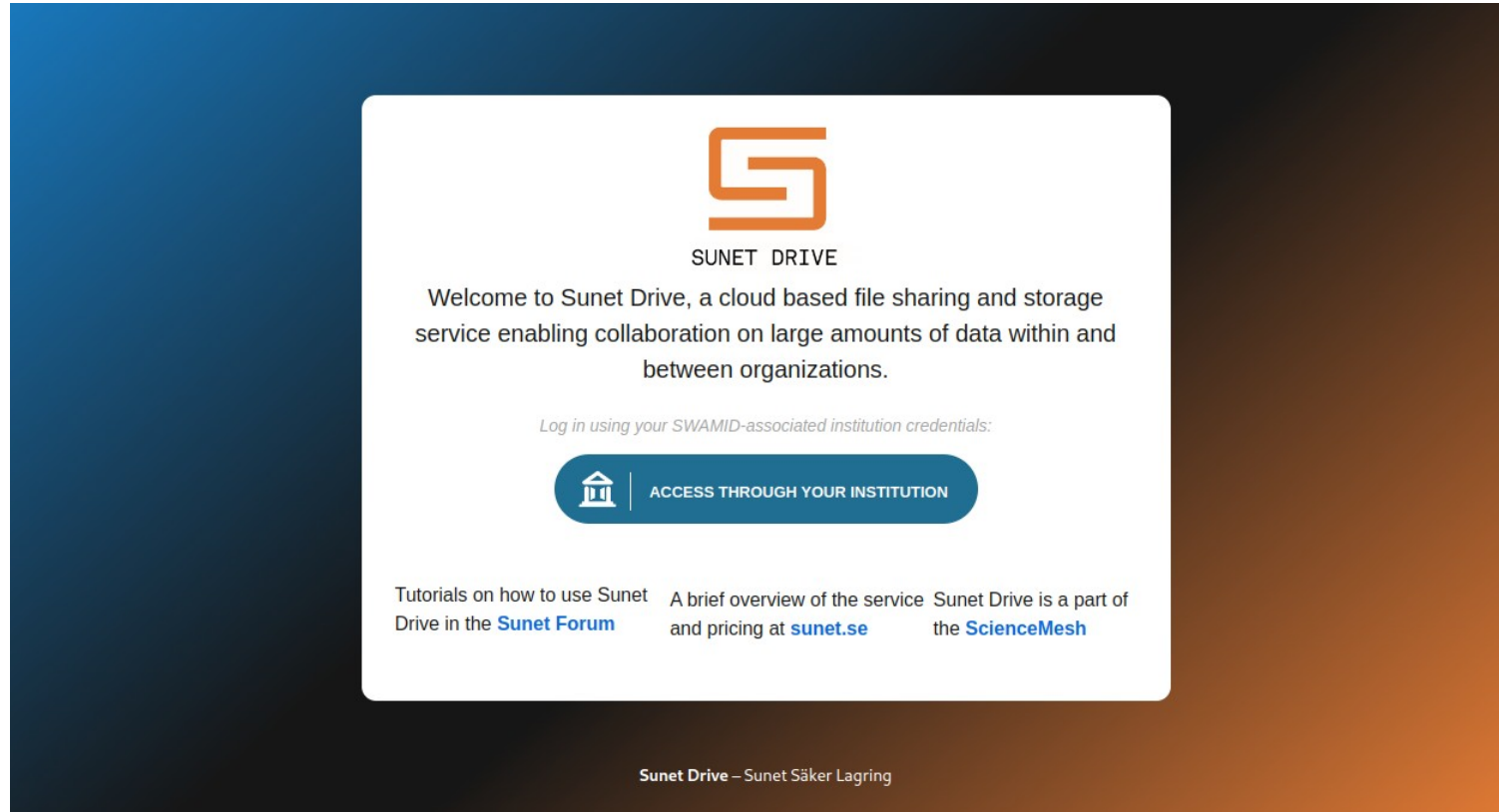


# Sunet Drive

An academic EFSS packaged for EOSC

A screenshot of the Sunet Drive login page. The page features a white background with a blue header and footer. At the top center is the Sunet Drive logo, a stylized orange 'S'. Below the logo, the text 'SUNET DRIVE' is displayed. A welcome message follows: 'Welcome to Sunet Drive, a cloud based file sharing and storage service enabling collaboration on large amounts of data within and between organizations.' Below this, a login instruction reads: 'Log in using your SWAMID-associated institution credentials:'. A prominent blue button with a white building icon and the text 'ACCESS THROUGH YOUR INSTITUTION' is centered. At the bottom, there are three links: 'Tutorials on how to use Sunet Drive in the Sunet Forum', 'A brief overview of the service and pricing at sunet.se', and 'Sunet Drive is a part of the ScienceMesh'. The footer contains the text 'Sunet Drive – Sunet Säker Lagring'.

