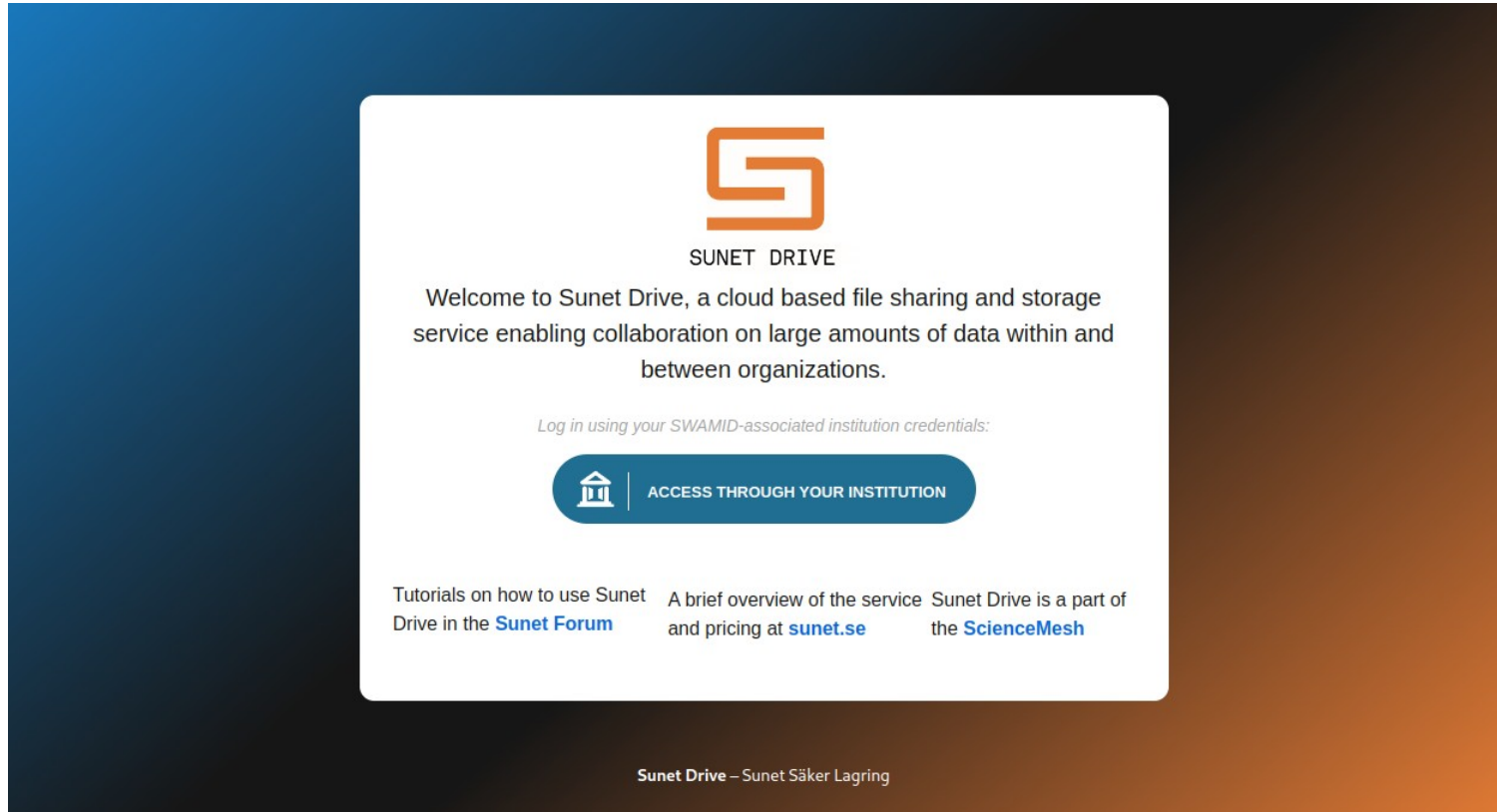


# SUNET Drive

## News and Changes



The screenshot shows the Sunet Drive login interface. 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 prompt 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 of the page reads 'Sunet Drive – Sunet Säker Lagring'.

