



SUNET

Sunetdagarna

Sunets molntjänster

Agenda

- Sunet Drive
 - MFA
 - SND-Doris
 - Office
- Sunet Drive
 - Tekniken

Agenda

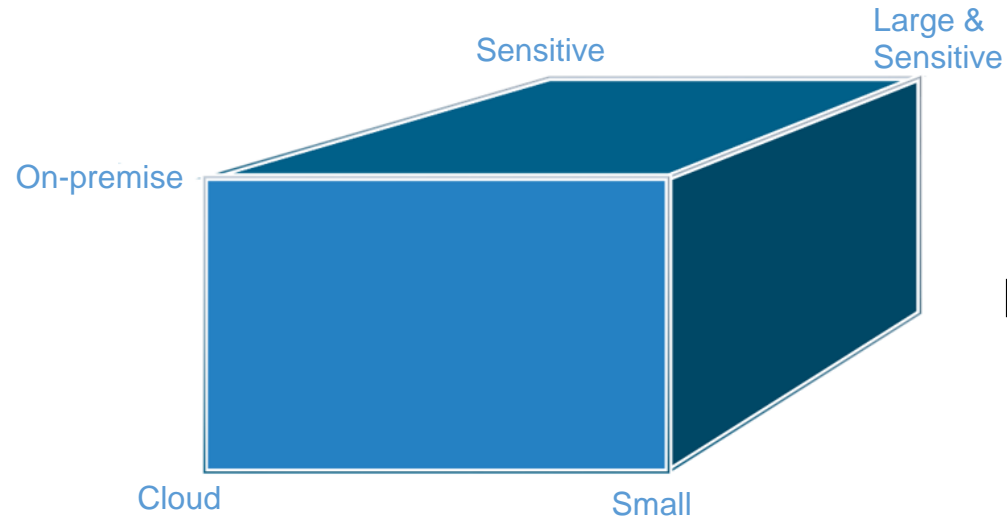
- Sunet Drive
 - Alternativ 2
- Ny prismodell för server IaaS
 - Volym rabatt
 - Rabatt bindningstid
- Nyheter / Pågång

Sunet Drive



Research Data – A model

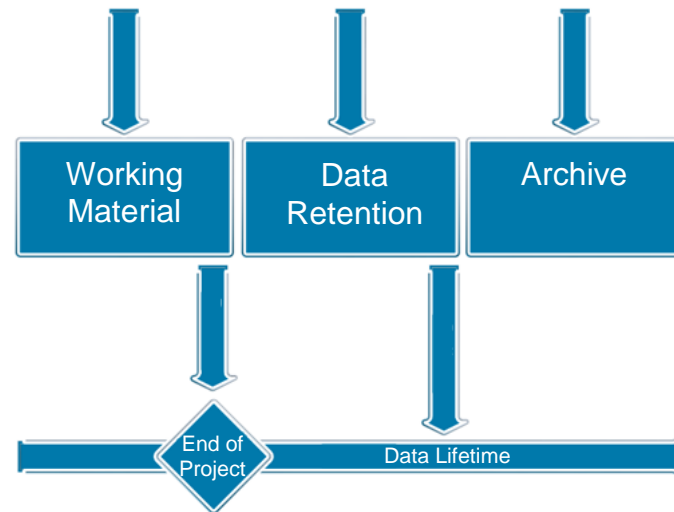
Classification



How do you access data?

Where is my data?

