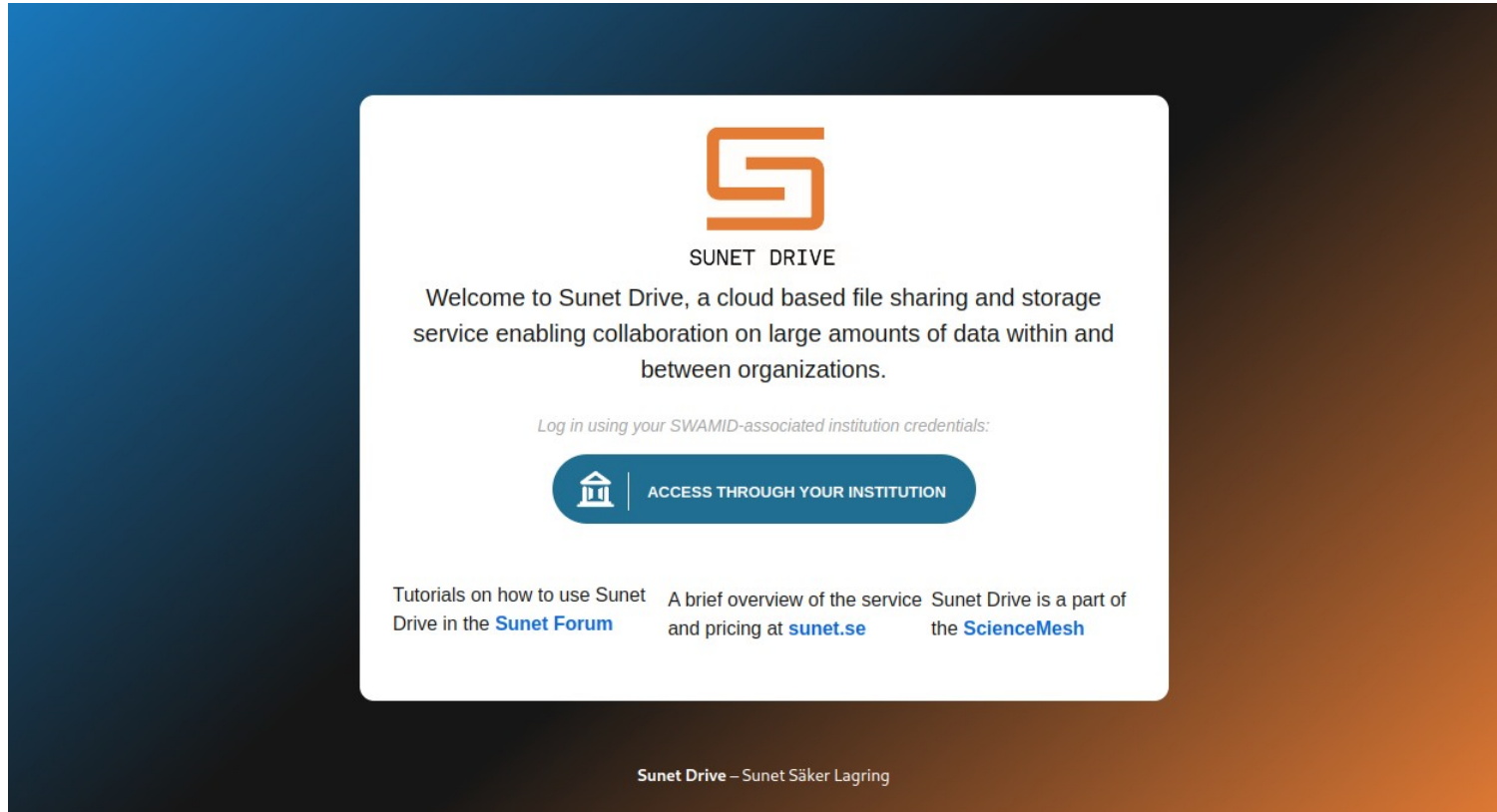


Sunet Drive

JupyterHub/Kubernetes/VDC



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 reads 'SUNET DRIVE' and 'Welcome to Sunet Drive, a cloud based file sharing and storage service enabling collaboration on large amounts of data within and between organizations.' A login instruction follows: 'Log in using your SWAMID-associated institution credentials:'. Below this is a blue button with a white icon of a building and the text 