## Sunetdagarna 2024

2024-04-23 – Sunetdagarna 2024

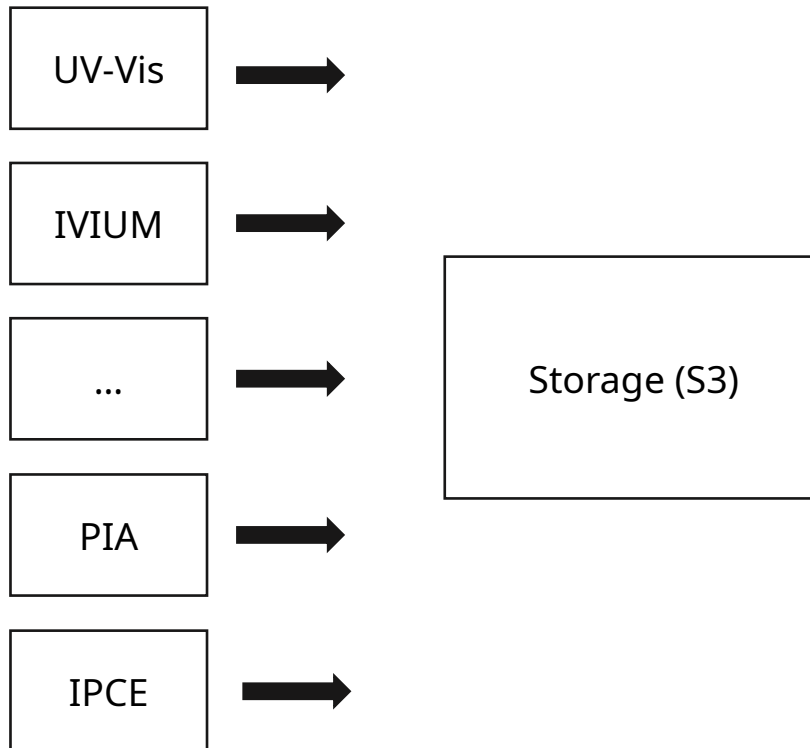
# Sunet Drive – News and Changes

## Sunet Drive

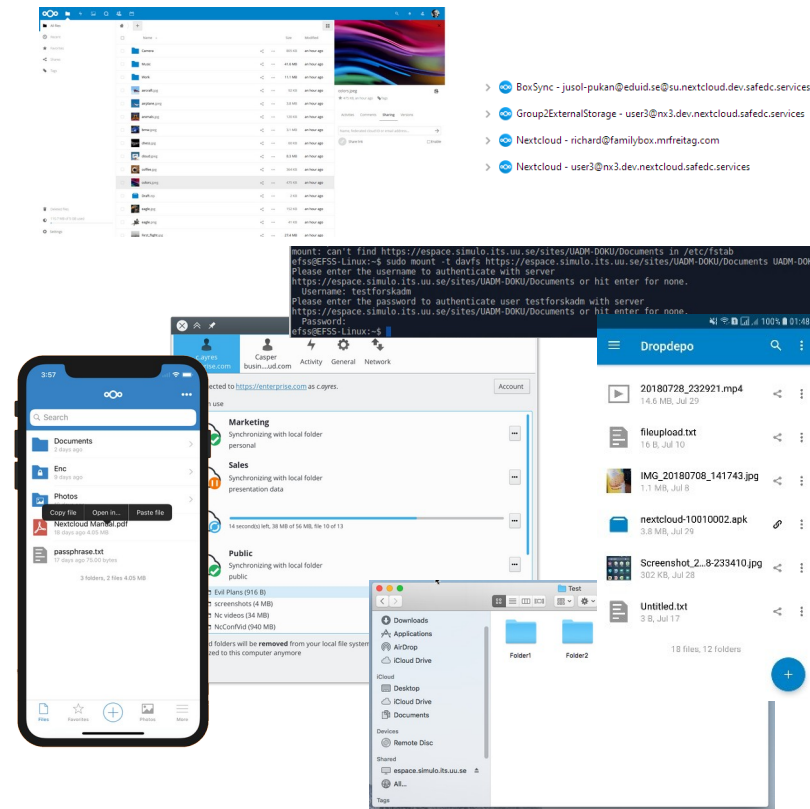
- Current and future architecture
- Operational statistics
- Security audit – preliminary results
- Nextcloud 28
- AI Assistant
- MFA and Step-up Authentication
- RDS
- Jupyter
- Outreach

# Sunet Drive - Current Architecture

## Primary data sources



## Access



# Sunet Drive - Future Architecture

## Primary data sources



## Secure Storage

File Explorer window showing a list of files and folders.

```
bash: cannot find https://espace.simio.itx.uu.se/sites/UMH-DOKU/Documents in /etc/hosts
https://espace.simio.itx.uu.se/sites/UMH-DOKU/Documents or hit enter for none.
Please enter the username to authenticate with server
Username: testforskade
Please enter the password to authenticate with server
https://espace.simio.itx.uu.se/sites/UMH-DOKU/Documents or hit enter for none.
Password: https://espace.simio.itx.uu.se/sites/UMH-DOKU/Documents
```

Smartphone screen showing a file sync interface with folders like Marketing, Sales, and Public.

Desktop file manager window showing a list of files including 20180728\_232921.mp4, fileupload.txt, IMG\_20180708\_141743.jpg, nextcloud-10010002.apk, Screenshot\_2\_9 233410.jpg, and Untitled.txt.



## Analyze and Publish

Dashboard showing two line graphs: 'Number of users' and another graph with a green line. Below the graphs is a table of data.

Interface titled 'Welcome to sciebo RDS!' with a circular navigation menu and a 4-step process: 1. Connect a repository, 2. Create a project, 3. Sync your files with metadata, 4. Publish your data to the repository.

# Sunet Drive - Future Architecture

Primary data sources

Secure Storage

Analyze and Publish

UV-Vis



UJM



...