Lifecycle



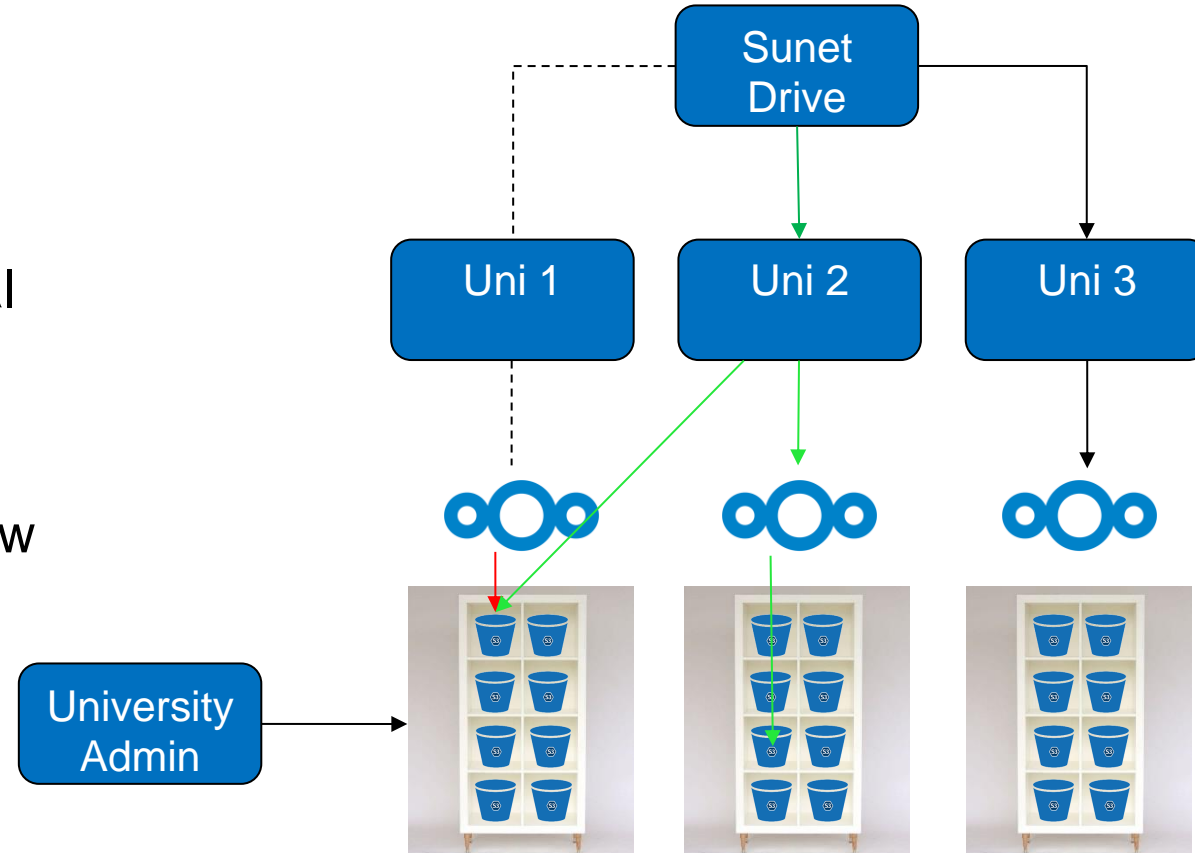
Access

“Classical”
Folders

“Modern”
Apps

Federated Data Storage and Governance

- S3-buckets as main storage unit
- Nextcloud as access layer
- Individual nodes as part of global scale
- Co-management with Sunet
- Follow your data even from a new organisation
- **Separation of access vs ownership**



Replication of data/backup

Manual replication/backup strategy

- Based on rclone
- Manually mirror between data centers
- Backup-buckets with retention time
- Requires a lot of tuning

- Waiting for something better (deuxfleurs/garage?)



[[Website and documentation](#) | [Binary releases](#) | [Git repository](#) | [Matrix channel](#)]

Garage is a lightweight S3-compatible distributed object store, with the following goals:

- As self-contained as possible
- Easy to set up
- Highly resilient to network failures, network latency, disk failures, sysadmin failures
- Relatively simple
- Made for multi-datacenter deployments

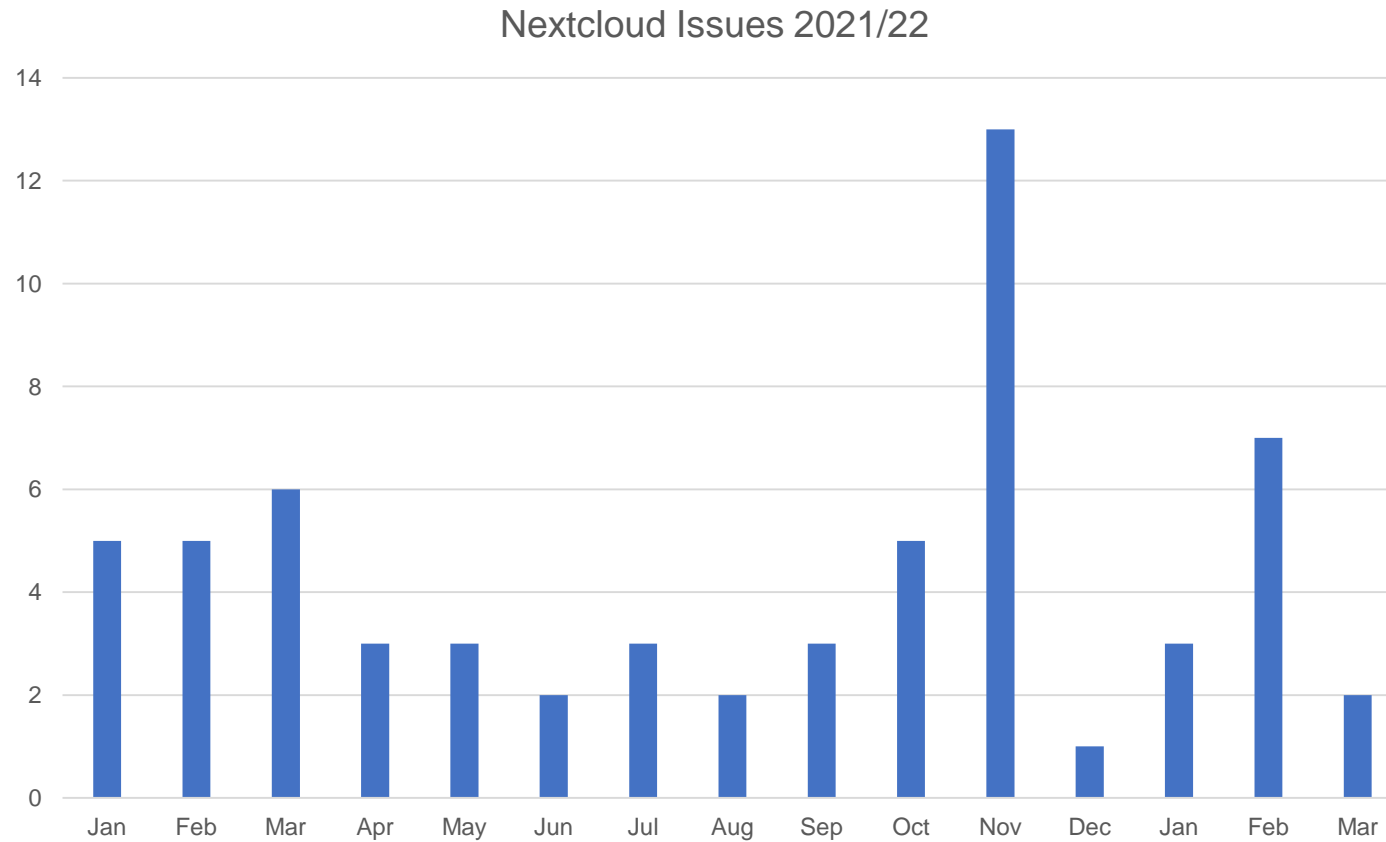
Non-goals include:

- Extremely high performance
- Complete implementation of the S3 API
- Erasure coding (our replication model is simply to copy the data as is on several nodes, in different datacenters if possible)

Our main use case is to provide a distributed storage layer for small-scale self hosted services such as [Deuxfleurs](#).