'ACCESS THROUGH YOUR INSTITUTION'. At the bottom of the page, 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 text reads 'Sunet Drive – Sunet Säker Lagring'.

Sunetdagarna 2024

Sunet Drive – JupyterHub, Kubernetes & VDC

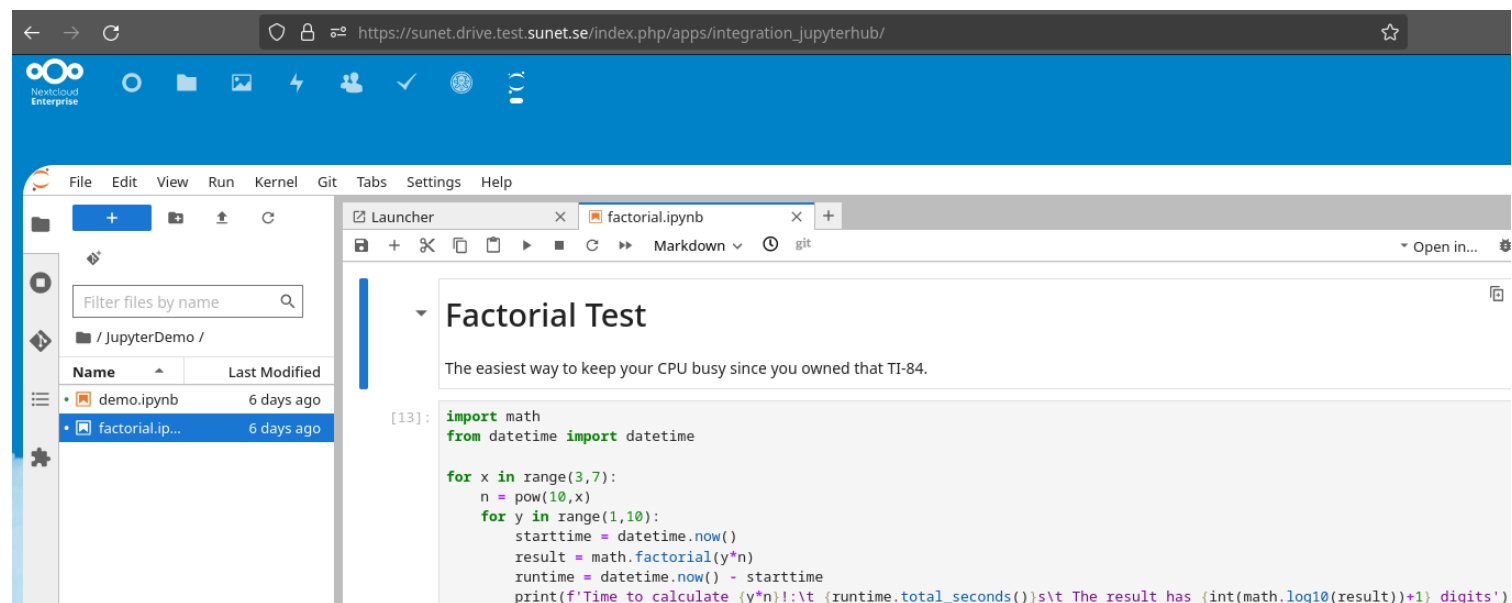
Sunet Drive

- JupyterHub with Demo
- ArgoCD
- Platform (?)
- VDC → DCO and more
- The future (ResearchCloud)

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

Available upon request, also without Sunet Drive :-)