## CS3 – 2024 – Community Site Report

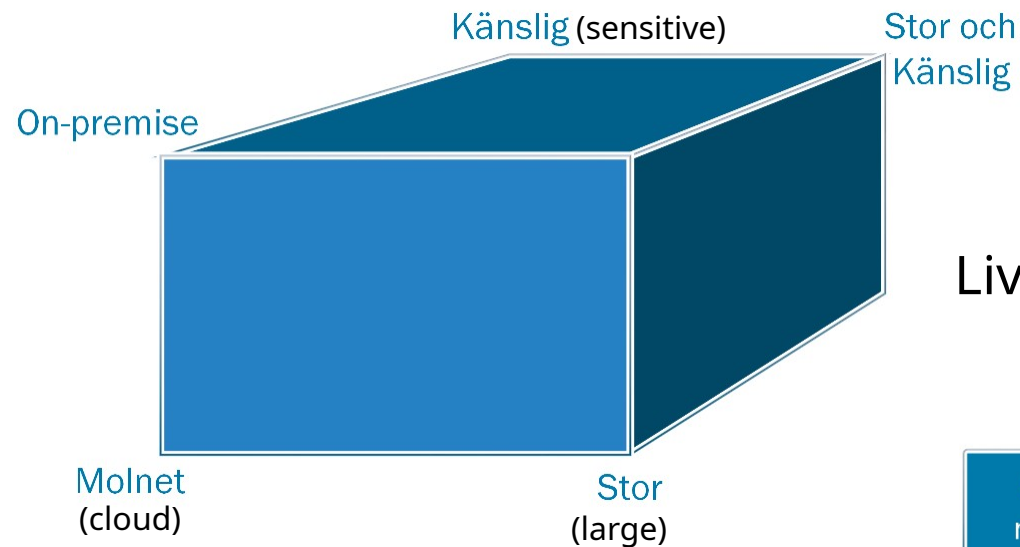
# Anecdote

Thanks for the detaljer information! I will be ending my employment this Saturday, so am looking for some solution where the data will not be deleted due to the deactivation of my akka id and where it would be accessible by my PI in the future.

**Wednesday, 10:51**

# Research Data - A model

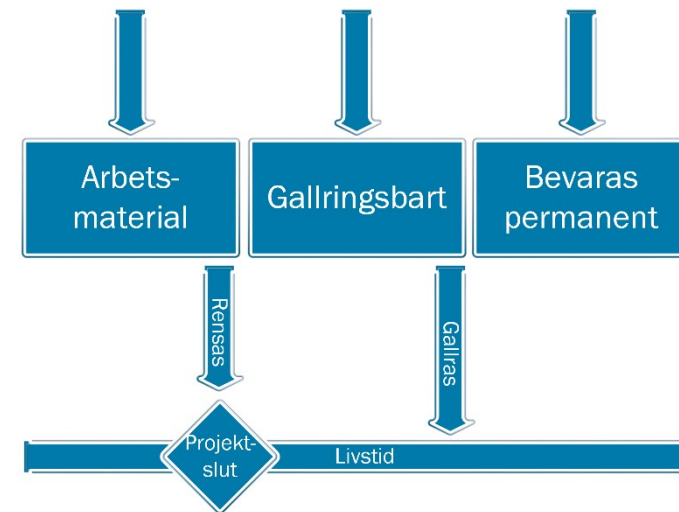
## Classification



How do you access data?

Where is my data?