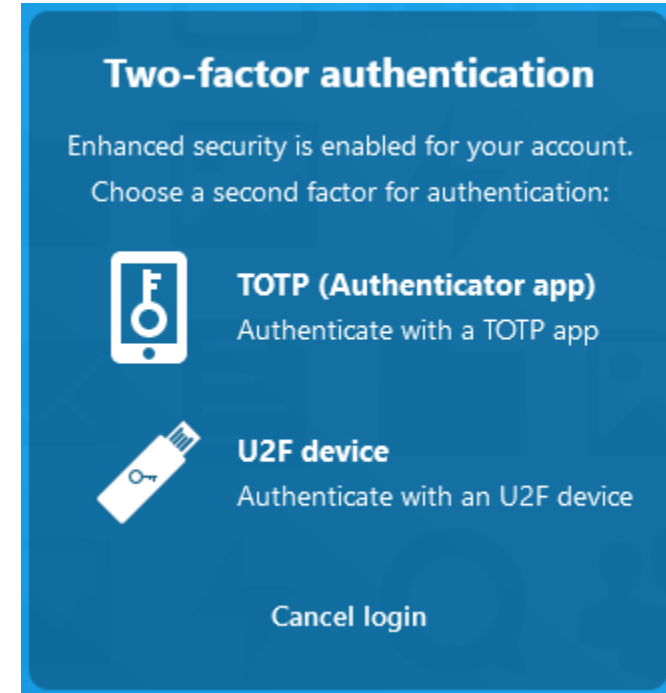
Not ready for prime time

Nextcloud



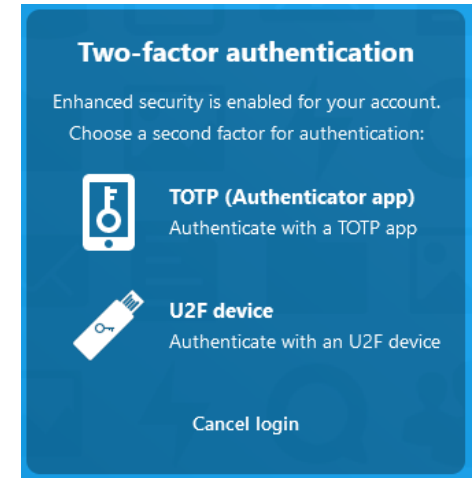
MFA – What is MFA?

- Multifactor Authentication
 - Security technology that requires multiple methods of authentication from independent categories of credentials
 - Examples: SMS, TOTP (Authenticator app), U2F (Yubikey)



MFA – Why is it complex?

- Multiple technologies
 - SMS
 - TOTP (Authenticator app)
 - U2F Device (Yubikey)
 - Other (Mail, proprietary)
- Who implements MFA?
 - Identity provider
 - Service provider
 - Both (?)
- Requires administration
 - Lost or stolen devices
 - Remove/Reenable MFA
- Identity providers
 - Must implement MFA individually
 - Different technologies for different IdPs
- Service providers
 - Can enforce same MFA technology for all
 - Could turn Two-factor into Three-factor if IdP has added factor



Nextcloud and MFA

- Current state:
 - Either SAML/SSO-login or local login (non-SSO)
 - IdP must implement MFA in first case
 - MFA can be added in second case
 - No support for “Step-up Authentication”

Step-up Authentication: Add MFA independently from whether an IdP has MFA or not. Could result in “Three-factor”-Authentication.

Sunet Drive Requirements

- MUST support both MFA and non-MFA logins
- MUST have control over MFA- and non-MFA-areas
- MUST prevent other sharing for MFA-only areas
- SHOULD be easy to administrate

Development started

SND/Doris Integration



New data description

Title *

Enter a descriptive, preferably unique, name for the data description, both in Swedish and in English. If no title is available in Swedish, or if it is difficult to translate, the English title can be entered in both fields.

Data accessibility level *

Access to data through SND or other external actor *

Specify where data will be available. You choose whether the data is made available through SND's research data portal, via downloading or by request, or through an external s.. [Show more](#)