Notable: TNC 2024 - From Data to DOI with a Berry Solar Cell

- Execute Experiment
 - Jupyter notebook with instructions to make a simple organic solar cell
 - Measure data and upload to Sunet Drive in realtime
- Data Analysis
 - Analyse and visualise data in JupyterHub
- Publish Data
 - Prepare data and metadata
 - Publish to Zenodo using **ScieboRDS** app
 - <https://sandbox.zenodo.org/records/70251>
- Showcased as live demo at TNC24



Berrycells.com



Challenges

- Compute is less generalized than files
- Estimating demand is hard for universities and institutions
- Economic modelling including technical integration requires more work
- High-demand or high-interest topics are still hard to deliver: GPU-based resources for machine learning
- Resource-management and operations are still relatively complex (k8s)
- Uptake requires more training

The screenshot displays five resource cards from a Kubernetes dashboard, each representing a different application or service. Each card includes the following information:

- Project:** default
- Labels:** (empty)
- Status:** Healthy (with a green heart icon) and Synced (with a green checkmark icon)
- Repository:** <https://platform.sunet.se/Drive/k8s-manif...>
- Target Re...:** k8s-manifests-2024-03-20-v01
- Path:** argocd/overlays/prod
- Destinati...:** in-cluster
- Namesp...:** argocd
- Created ...:** 02/13/2024 12:29:50 (3 months ago)
- Last Sync:** 03/20/2024 08:34:25 (a month ago)

Buttons at the bottom of each card: SYNC, REFRESH, DELETE.

The **uu-jupyter** card shows a different status: Progressing (with a yellow circle icon) and OutOfSync (with a yellow warning icon).

- Project:** default
- Labels:** (empty)
- Status:** Progressing (with a yellow circle icon) and OutOfSync (with a yellow warning icon)
- Repository:** <https://platform.sunet.se/Drive/k8s-manif...>
- Target Re...:** k8s-manifests-2024-02-15-v01
- Path:** jupyter/overlays/prod/uu
- Destinati...:** in-cluster
- Namesp...:** uu-jupyterhub
- Created ...:** 02/13/2024 16:34:19 (3 months ago)
- Last Sync:** 02/19/2024 11:26:05 (2 months ago)

Buttons at the bottom of each card: SYNC, REFRESH, DELETE.