## Lifecycle



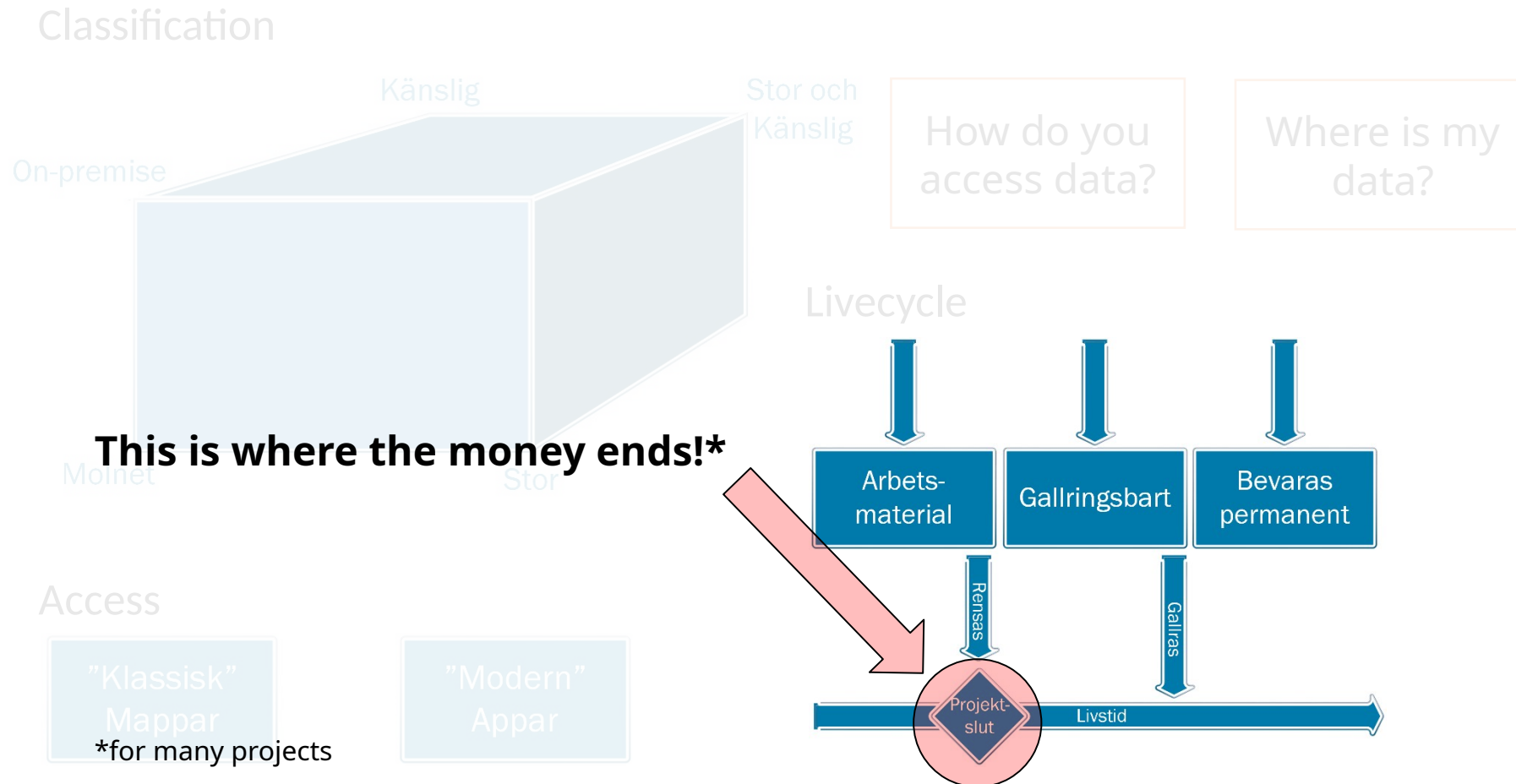
- Working material
- Data retention
- Archival