- Access to data through SND
- Access to data through an external actor

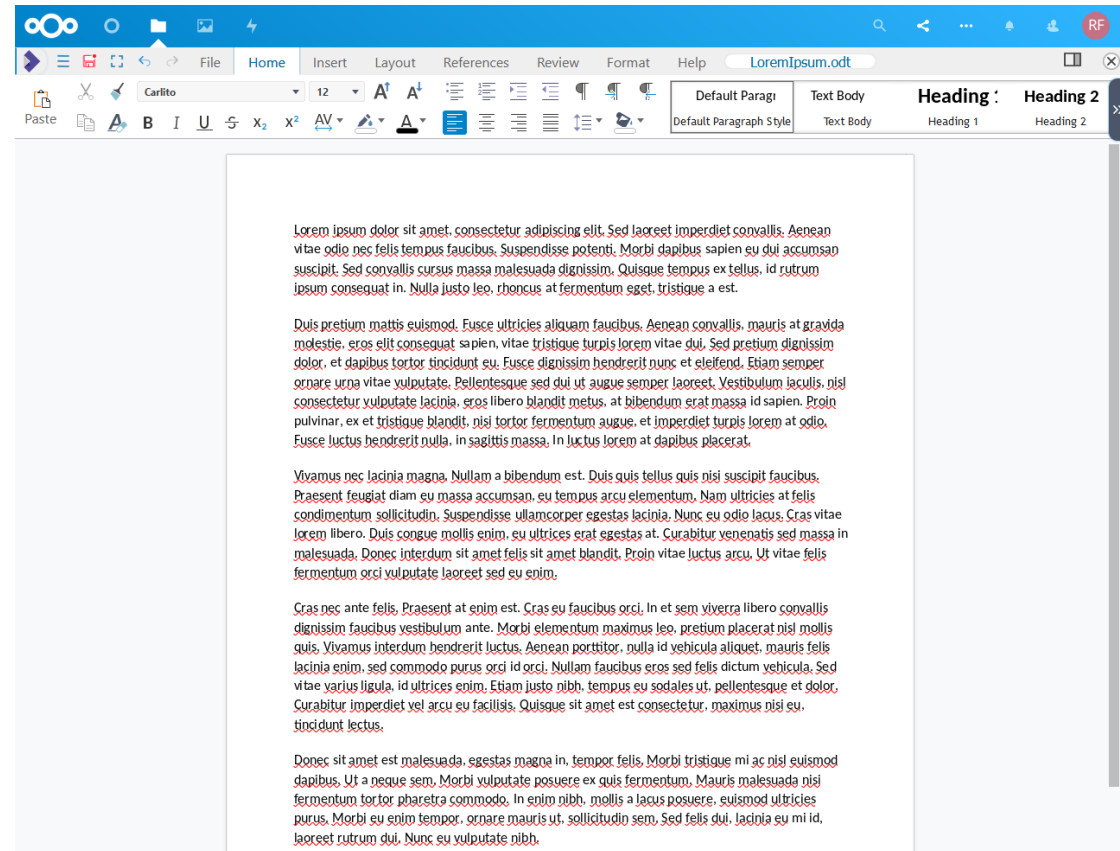
Level of accessibility *

Data that are shared by SND can have two different **accessibility levels**. Data should, in keeping with the **recommendations from the Swedish Research Council**, be openly accessible as .. [Show more](#)

- Data are freely accessible
- Access to data is restricted

Office Integration

- Collabora Online
 - In betatest
 - Active for some nodes
 - Some issues to be solved
 - Testers welcome!

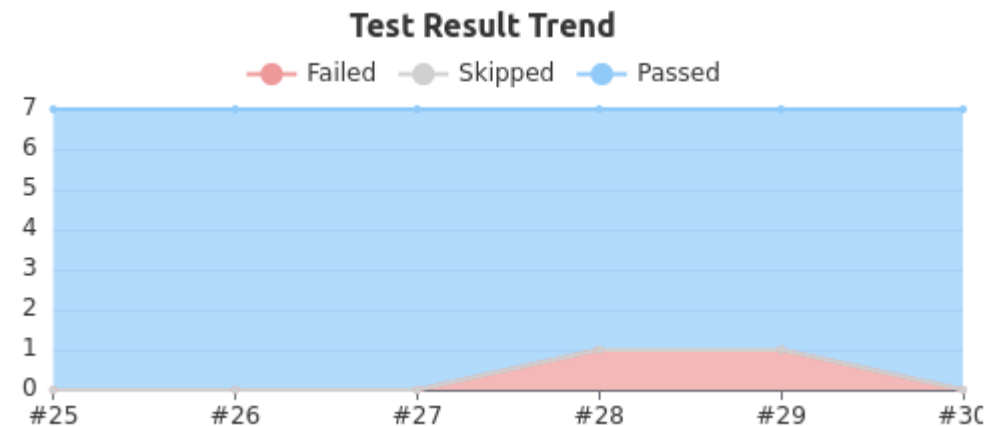


Compute and Integration

- Compute and Integration
 - Run computations on top of Sunet Drive storage
 - Unclear requirements
 - Will require a lot of “trial and error”
- Existing solutions
 - Local sync always works
 - VS Code Remote Workspaces
 - WebDAV integration

Testing and automation

- Test automation
 - Core functions (e.g., status pages, buckets, users)
 - OCS-API (e.g., user provisioning)
 - Selenium (Web UI tests)
 - Running in Jenkins