ArgoCD for Kubernetes

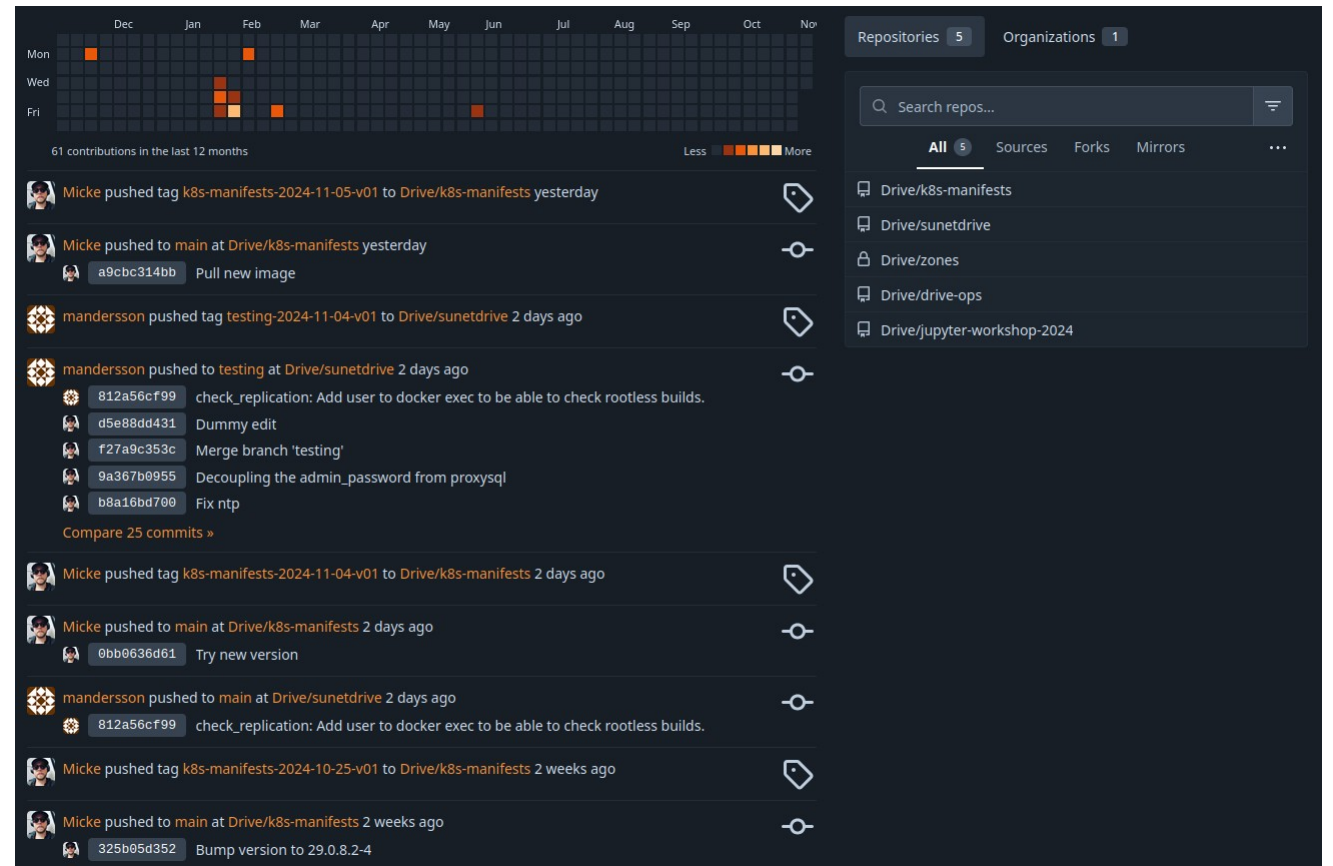
- Gitops for kubernetes
- Automated deployment of applications
- Kustomize
- Helm
- Namespaces
- Admin-rights

The screenshot displays five ArgoCD application cards in a grid layout. Each card shows the application name, project, labels, status, repository URL, target revision, path, destination, namespace, creation time, and last sync time. At the bottom of each card are buttons for SYNC, REFRESH, and DELETE.

Application Name	Project	Status	Repository	Target Revision	Path	Destination	Namespace	Created	Last Sync
argocd	default	Healthy Synced	https://platform.sunet.se/Drive/k8s-manif...	k8s-manifests-2024-03-20-v01	argocd/overlays/prod	in-cluster	argocd	02/13/2024 12:29:50 (3 months ago)	03/20/2024 08:34:25 (a month ago)
argocd-ingress	default	Healthy Synced	https://platform.sunet.se/Drive/k8s-manif...	k8s-manifests-2024-02-12-v02	argocd-ingress/overlays/prod	in-cluster	argocd	02/13/2024 12:30:59 (3 months ago)	02/13/2024 12:31:05 (3 months ago)
cinder	default	Healthy Synced	https://platform.sunet.se/Drive/k8s-manif...	k8s-manifests-2024-02-12-v02	cinder	in-cluster	kube-system	02/13/2024 16:26:16 (3 months ago)	02/13/2024 16:26:22 (3 months ago)
health	default	Healthy Synced	https://platform.sunet.se/Drive/k8s-manif...	k8s-manifests-2024-02-12-v02	health/overlays/prod	in-cluster	health	02/13/2024 12:34:19 (3 months ago)	02/13/2024 12:34:43 (3 months ago)
uu-jupyter	default	Progressing OutOfSync	https://platform.sunet.se/Drive/k8s-manif...	k8s-manifests-2024-02-15-v01	jupyter/overlays/prod/uu	in-cluster	uu-jupyterhub	02/13/2024 16:34:19 (3 months ago)	02/19/2024 11:26:05 (2 months ago)