PIA

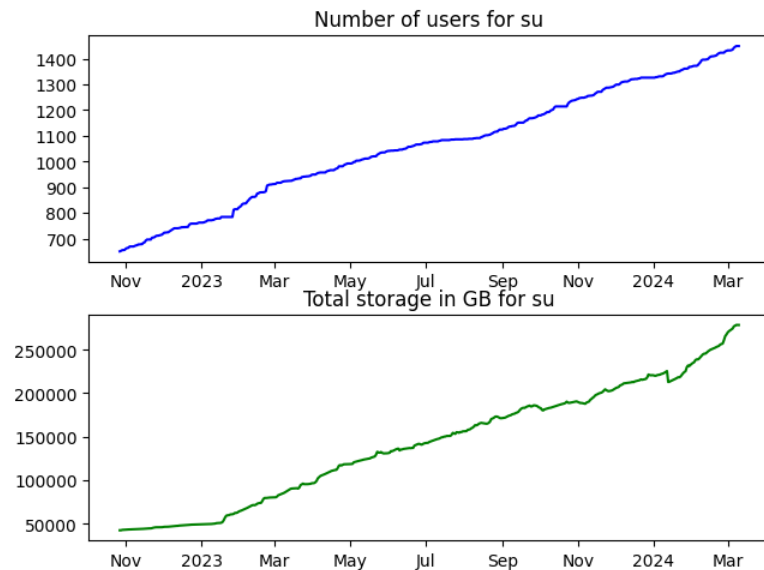


IPCE



# 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

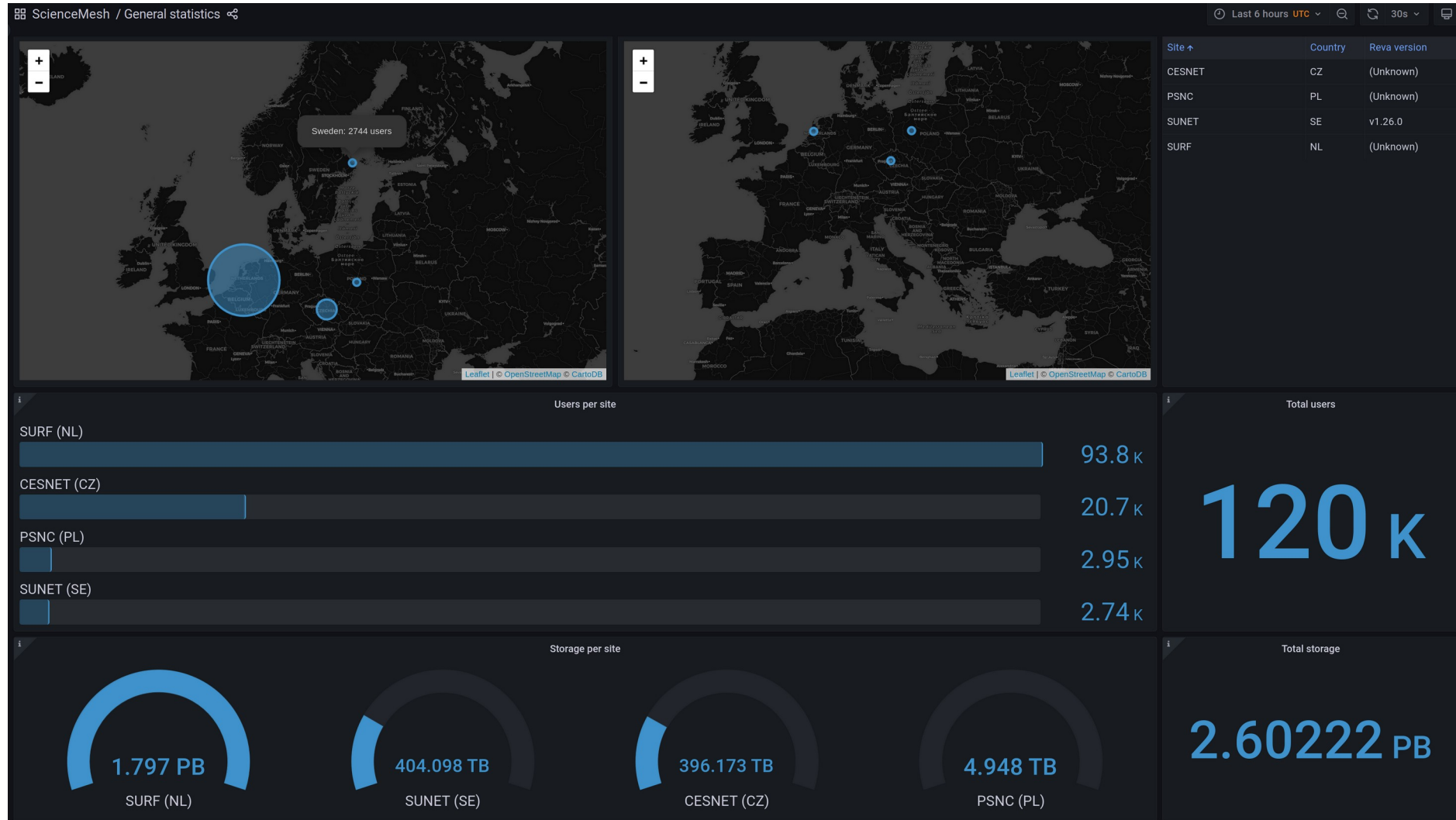
- Full RDS-setup in production
- JupyterHub
- Secure Zones/MFA/Step-up Authentication
- Security Audit
- Devops: Third data centre & Kubernetes
- AI Assistant with “Ethical AI”

Core Application  
JupyterHub

Core Application  
Sciebo Research Data Service

Core Application  
ScienceMesh

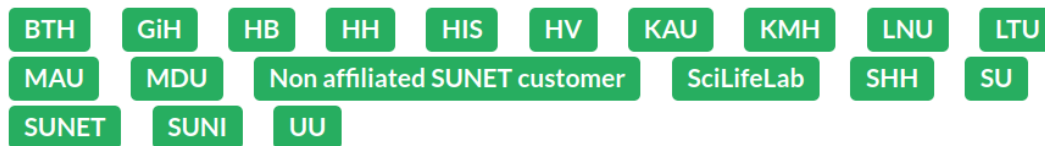
# SUNET Drive in the ScienceMesh



# 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
	<b>Total</b>	<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