## Access

"Klassisk" Mappar

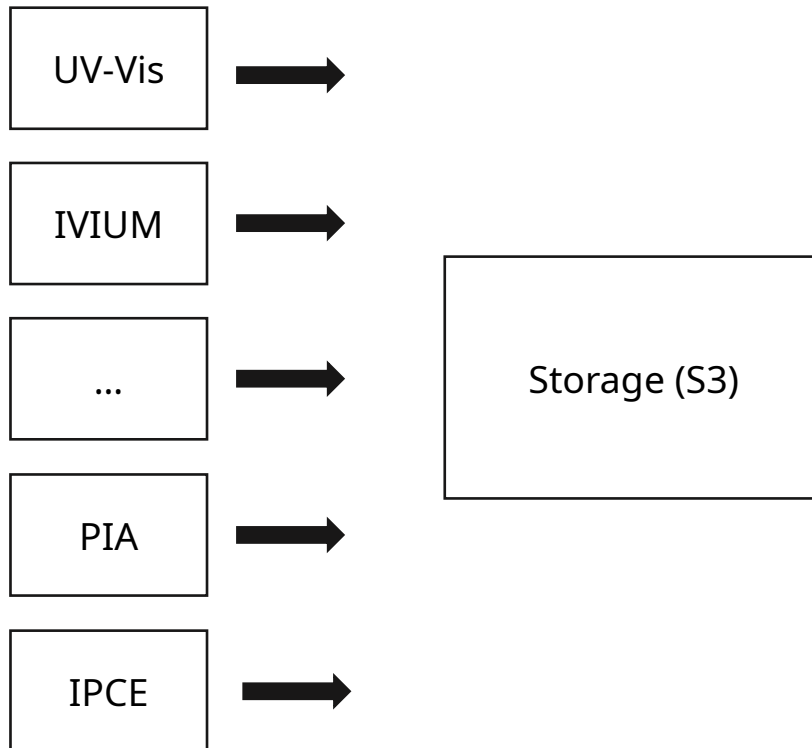
"Modern" Appar

# Research Data - A model

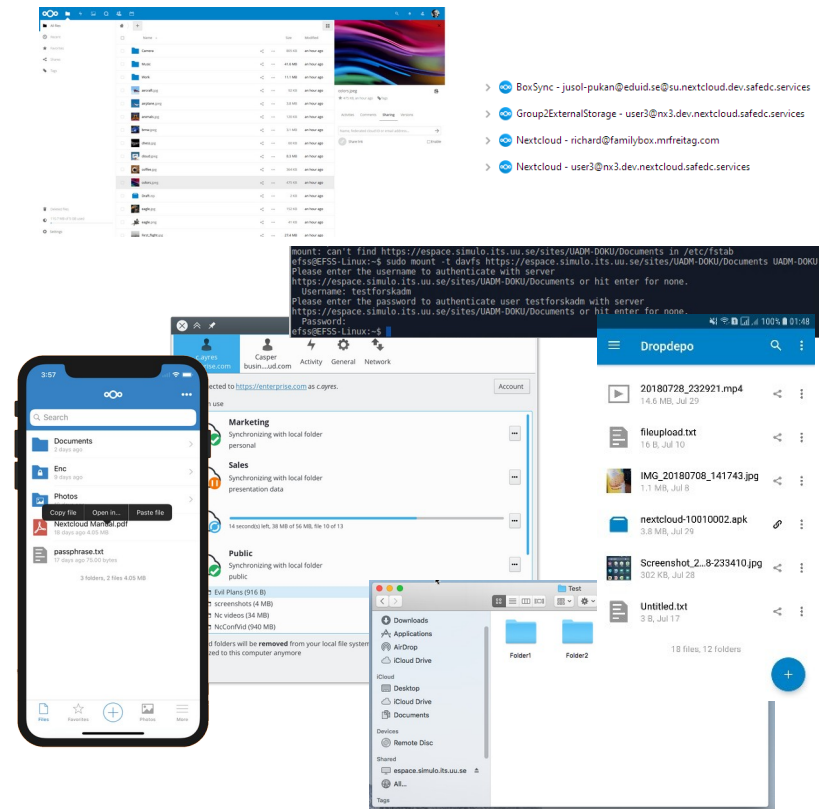


# How it started

## Primary data sources



## Access



# How it is going

## Primary data sources

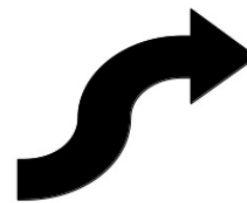
- UV-Vis
- IVIUM
- ...
- PIA
- IPCE



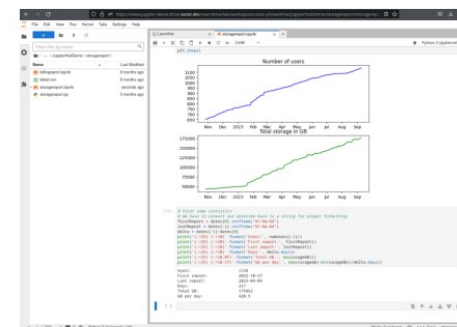
## Secure Storage

A collage of images illustrating secure storage and synchronization. It includes a Windows File Explorer window showing a folder structure, a Nextcloud mobile app interface on a smartphone, a Nextcloud desktop sync client interface, a terminal window with command-line output, and a file manager window showing various files like '20180728\_232921.mp4', 'f1oocloud.txt', and 'IMG\_20180708\_141743.jpg'.

- BevSync - justol-pukan@eduid.se@su.nextcloud.dev.safedc.services
- GroupExternalStorage - user3@ms3.dev.nextcloud.safedc.services
- Nextcloud - richard@familybox.mfrettag.com
- Nextcloud - user7@ms3.dev.nextcloud.safedc.services



## Analyze and Publish



A screenshot of a 'Welcome to sciebo RDS!' page. The page features a circular diagram with icons representing different data sources and processes. Below the diagram, there is a list of steps: 1. Connect a sciebo extension, 2. Check sciebo, 3. Step, 4. Step. The page also includes a 'Get started in two easy steps' section and a 'Feedback' button.

# Co-management of nodes

## The main storage unit is an S3-bucket

Sunet Drive is a cloud-based file storage and collaboration service that utilises the S3 (Simple Storage Service) infrastructure as its main storage unit. S3 is a highly scalable, reliable, and secure object storage service that can store and retrieve any amount of data from anywhere on the web.

## Every university has its own Sunet Drive node

Sunet Drive is a service provided by the Swedish University Network (SUNET), which is a collaboration between Swedish universities and colleges. Each university has its own Sunet Drive node, which provides a secure and dedicated file storage environment for its faculty, staff, and students.

## Data can be shared between nodes

One of the benefits of the Sunet Drive service is that data can be easily shared between nodes, enabling collaboration and knowledge-sharing between different universities and departments. This is achieved through the use of access control lists (ACLs), which allow node administrators to grant or revoke permissions to specific users or groups.