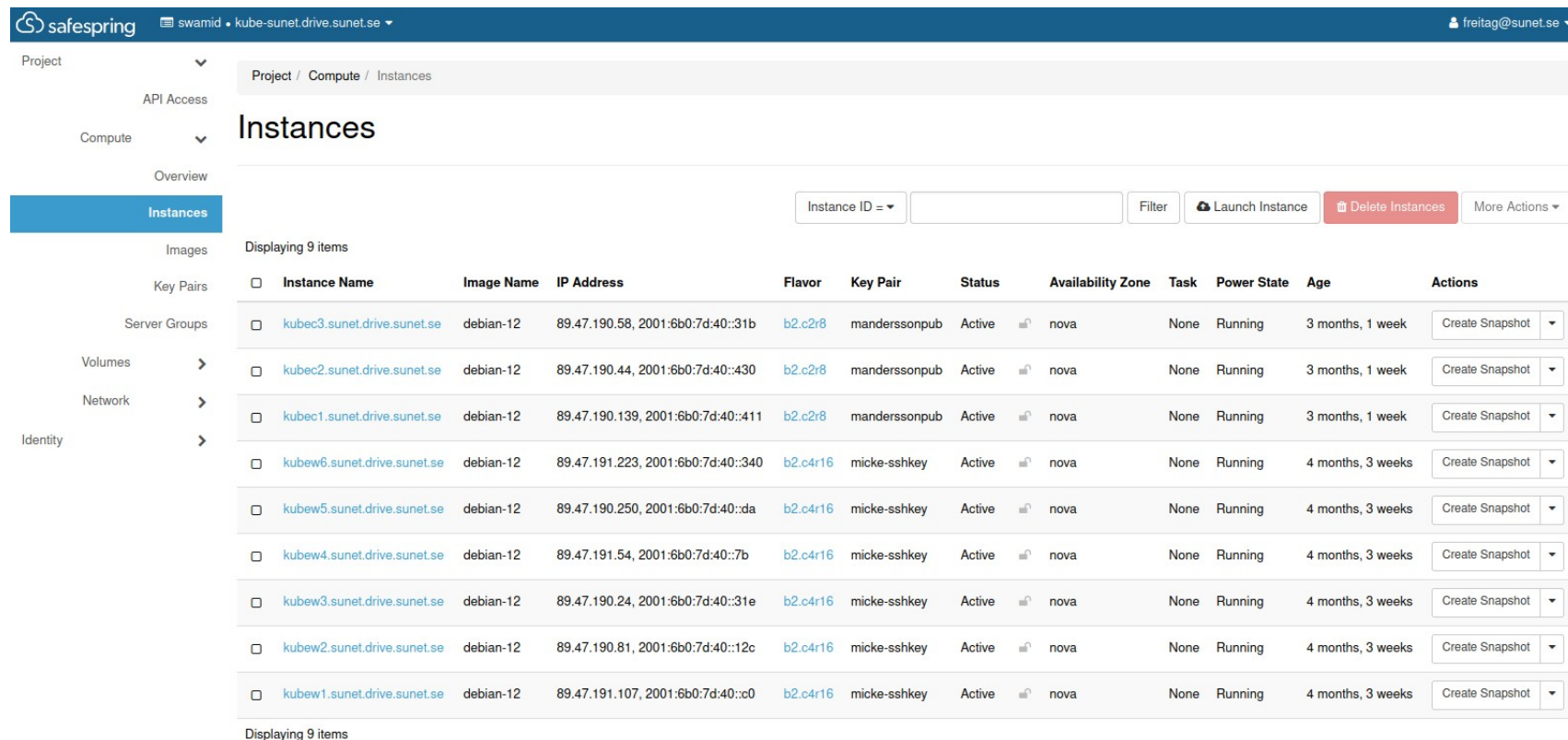
Sunet Platform

- Gitops FTW
- Based on forgejo
- Manage configurations and customizations
- Heavily used internally
- Used more and more by customers, e.g. CNAAS
- Helps to move from public git (github) to sovereign self-hosted solution