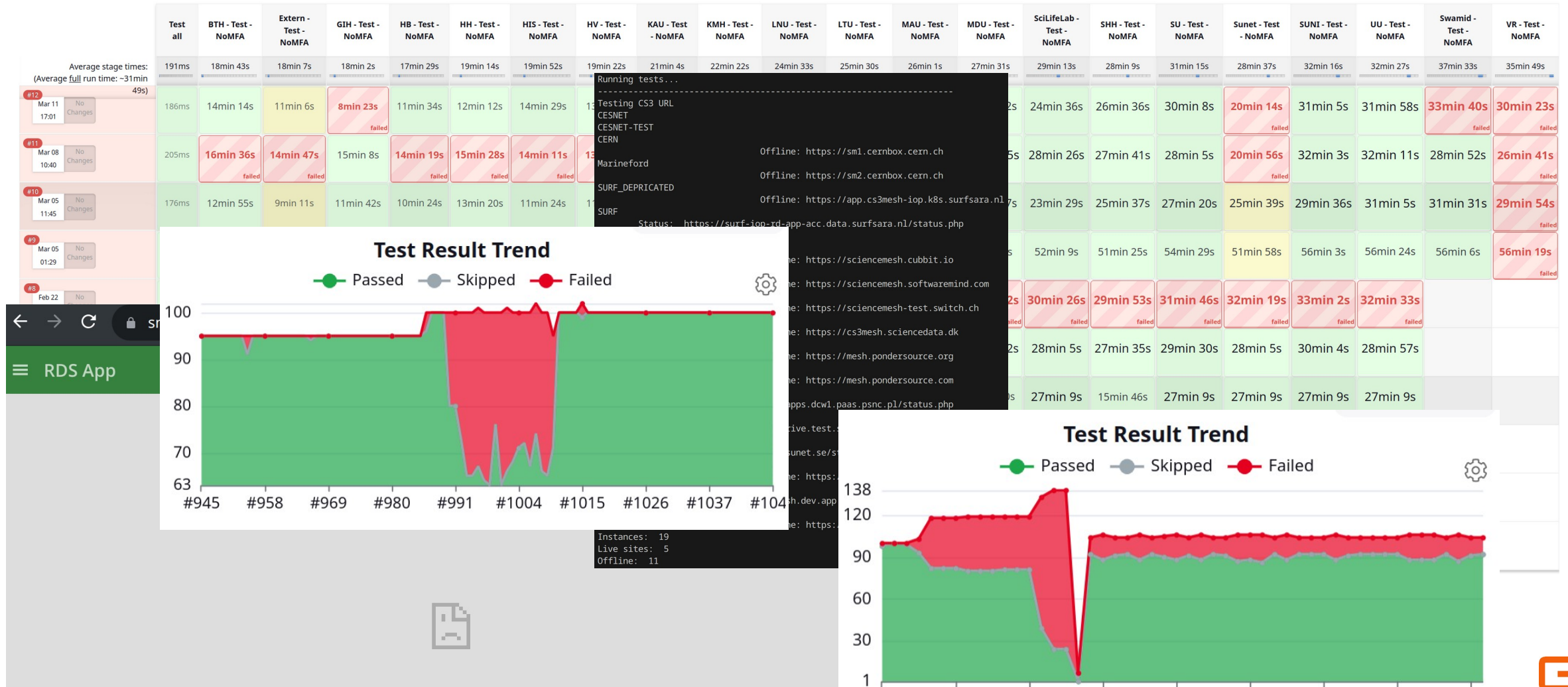
## SUNET Drive



Operational



# Sunet Drive - Testing over Time



# Sunet Drive Security Audit - 2024-04

- Based on Sunet Drive Prod (27.1.6)
- External auditors (triop.se)
- Preliminary results provided to Sunet
- Risks identified related to co-management of Sunet Drive (i.e., limiting access for node-local admins)
- Risks immediately mitigated in test and production
- Separate reports will be shared later
- More information is available on demand



**“...that the overall security of the parts of Sunet Drive that we audited is good.”**

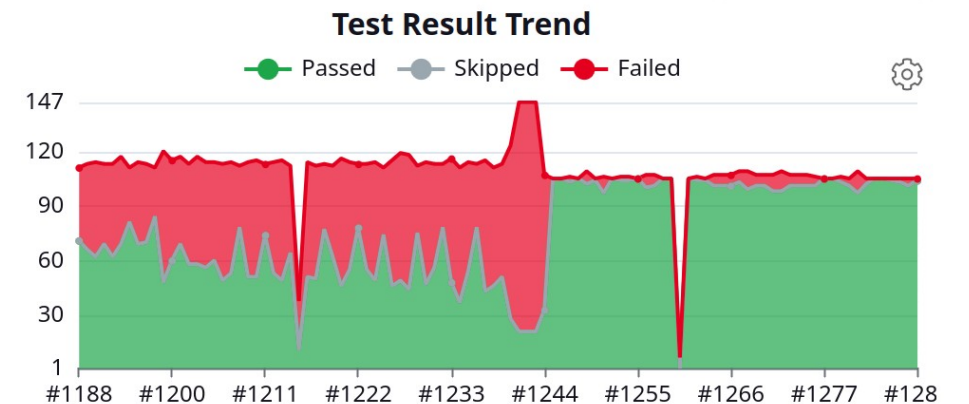
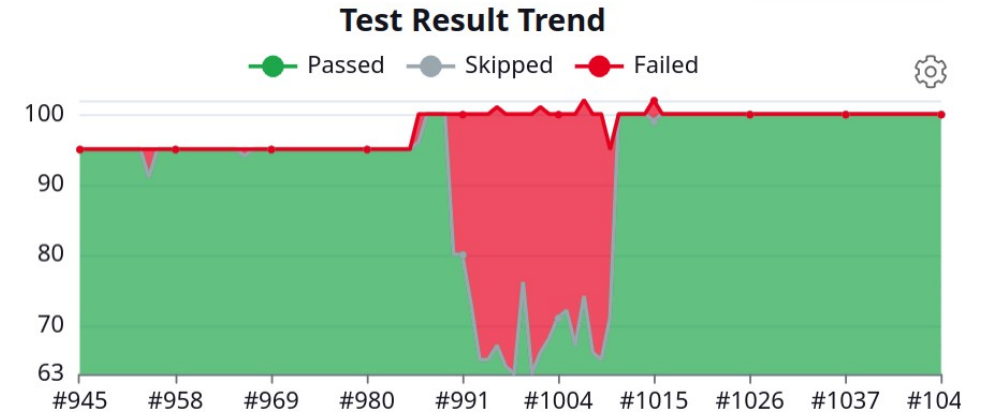
# Nextcloud 28

## Update history of Sunet Drive TEST

- Sunet usually waits for minor version 3 before an upgrade
- 28.0.3 was delayed, so we updated to 28.0.2
- 28.0.2 had many issues, related to file handling and UI
- 28.0.3 was unstable, especially with regards to Collabora document handling
- 28.0.4 (current version) is more stable, but “not there yet”

**Sunet Drive Prod will remain on 27.1.x until 28 is stable. Prod will be (and has been) patched with relevant security fixes.**