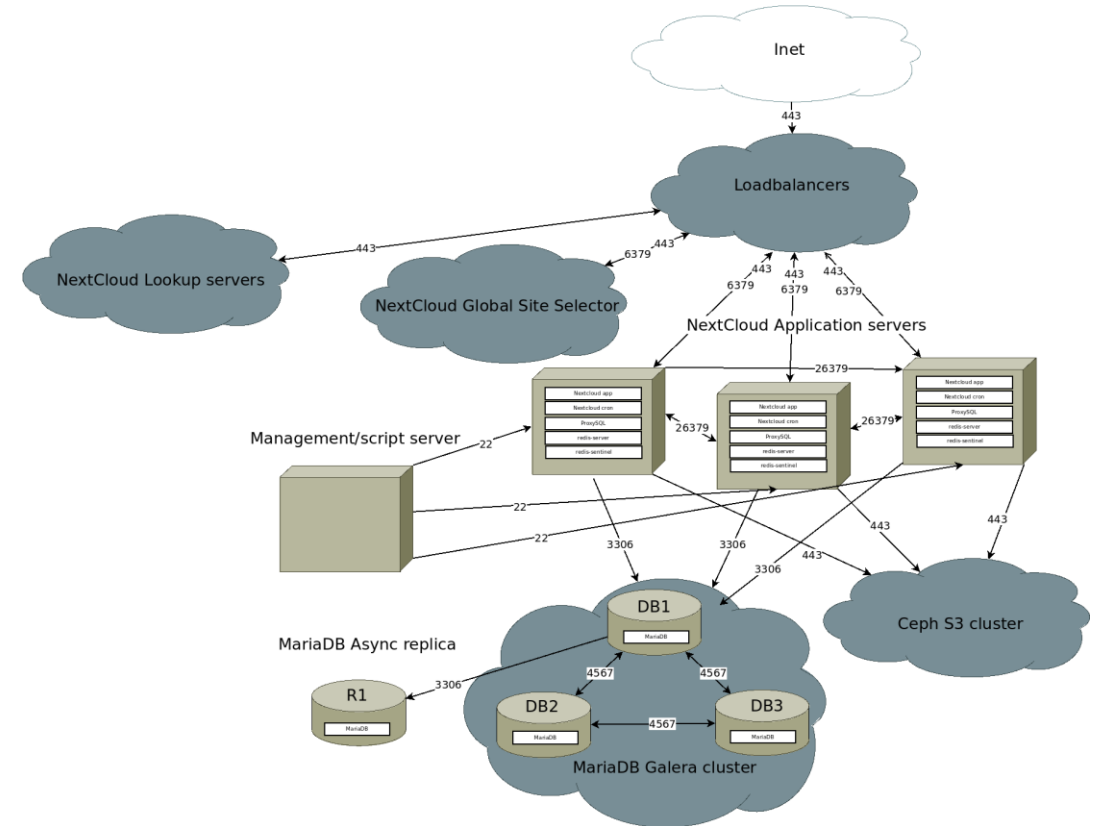


Sunet Drive - Teknik



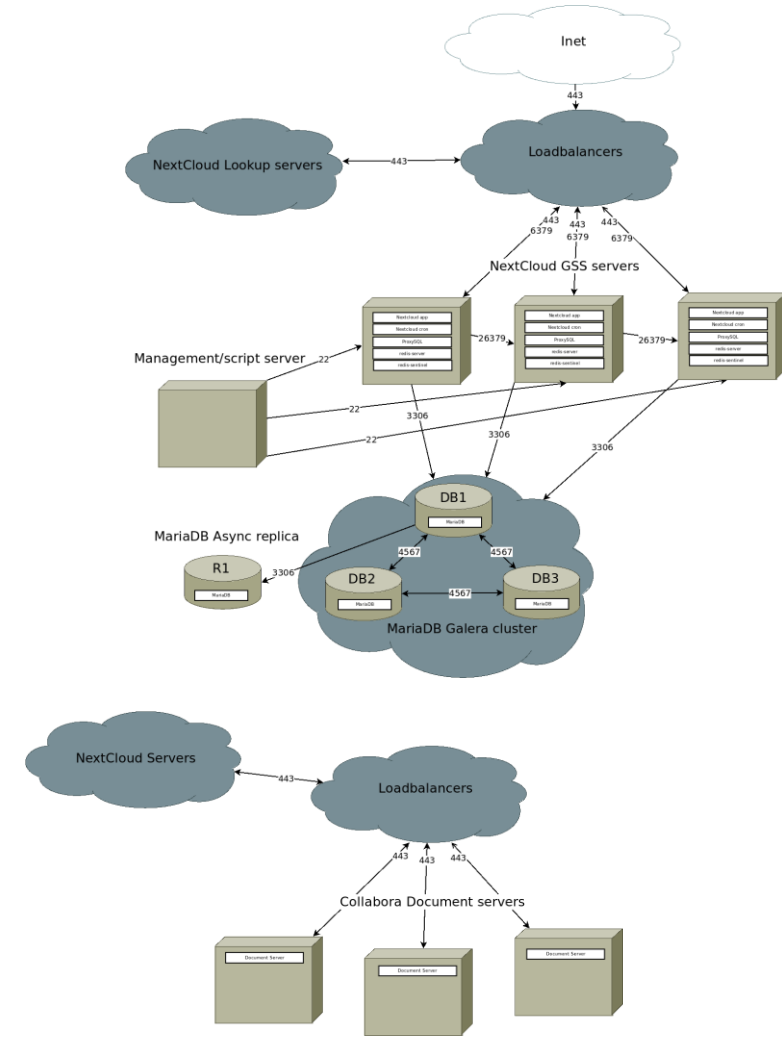
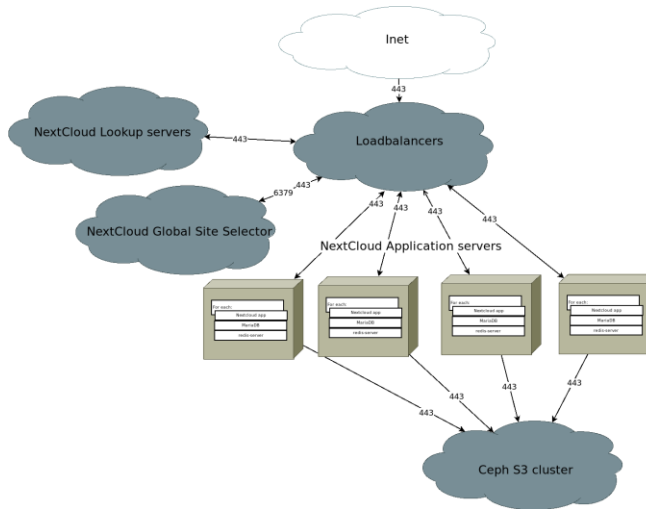
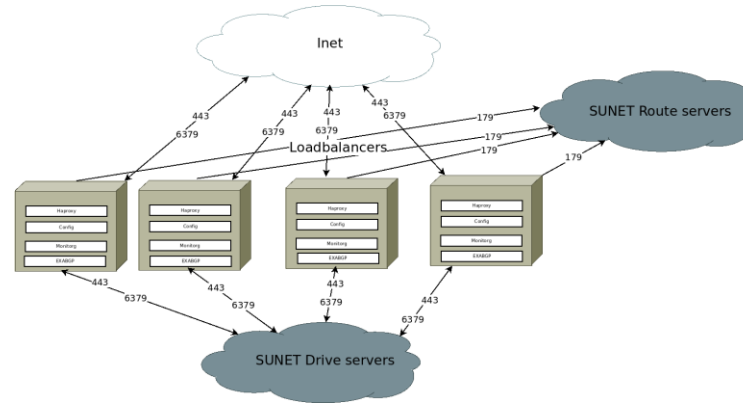
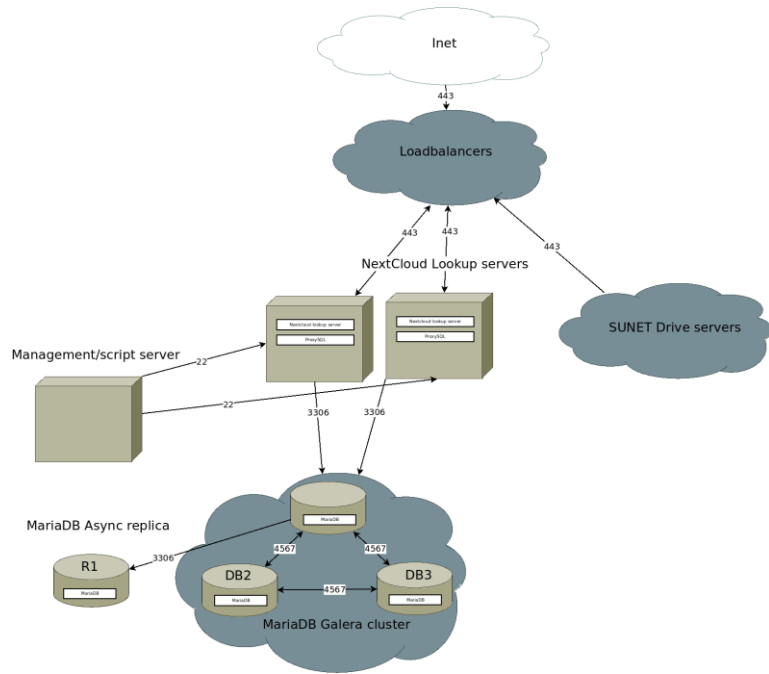
Arkitekturöversikt