## Separation of access and ownership

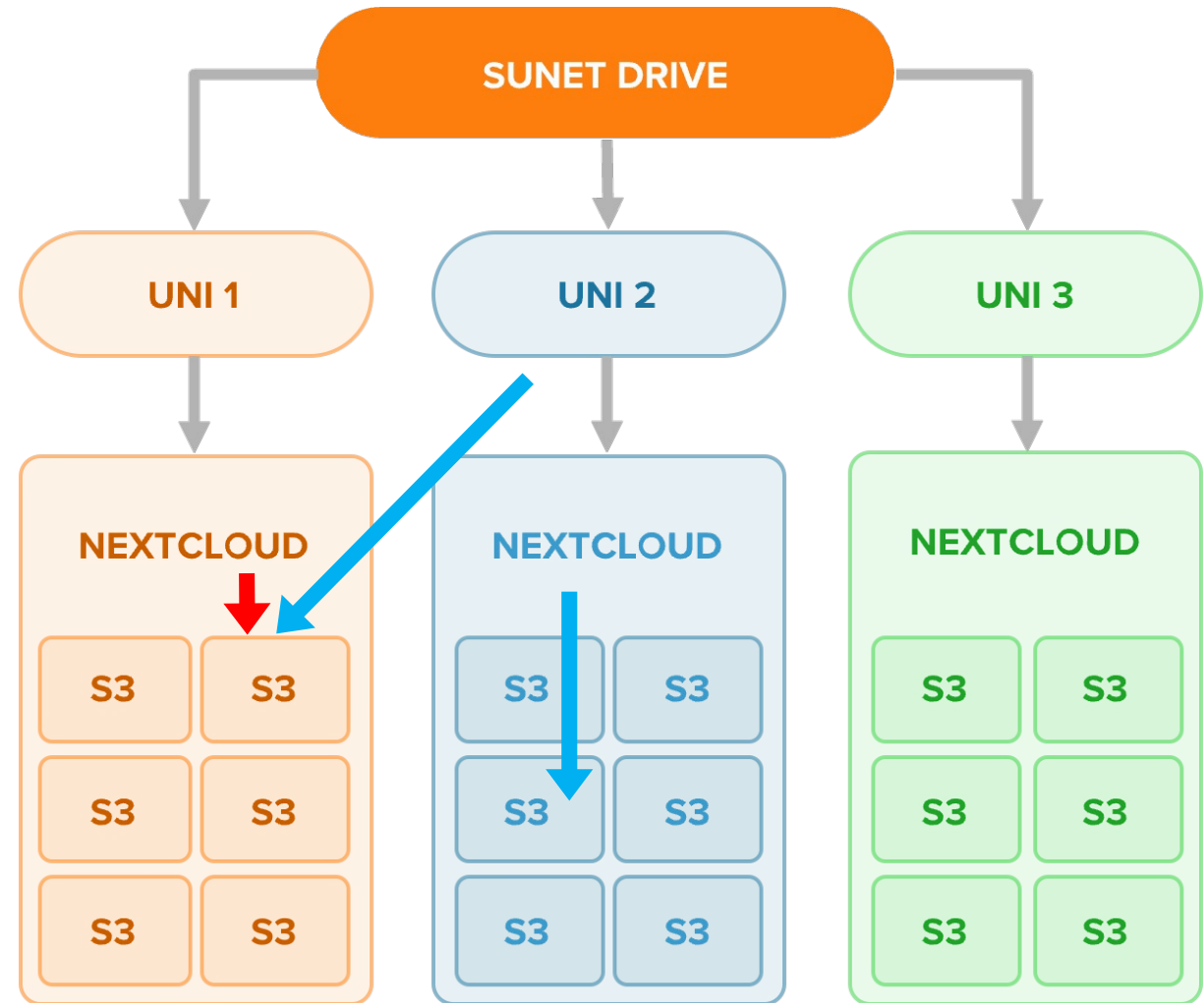
Another important feature of Sunet Drive is the separation of access and ownership. This means that while data can be shared between nodes, the ownership of the data remains with the original uploader. Additionally, access permissions can be finely-grained, allowing administrators to control who can view, edit, or delete files and folders on a per-user or per-group basis. This helps ensure the security and privacy of sensitive data.

## Buckets can be lifecycle managed

In S3, buckets (a container for objects stored in S3) can be lifecycle-managed using rules to transition objects to different storage classes automatically, archive them to Glacier for long-term retention, or even delete them when they are no longer needed. Sunet Drive uses this feature to help manage data storage costs and optimise data retention policies.