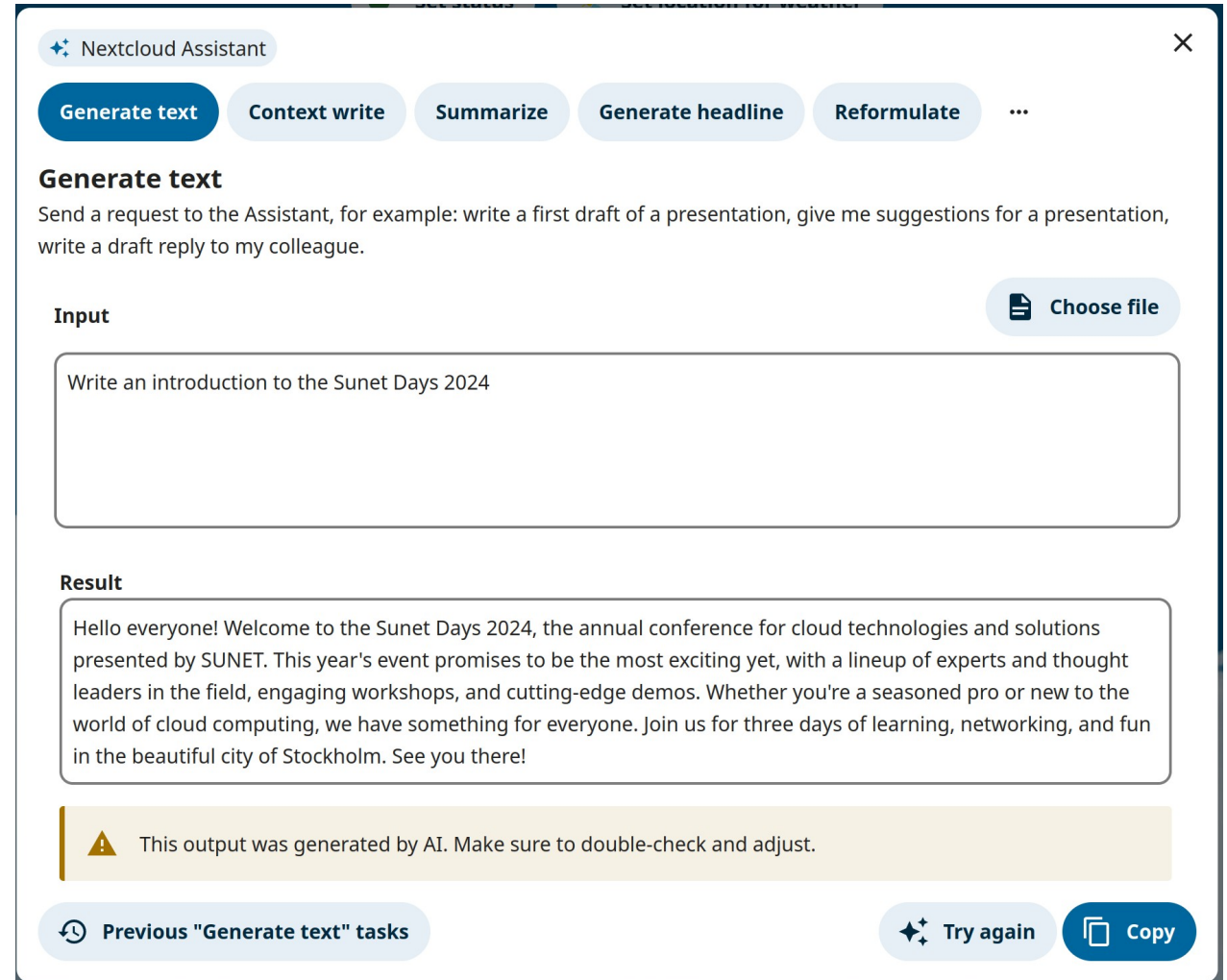
\* Nextcloud 29 (Hub 8) will be released on April 24th :-)



# Nextcloud 28 – AI Assistant

- Introduced in 27.1 and improved in 28
- Has support for OpenAI and Local Large Language Models
- On-prem inference using “Ethical AI”

**Available in Sunet Drive TEST upon request**



The screenshot displays the Nextcloud Assistant interface. At the top, there's a title bar with a star icon and the text 'Nextcloud Assistant' and a close button. Below this are several action buttons: 'Generate text' (highlighted in blue), 'Context write', 'Summarize', 'Generate headline', and 'Reformulate'. The 'Generate text' section is active, showing a prompt: 'Send a request to the Assistant, for example: write a first draft of a presentation, give me suggestions for a presentation, write a draft reply to my colleague.' Below the prompt is an 'Input' field with a 'Choose file' button. The input field contains the text: 'Write an introduction to the Sunet Days 2024'. Below the input field is the 'Result' section, which contains the generated text: 'Hello everyone! Welcome to the Sunet Days 2024, the annual conference for cloud technologies and solutions presented by SUNET. This year's event promises to be the most exciting yet, with a lineup of experts and thought leaders in the field, engaging workshops, and cutting-edge demos. Whether you're a seasoned pro or new to the world of cloud computing, we have something for everyone. Join us for three days of learning, networking, and fun in the beautiful city of Stockholm. See you there!'. Below the result is a warning message: 'This output was generated by AI. Make sure to double-check and adjust.' At the bottom, there are buttons for 'Previous "Generate text" tasks', 'Try again', and 'Copy'.

# MFA and Login-Portal – A Three-tiered Solution

## Tier 1 – Step-up Authentication

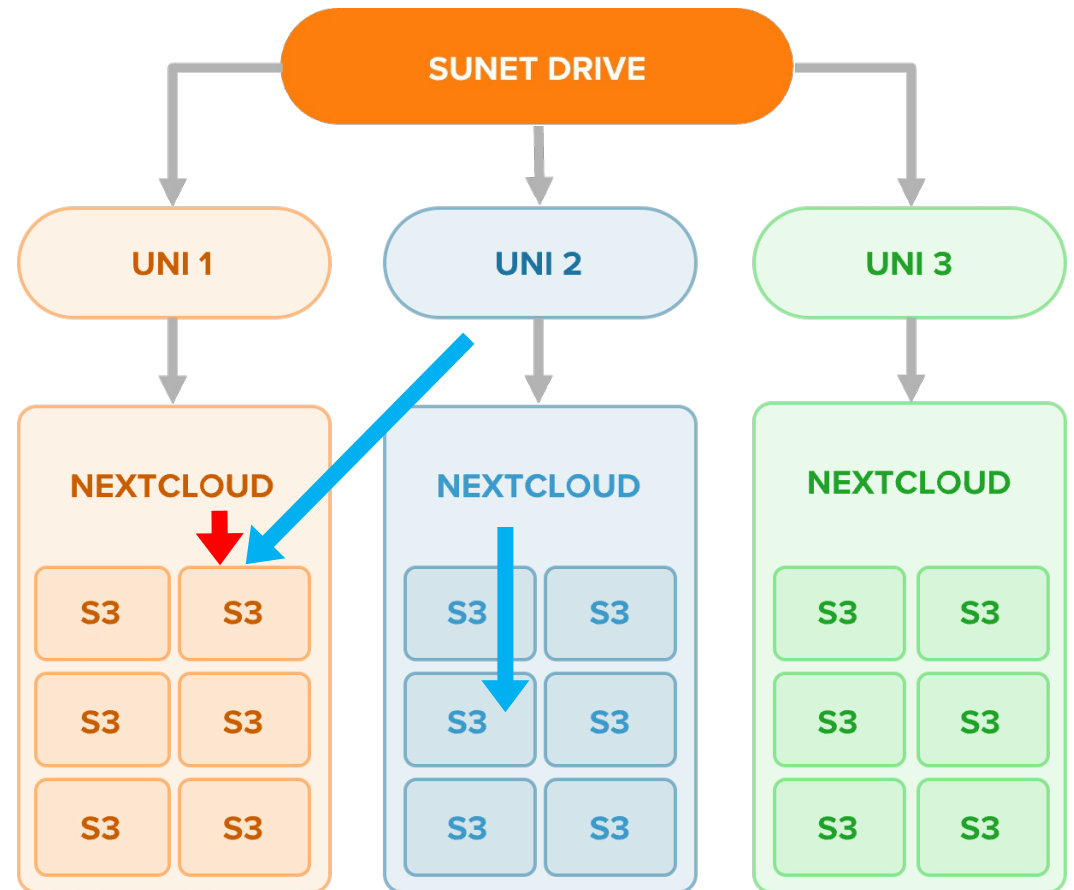
- Adds Nextcloud-native MFA to SSO accounts
- Can be enforced via groups