Virtual Datacenter (VDC)

- Based on OpenStack
- Virtual machines
- Storage (S3/block)
- Predefined and custom
- Swedish datacenters
- Public (sto1/sto2)
- Private (sto3/sto4/dco)




The screenshot shows the OpenStack dashboard interface for a project named 'swamid'. The main content area displays a list of instances under the 'Instances' tab. The table below summarizes the data shown in the screenshot.

Instance Name	Image Name	IP Address	Flavor	Key Pair	Status	Availability Zone	Task	Power State	Age	Actions
kubec3.sunet.drive.sunet.se	debian-12	89.47.190.58, 2001:6b0:7d:40::31b	b2.c2r8	manderssonpub	Active	nova	None	Running	3 months, 1 week	Create Snapshot
kubec2.sunet.drive.sunet.se	debian-12	89.47.190.44, 2001:6b0:7d:40::430	b2.c2r8	manderssonpub	Active	nova	None	Running	3 months, 1 week	Create Snapshot
kubec1.sunet.drive.sunet.se	debian-12	89.47.190.139, 2001:6b0:7d:40::411	b2.c2r8	manderssonpub	Active	nova	None	Running	3 months, 1 week	Create Snapshot
kubew6.sunet.drive.sunet.se	debian-12	89.47.191.223, 2001:6b0:7d:40::340	b2.c4r16	micke-sshkey	Active	nova	None	Running	4 months, 3 weeks	Create Snapshot
kubew5.sunet.drive.sunet.se	debian-12	89.47.190.250, 2001:6b0:7d:40::da	b2.c4r16	micke-sshkey	Active	nova	None	Running	4 months, 3 weeks	Create Snapshot
kubew4.sunet.drive.sunet.se	debian-12	89.47.191.54, 2001:6b0:7d:40::7b	b2.c4r16	micke-sshkey	Active	nova	None	Running	4 months, 3 weeks	Create Snapshot
kubew3.sunet.drive.sunet.se	debian-12	89.47.190.24, 2001:6b0:7d:40::31e	b2.c4r16	micke-sshkey	Active	nova	None	Running	4 months, 3 weeks	Create Snapshot
kubew2.sunet.drive.sunet.se	debian-12	89.47.190.81, 2001:6b0:7d:40::12c	b2.c4r16	micke-sshkey	Active	nova	None	Running	4 months, 3 weeks	Create Snapshot
kubew1.sunet.drive.sunet.se	debian-12	89.47.191.107, 2001:6b0:7d:40::c0	b2.c4r16	micke-sshkey	Active	nova	None	Running	4 months, 3 weeks	Create Snapshot

The Future - ResearchCloud

- Wishlist
- Self-service portal developed by SURF (Netherlands)
- Access to virtual machines, storage (Drive), Jupyter, etc.
- Compatible with public clouds
- Self-hosted/Sovereign
- Would be adapted to Sunet-services


Welcome to SURF Research Cloud



If you have your credentials ready, you can log in. If you do not have access to this portal, you can find out how to request access through our [documentation pages](#)


Set up a workspace

Workspaces are the environments which you run to process your data in. Within your workspaces, you can run catalog items and datasets from our catalog or use your own software.




Collaborate with others

If your institution cannot create a collaboration for you, you can request one with SURF. You can contact our servicedesk here to have your collaboration created in SURF's SRAM organization.



Documentation

Read more about Research Cloud on our [documentation pages](#)



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