- Load-balanced Sunet Drive Frontend Servers*
- MariaDB Galera cluster as database
- Redis Server/Sentinel Cluster for improved performance
- All storage in Ceph S3 storage cluster



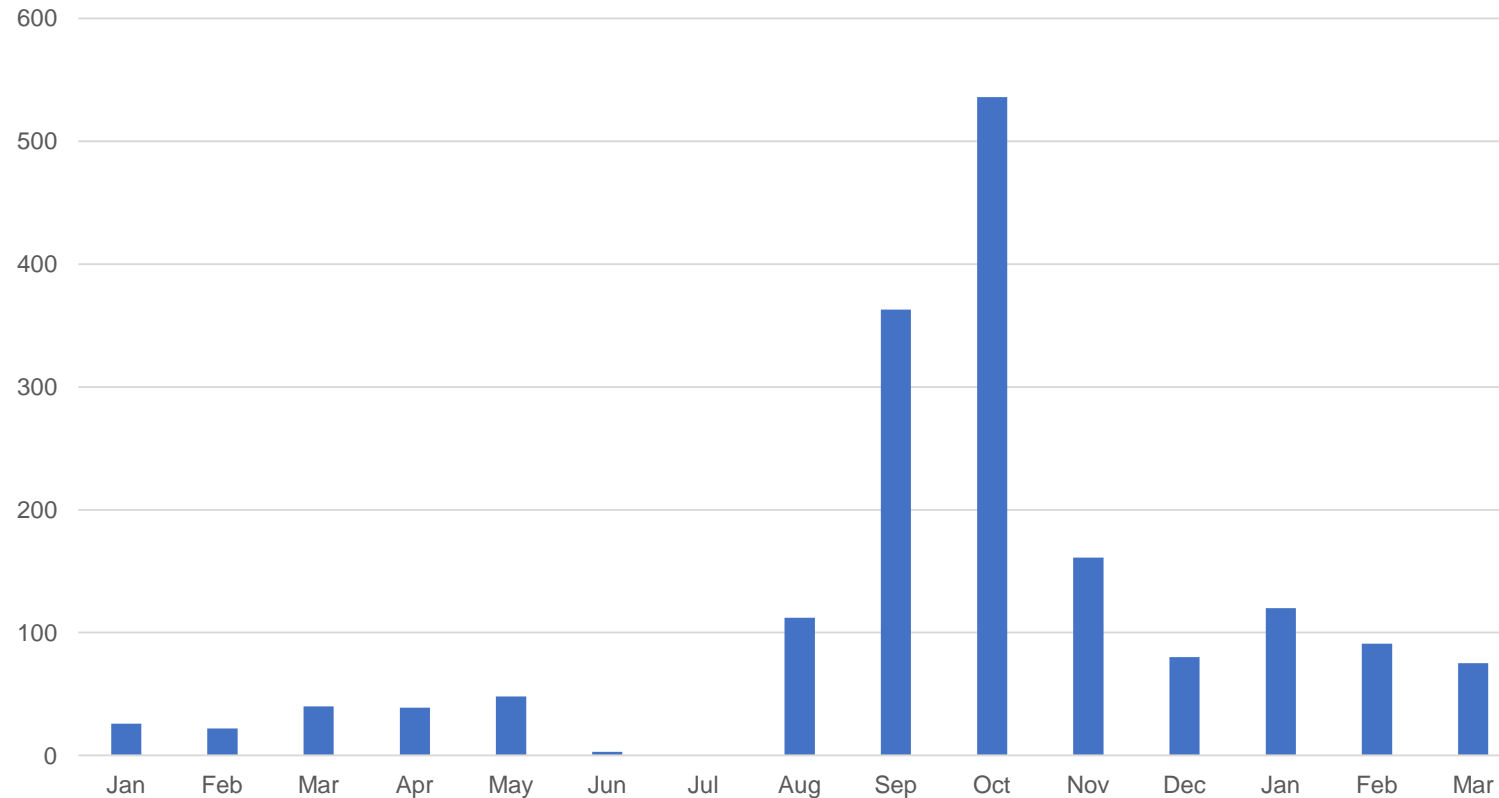
*<https://github.com/SUNET/sarimner-frontend>