## Tier 2 – Sunet Drive Login Portal

- Removes Global Site Selector
- Ensures 2FA on all nodes
- Works with synchronization client

## Tier 3 – MFA Zones

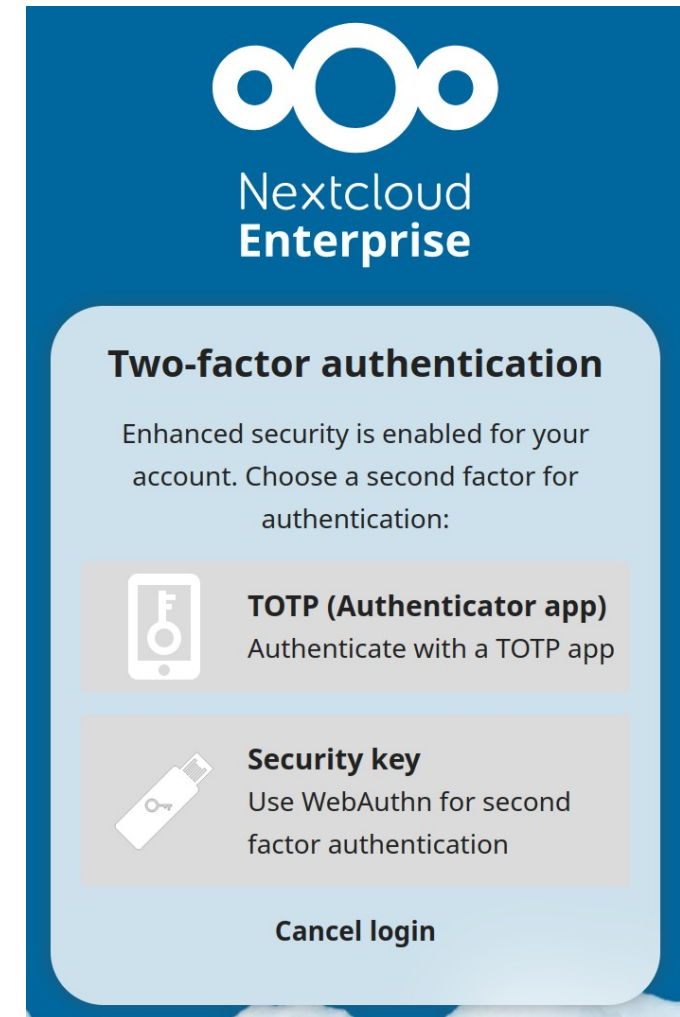
- Enforces MFA on file- and folder-level
- Prevents sharing with non-MFA accounts



# Tier 1 – Step-up Authentication

## Tier 1 – Step-up Authentication

- Adds Nextcloud-native MFA to SSO accounts
- TOTP or WebAuthn
- Available in production and test
- Admins can activate the app
- Can be enforced via groups (forcemfa)
- Might be made mandatory in the future for all users on all nodes
- Step-up Authentication for sync client requires the new login portal (Tier 2)





# Tier 2 – Sunet Drive Login Portal

## Tier 2 – Sunet Drive Login Portal

- Removes Global Site Selector
- Ensures 2FA on all nodes
- Works with synchronization client
- More flexible configuration

**Is available upon request!**

Sneak preview: <https://portal.drive.sunet.se> and <https://portal.drive.test.sunet.se>



## Login to Sunet Drive

Search for a site

Direct login

"Extern" is our catch all, if you can't find your institution, that is the one to use.

- Antagning
- Blekinge Institute of Technology
- Chalmers University of Technology
- Dalarna University
- Extern
- Halmstad University
- Jönköping University
- Karlstad University
- Karolinska Institutet
- Konstfack
- Kristianstad University
- Linköping University
- Linnaeus University
- Luleå University of Technology
- Lund University
- Malmö University
- Marie Cederschiöld University
- Mid Sweden University
- Mälardalen University
- NORDUnet
- National Library of Sweden
- Research Institutes of Sweden - SICS
- Research Institutes of Sweden - SP
- Royal College of Music
- Royal Institute of Art
- Royal Institute of Technology
- Royal Swedish Academy of Sciences
- SciLifeLab
- Sophiahemmet University
- Stockholm School of Economics

