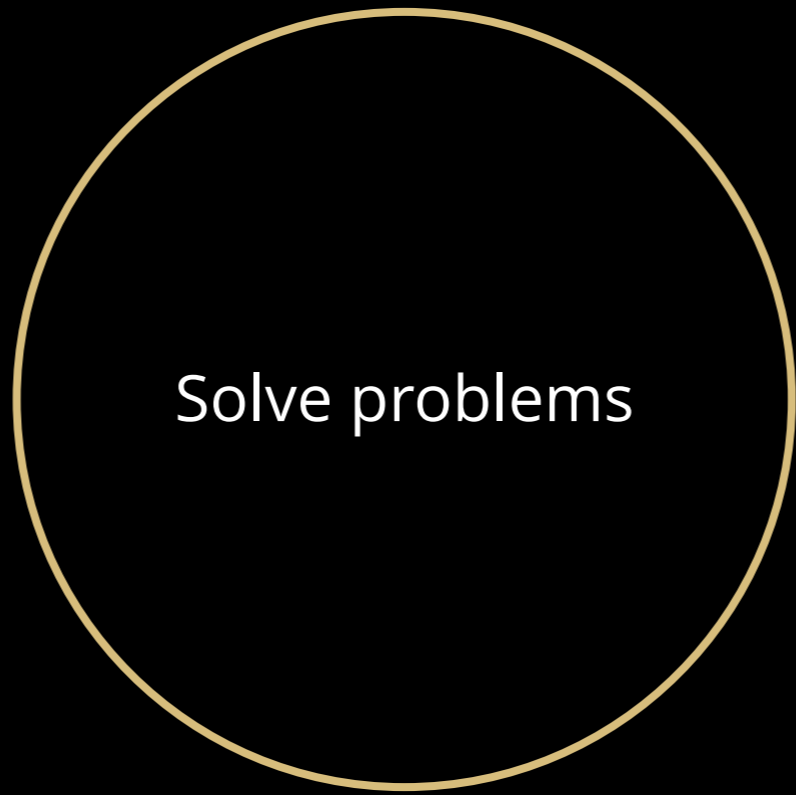
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# Active Insight mobile


- System status in control, *anytime and anywhere*







# Build A Better World with Data

 Alexandra Bejan  
Marketing Manager

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