Stödjande system



Infrastructure as Code*

Sunet Drive Commits 2021/2022



*<https://github.com/SUNET/multiverse/>

Övervakning, säkerhet och stabilitet

Thruk*



Current Network Status
Last Update: Fri Jan 21 10:05:26 UTC 2022 (∞90s)
Thruk 2.46.2
Logged in as nagiosadmin

Host Status Totals

Up	Down	Unreachable	Pending
292	0	0	0
All Problems		All Types	
0		292	

Service Status Totals

OK	Warning	Unknown	Critical	Pending
3576	0	0	0	0
All Problems		Unhand. Issues		All Types
0		0		3576

Service Status Details For All Host

1 2 3 4 5 6 7 8 9 10 ... 36 ▶ 100 per page

Select hosts / services with leftclick to send multiple commands. Select multiple with shift + mouse.
select all (hosts) - unselect all - all problems - all with downtime

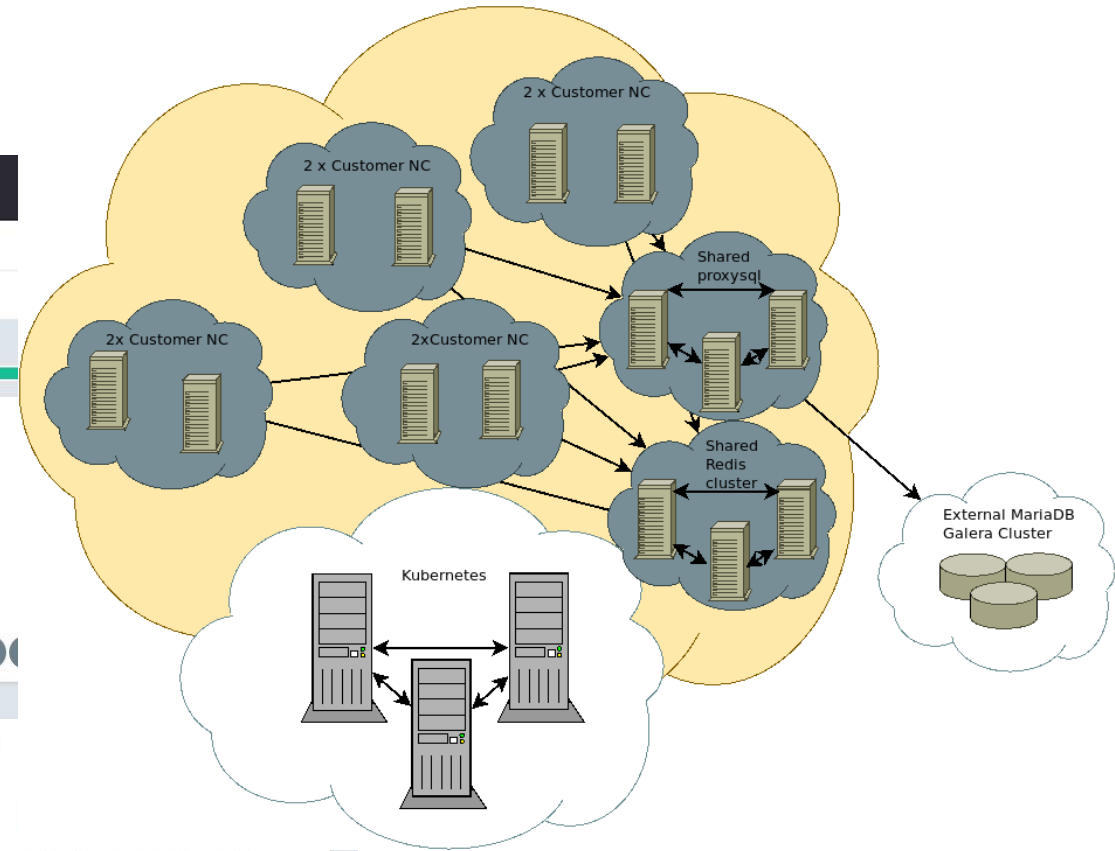
Host	Service	Status	Last Check	Duration	Attempt	Status Information
antagning.drive.sunet.se	Nextcloud status	OK	10:01:01	0d 0h 34m 25s	1/3	HTTP OK: HTTP/1.1 200 OK - 1769 bytes in 0.044 second resp...
	Nextcloud version	OK	10:01:01	0d 0h 34m 25s	1/3	HTTP OK: HTTP/1.1 200 OK - 1773 bytes in 0.058 second resp...
	PING	OK	10:01:45	16d 3h 3m 51s	1/4	PING OK - Packet loss = 0%, RTA = 1.36 ms
antagning.drive.test.sunet.se	Nextcloud status	OK	10:02:08	6d 17h 36m 48s	1/3	HTTP OK: HTTP/1.1 200 OK - 1778 bytes in 0.048 second resp...
	Nextcloud version	OK	10:02:31	6d 17h 36m 48s	1/3	HTTP OK: HTTP/1.1 200 OK - 1774 bytes in 0.036 second resp...
	PING	OK	10:02:54	45d 15h 18m 26s	1/4	PING OK - Packet loss = 0%, RTA = 0.81 ms
backup1.extern.drive.sunet.se	Active Users	OK	10:03:18	0d 23h 41m 34s	1/4	USERS OK - 0 users currently logged in
	Boot Disk	OK	10:03:41	87d 20h 21m 45s	1/4	DISK OK - free space: / 71505 MB (90% inode=98%):
	PING	OK	10:04:04	73d 2h 44m 8s	1/4	PING OK - Packet loss = 0%, RTA = 0.55 ms
	Packages available for upgrade	OK	10:04:27	0d 3h 33m 25s	1/4	APT OK: 0 packages available for upgrade (0 critical updates).
	Processes need restart	OK	10:04:50	7d 0h 27m 15s	1/4	OK - Services: none, Containers: none, Sessions: none
	Reboot Needed	OK	10:05:13	0d 23h 41m 12s	1/4	Reboot OK: No reboot required
	Root Disk	OK	10:03:05	43d 18h 3m 10s	1/4	DISK OK - free space: / 71505 MB (90% inode=98%):
	Scriptherder Status	OK	10:00:59	55d 20h 0m 19s	1/4	OK: 4 job in this state: cosmos[exit=0,age=58s], dockerhost_cleanup[exit=0,age...
	System Entropy	OK	10:01:22	85d 21h 25m 45s	1/4	OK: 1402 bytes in the pool.
	System Load	OK	10:01:45	87d 20h 19m 29s	1/4	OK - load average: 0.07, 0.05, 0.01
	System Memory	OK	10:02:08	87d 20h 19m 12s	1/4	MEMORY OK - 7144M free
	System NTP Time	OK	10:02:31	13d 20h 52m 48s	1/4	NTP OK: Offset -8.702278137e-06 secs
	Total Processes	OK	10:02:55	87d 20h 18m 41s	1/4	PROCS OK: 44 processes
Uptime	OK	10:03:18	0d 23h 41m 34s	1/4	OK: Linux backup1 5.4.0-96-generic - up 23 hours 40 minutes	
Var Disk	OK	10:03:41	73d 2h 44m 8s	1/4	DISK OK - free space: / 71505 MB (90% inode=98%):	