# Tier 3 – MFA Zones

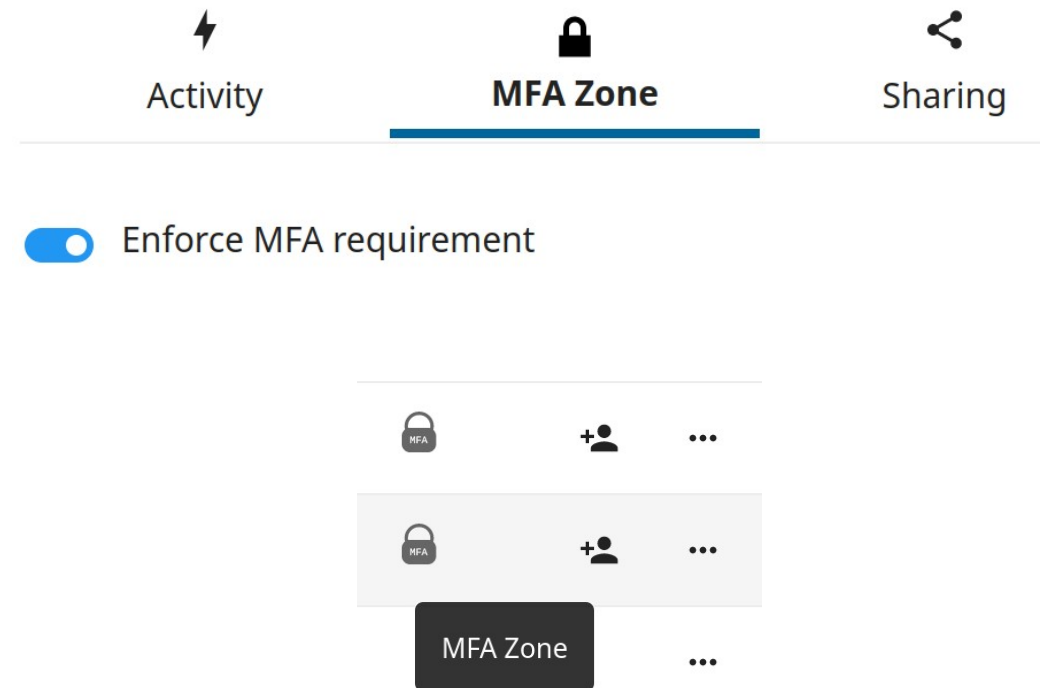
## Tier 3 – MFA Zones

- Enforces MFA on file- and folder-level
- Prevents sharing with non-MFA accounts
- Works only on a local node
- Proposed OCM-extension

**Is available upon request!**

**Detailed Demo: Thursday, 25<sup>th</sup> April, 9:55-10:25, B115**

"The auditors tried to bypass MFA and Step-up authentication but failed. So, even though the efforts were made, our conclusion is that the quality is outstanding regarding the main target of the audit."





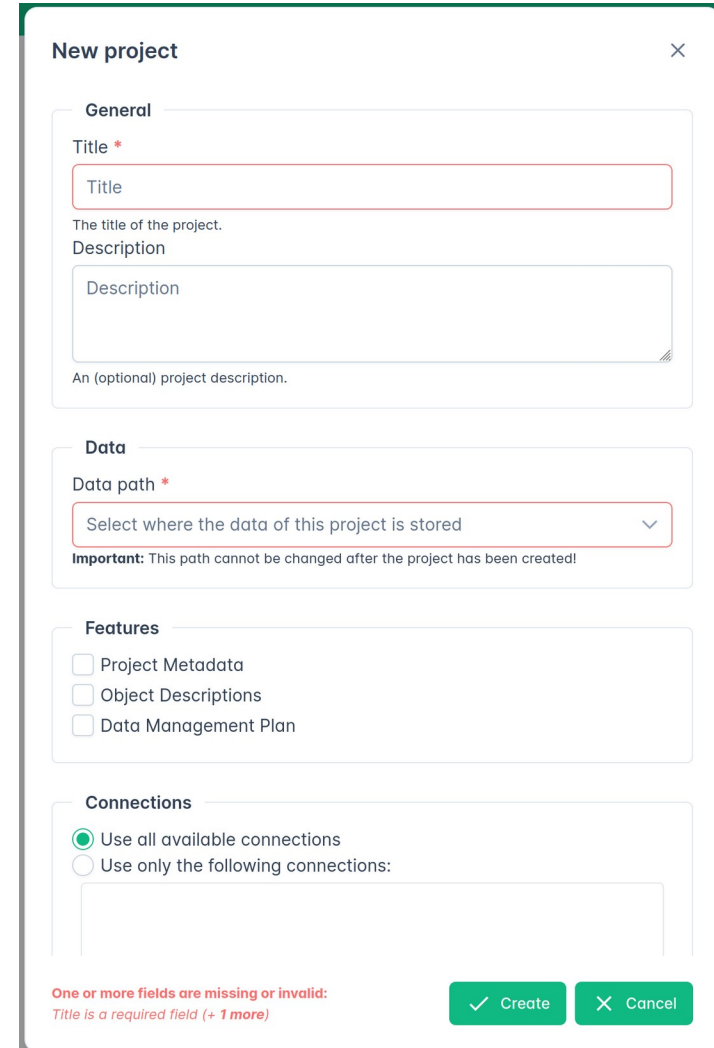
# RDS – Publication of Research Data

## Legacy RDS

- Deployed in test
- Not as stable as we would have liked it to be
- Still working to get a stable deployment

## RDS-NG

- New RDS Developed by WWU Münster
- Simplified architecture compared to RDS
- Release potentially in fall



**New project** [X]

**General**

Title \*

Title

The title of the project.

Description

Description

An (optional) project description.