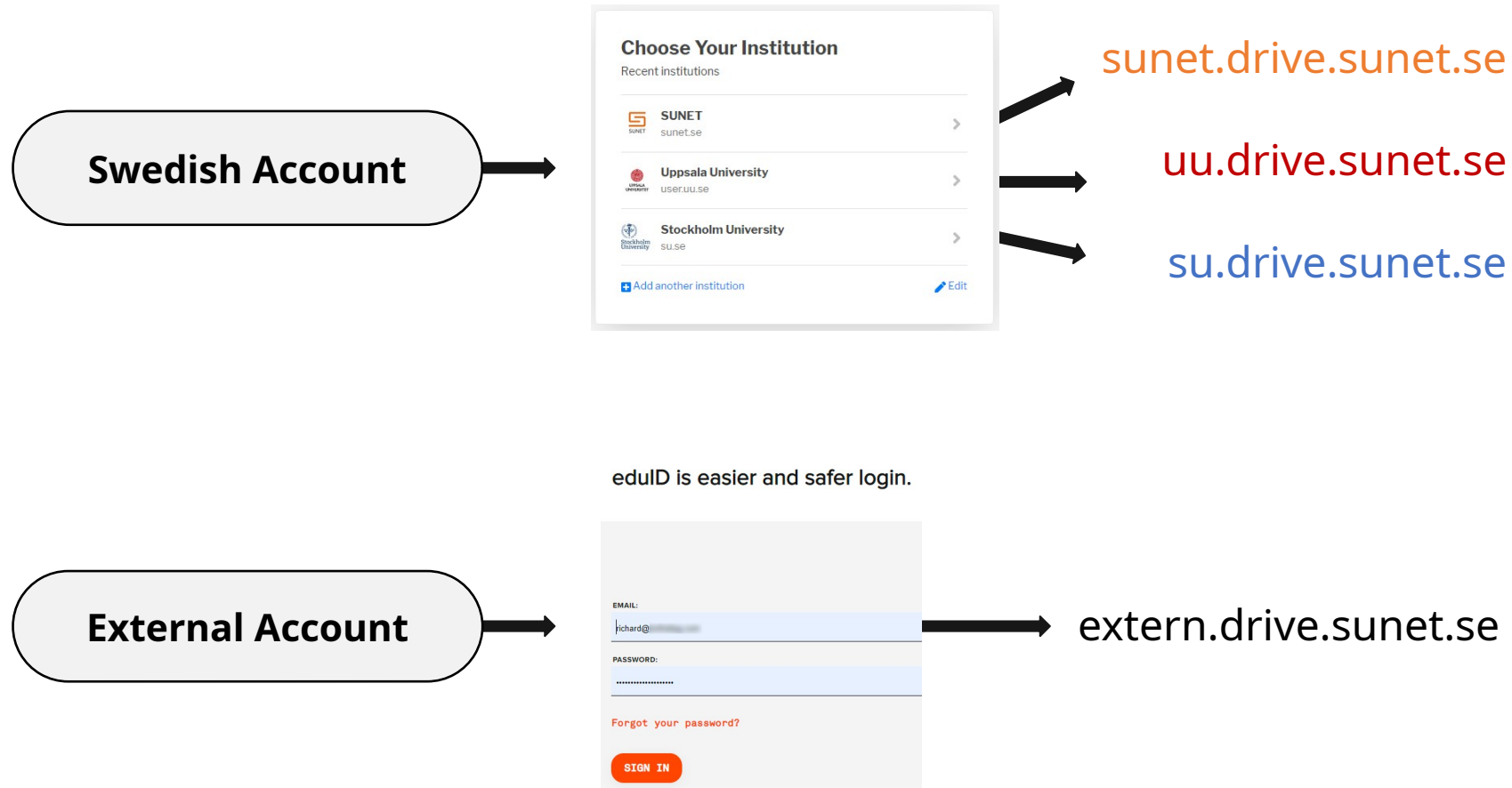
# Co-management of nodes

- S3-bucket storage
- Share data between nodes
- Access ownership separation
- Lifecycle managed buckets