* <https://www.naemon.io>
<https://www.thruk.org>

Framtidsplaner

The screenshot shows the Argocd web interface with the following application details:

Application	Project	Status	Repository	Target Revision	Path	Destination	Namespace
argocd	default	Healthy Synced	https://github.com/SUNET/drive-k8s.git	drive-2022-02-16-v01	argocd	in-cluster	
health	default	Healthy Synced	https://github.com/SUNET/drive-k8s.git	drive-2022-02-16-v01	health	in-cluster	
kano							
openebs	default	Healthy Synced	https://github.com/SUNET/drive-k8s.git	drive-2022-02-16-v01	openebs	in-cluster	
proxysql	default	Healthy Synced	https://github.com/SUNET/drive-k8s.git	drive-k8s-2022-02-22-v05	proxysql	in-cluster	
redis				drive-k8s-2022-02-22-v05	redis	in-cluster	



Sunet Drive alternativ 2

Sunet Drive – alternativ två

- Nytt sätt att licensiera Sunet Drive
- Baseras på antal användare från en organisation som loggat in
- Ingår lagring 10Gb per användare
- Organisationen behöver hålla reda på hur många som loggat in
- Information om nyttjande både användare och lagring kommer från Sunet
- Autentisering via organisationens IdP

Sunet Drive – alternativ två vad kostar det

- Kostnad 100 Kr per användare och månad ingår 10GB data
- Kostnad för nyttjade >10Gb lagring per användare, ej klart
- Maxgräns för lagring, ej klart
- Avstämning för fakturering görs löpande

SUNET Virtuellt datacenter

SUNET Virtuella servrar [IaaS] 1(2)

- Nytt namn: Sunet Virtuellt datacenter
- IaaS först ut
- Kostnaden baseras på den totala förbrukningen
 - vCPU
 - Minne
 - Disk, blocklagring
 - Large
 - Fast
- Konfigurationer väljs från lista

SUNET Virtuella servrar [IaaS] 2(2)

- Summerar kostnaden för varje delkomponent
- Den totala summan är grund för en rabatt som förändras beroende på kostnaden
- Rabatten ökar när summan ökar
- Rabatten för förbetald bindningstid förändras också till procentsatser för 12 respektive 36 månader
- Finns förnärvarande bara i Sunets publika moln

Sunet Virtuella servrar princip

Service	Enhet	per tim. (SEK)	720 tim.
Compute vCPU	vCPU	X	720 X
Compute RAM	GB	Y	720 Y
Compute local nvme disk	GB	Z	720 Z
Volume Storage -FAST disk	GB	V	720 V
Volume Storage -LARGE disk	GB	W	720 W

Volym rabatter

Månatlig förbrukning av tjänster kSEK	Rabatt
0 – 50	N1%
50 – 100	N2%
100 – 150	N3%
150 – 200	N4%
200 – 250	N5%
250 – 350	N6%
350 - 500	N7%
500 -	N8%

Volym åtagande och förbetald tjänst

Period	Rabatt
12 månader	M1 %
36 månader	M2 %

SUNET Virtuella exempel på konfigurationer

Instanser med lokal NVMe-disk

Produkt ID	vCPU	RAM (GB)	Lokal disk (GB)
INSTANCE- I2. c2 r4. 100	2	4	100
INSTANCE- I2. c2 r4. 500	2	4	500
INSTANCE- I2. c4 r8. 500	4	8	500
INSTANCE -I2. c8 r16. 100	8	16	100
INSTANCE- I2. c8 r16. 1000	8	16	1000
INSTANCE- I2. c16 r32. 500	16	32	500
INSTANCE- I2. c16 r32. 1000	16	32	1000

Instanser utan lokal disk

INSTANCE- b2. c1 r2	1	2	0
INSTANCE- b2. c2 r4	2	4	0
INSTANCE- b2. c4 r16	4	16	0
INSTANCE- b2. c16 r64	16	64	0

Nyheter / Pågång

- VDC till Sunets privata moln
 - Inväntar ny hårdvara
 - Konfigurationer med bättre prestanda
 - GPU
- Orosmoln – osäkra leveranstider

Sunetdagarna

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