**Data**

Data path \*

Select where the data of this project is stored

**Important:** This path cannot be changed after the project has been created!

**Features**

Project Metadata

Object Descriptions

Data Management Plan

**Connections**

Use all available connections

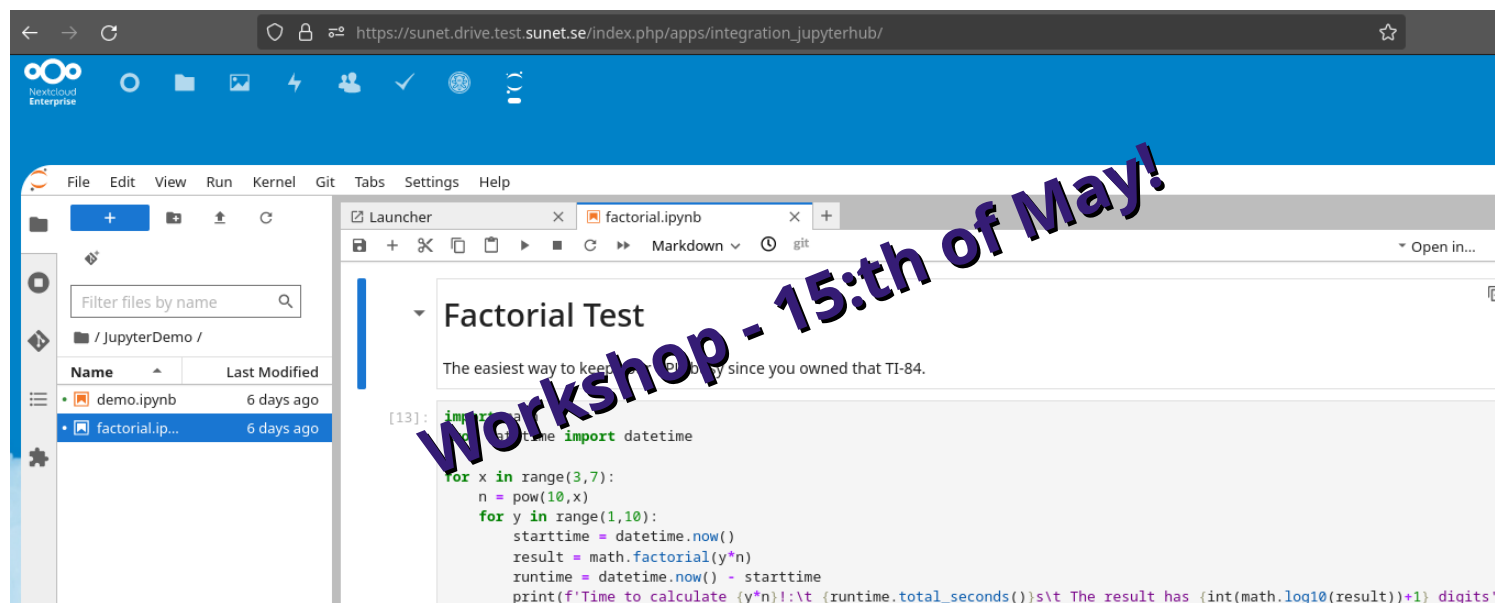
Use only the following connections:

One or more fields are missing or invalid:  
Title is a required field (+ 1 more)

✓ Create [X] Cancel

# JupyterHub Integration

- Integrated in Sunet Drive
- Users can individually execute notebooks
- Users get 10GB “local” Jupyter Storage
- Storage is continuously synchronized between Sunet Drive and JupyterHub
- Other use-cases are being evaluated



Available upon request

<https://jupyter.sunet.dev/workshop/>

# Sunet Drive - Outreach

## Past

- CS3 Conference CERN – 11-13 March 2024
- Nextcloud Nordic Hub Sundsvall – 18 April 2024

## Now

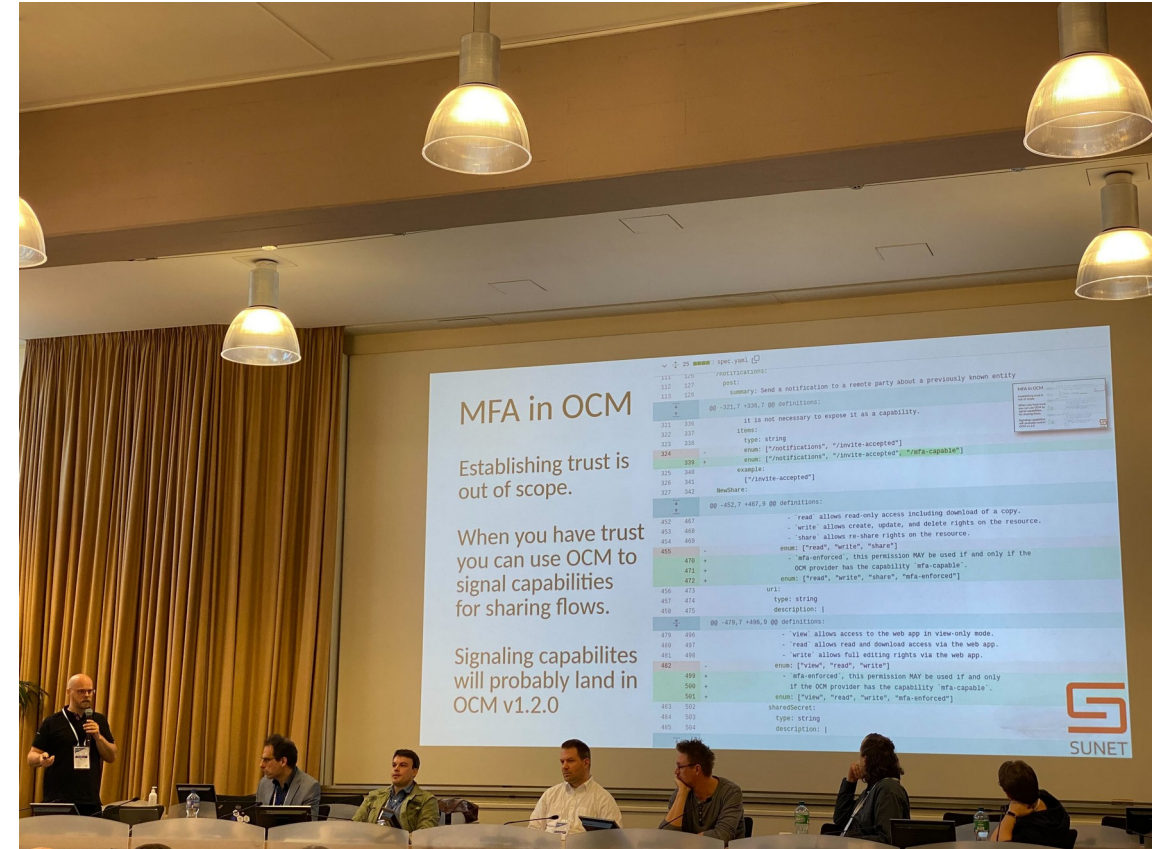
- Sunetdagarna – 23-25 April 2024

## Future

- JupyterHub Onlinew Workshop – 15 May 2024
- TNC 2024 – 10-14 June 2024

## Ongoing

- Open Cloud Mesh Community Group  
<https://www.w3.org/community/ocm/>



# Tack! Frågor?

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**Issues and Questions**

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