# Identity management: SWAMID/eduGAIN



# Sunet Forum

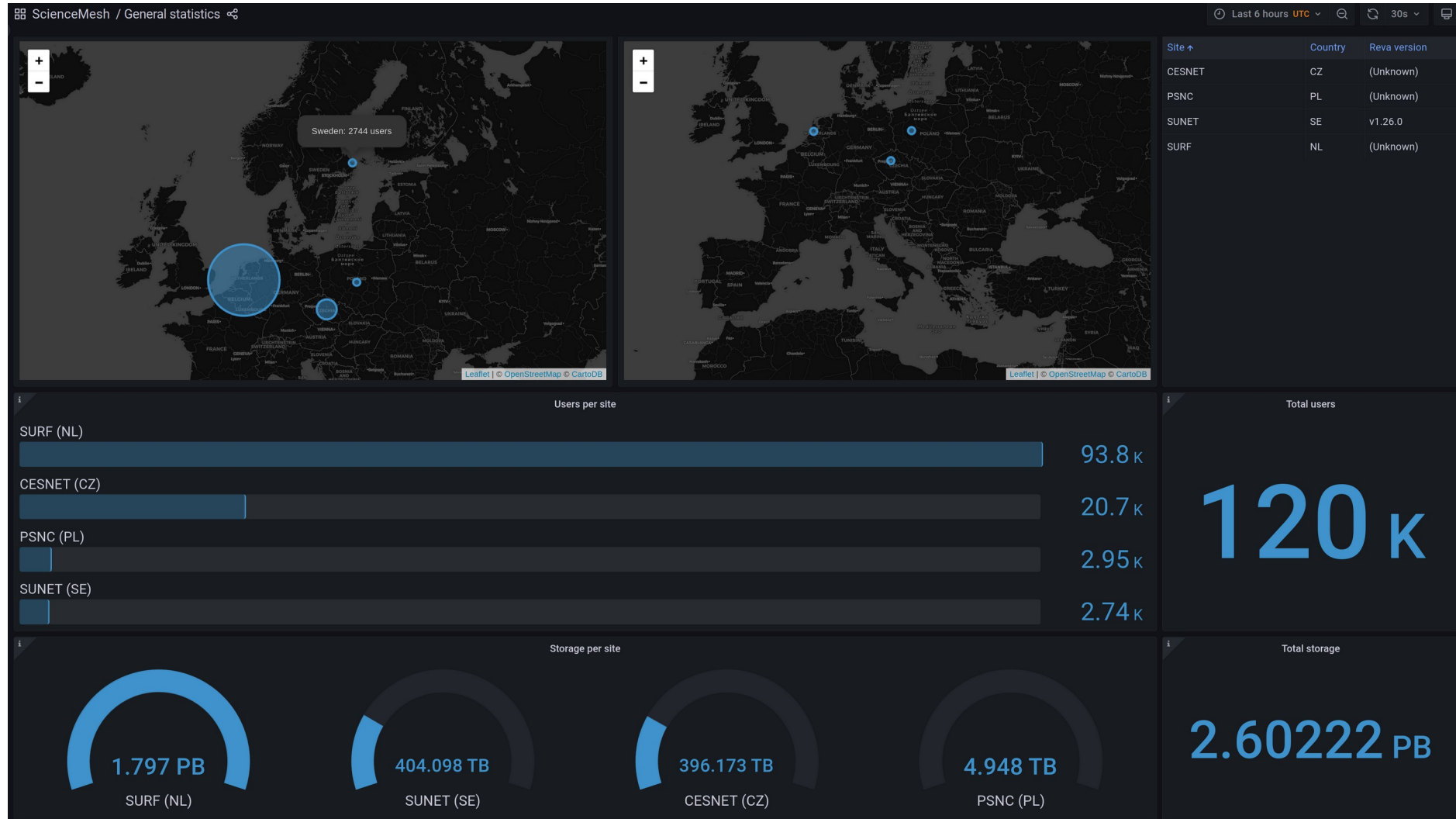
<https://forum.sunet.se/s/sunet-drive/>

- Central point of documentation for Sunet Drive
- Information Stream
- Files
- Wiki
- Information for users and administrators

- ▼ Sunet Drive - Introduction
  - File numbers and file sizes in Sunet Drive
  - Ignored - and otherwise problematic - files and filenames
  - App Essentials
  - Overview of all Nextcloud Apps
  - Storage and Backup - Description for Data Management Pl...
  - MSBFS 2020:7 and Sunet Drive
  - Status of Sunet Drive and other services
  - Different nodes of Sunet Drive
- ▼ Administration of Sunet Drive
  - Sunet Drive onboarding process
  - Admin-Walkthrough - Including Dos and Don'ts
  - Managing S3 buckets in Sunet Drive
  - Storage usage reports for administrators
  - External Security Scan of a Sunet Drive Node

- ▼ Quick Reference Guides - Lathundar
  - ▼ Basic Guides
    - Create a user account in Sunet Drive
    - Nextcloud Synchronization Clients
    - Mobile client basics - IOS and Android
    - Mac sync-client logon
    - Synchronize any local folder with Sunet Drive
    - National and International Collaborators
    - Share files and folders via e-mail and other nodes
    - E-Mail Notifications for new shares and other things
    - Federated Cloud ID
    - eduID for external collaborators
  - ▼ Advanced Guides
    - Desktop client: Add and remove user accounts
    - WebDAV on Mac
    - WebDAV on Windows
    - WebDAV on Linux
    - Encryption best practices in Sunet Drive
    - Migrating files from Box - Or another cloud service
    - rclone mount Sunet Drive folders in Linux
    - Logout from the mobile app
    - Creating Write-Only Folders
    - Split large files on Windows using 7-Zip
    - Keeping timestamps and other attributes when copying ...
    - Creating checksums of individual files
    - Use an application password with your Nextcloud sync-...
    - eduID and two factor authentication - TFA
    - Nextcloud IOS app on TestFlight

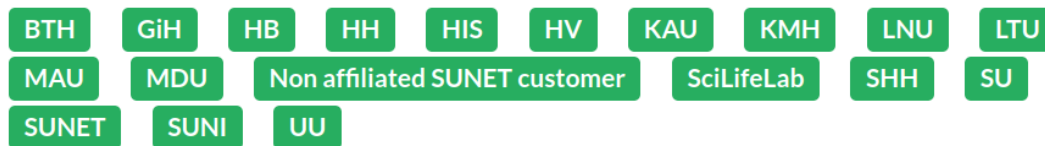
# SUNET Drive in the ScienceMesh



# Sunet Drive Operational Statistics

		<u>Jira</u>	<u>Nextcloud</u>	Incidents	Maintenance	Forum	<u>Trainings</u>	Drive-ops	Drive-tests
2023	Jan	26	1	0	3	2	2	340	
	Feb	18	3	1	1	4	2	205	
	Mar	21	2	1	2	5	2	69	
	Apr	17	3	0	1	5	1	40	
	May	18	6	2	2	1	2	154	
	Jun	16	6	1	1	3	2	51	
	Jul	0	3	2	2	0	1	93	21
	Aug	9	0	0	0	2	0	11	10
	Sep	12	5	0	1	6	1	54	12
	Oct	22	2	0	2	2	2	48	27
	Nov	16	3	1	1	3	1	68	28
2024	Dec	11	0	0	1	1	2	21	9
	Jan	7	3	1	1	2	1	37	32
	Feb	14	6	1	2	6	2	140	30
	Mar (so far)	3	6	0	1	1	0	74	18
	Total	<b>210</b>	<b>49</b>	<b>10</b>	<b>21</b>	<b>43</b>	<b>21</b>	<b>1405</b>	<b>187</b>
	Average	14.0	3.3	0.7	1.4	2.9	1.4	93.7	20.8

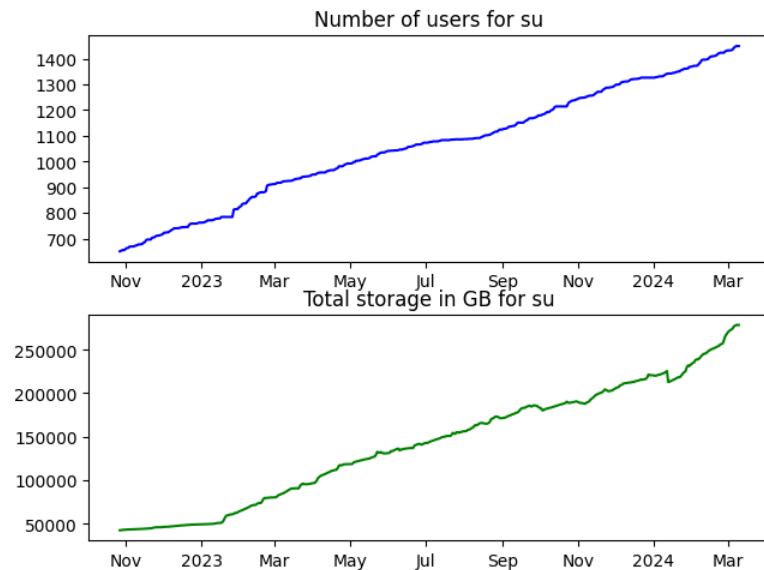
## SUNET Drive



Operational

# Sunet drive today

- 2x54 nodes on 300 servers in two data centres
- 100% powered by green energy
- 20 paying customers
- 376TB data stored with >0.5TB added daily
- 2,744 users



# Sunet Drive development & projects

- Full RDS-setup in production
- JupyterHub
- Secure Zones/MFA/Step-up Authentication
- Security Audit
- Devops: Third data centre & Kubernetes
- AI Assistant with "Ethical AI"

Core Application  
JupyterHub

Core Application  
Sciebo Research Data Service

Core Application  
ScienceMesh

# More presentations

## Tuesday

**Trusted servers and MFA with OCM**

*Micke Nordin*



*503/1-001 - Council Chamber, CERN*

11:35 - 11:40

**SND Doris and Sunet Drive - FAIR and sovereign data publication in a federated world**

*Mr Stefan Jakobsson et al.*

*503/1-001 - Council Chamber, CERN*

14:15 - 14:30

## Wednesday

**Continuous Testing at a Global Scale**

*Richard Freitag*

*503/1-001 - Council Chamber, CERN*

11:45 - 12:00

**Utilizing large language models with free and open source software in EFSS while protecting digital sovereignty for Uni**

*Micke Nordin*



14:15 - 14:30

# Tack! Frågor?

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**Magnus Andersson**

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**Issues and Questions**

[drive@sunet.se](mailto:drive@sunet.se)