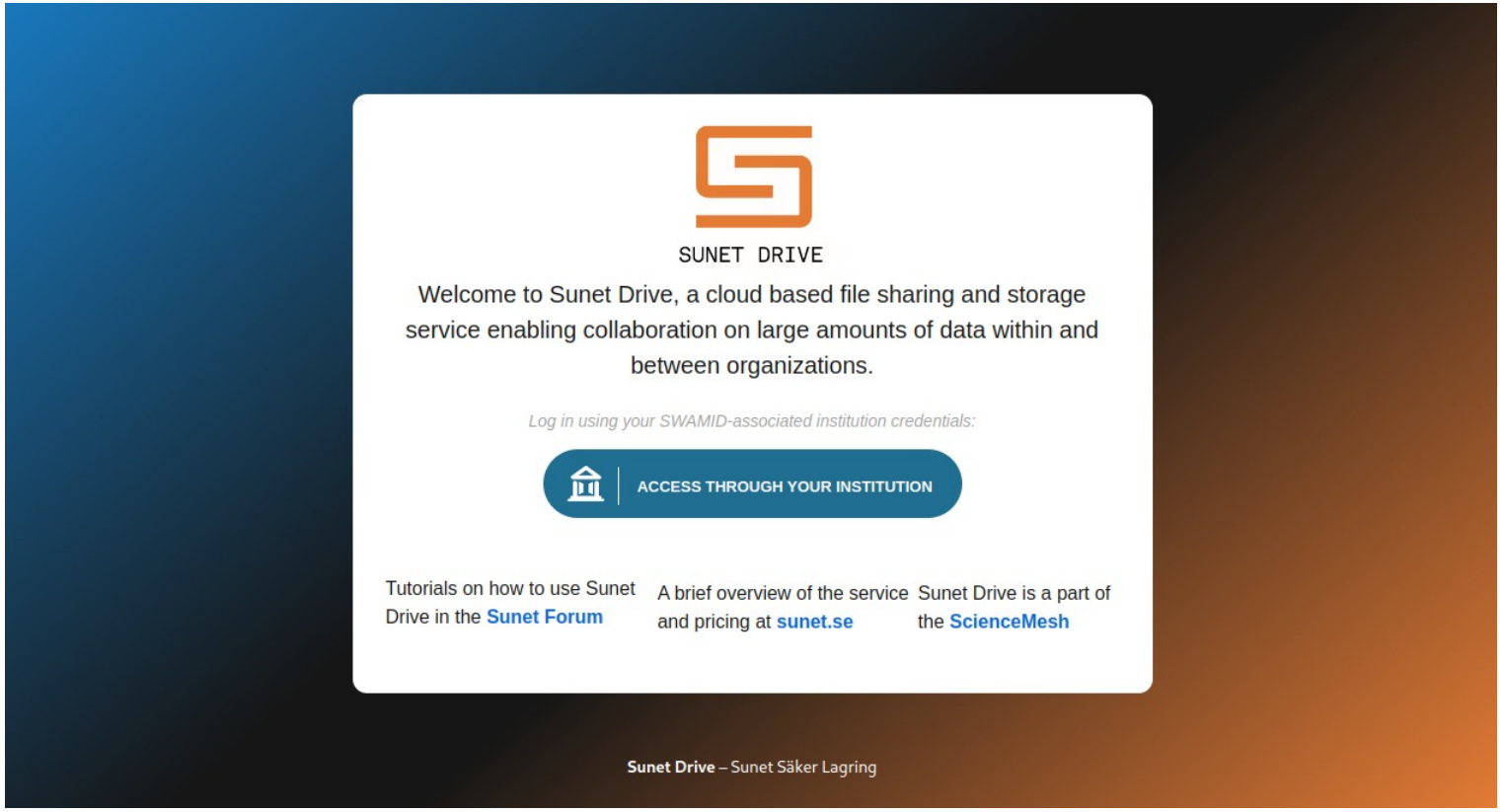
Sunet Drive

JupyterHub/Kubernetes/VDC



Sunetdagarna 2024

Sunet Drive – JupyterHub, Kubernetes & VDC

Sunet Drive

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

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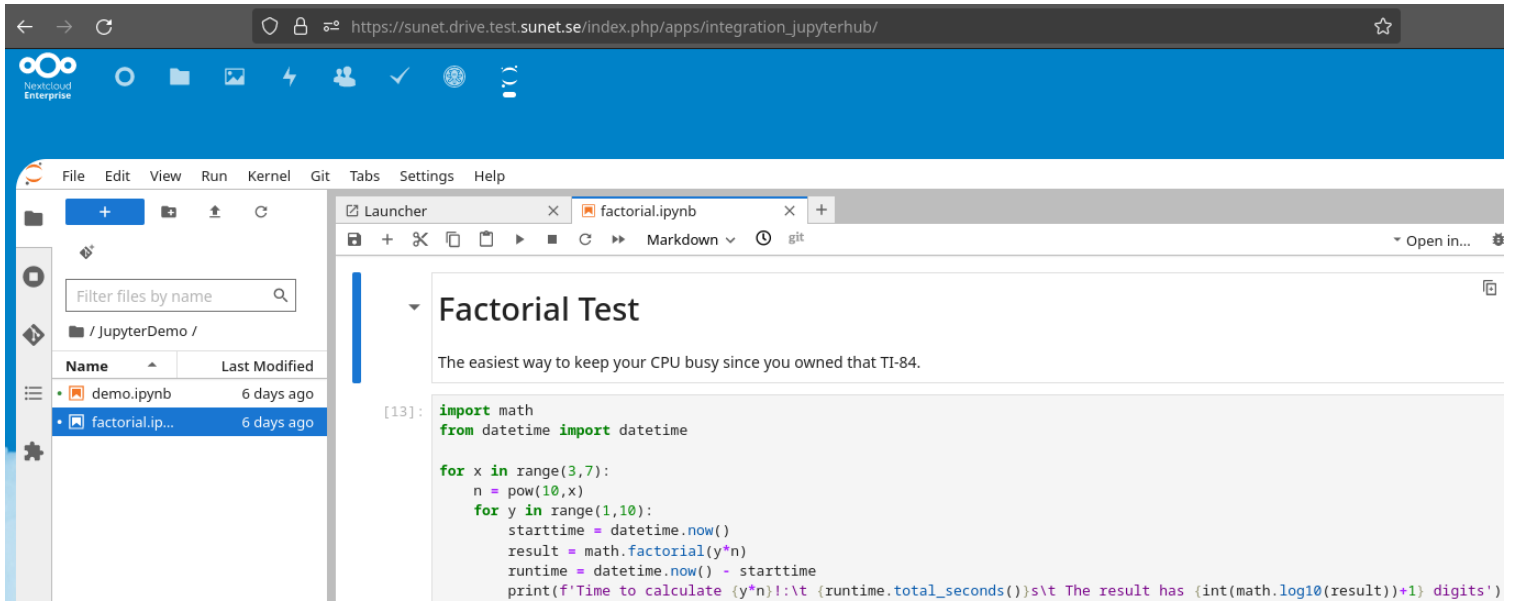
JupyterHub Integration

- 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 :-)



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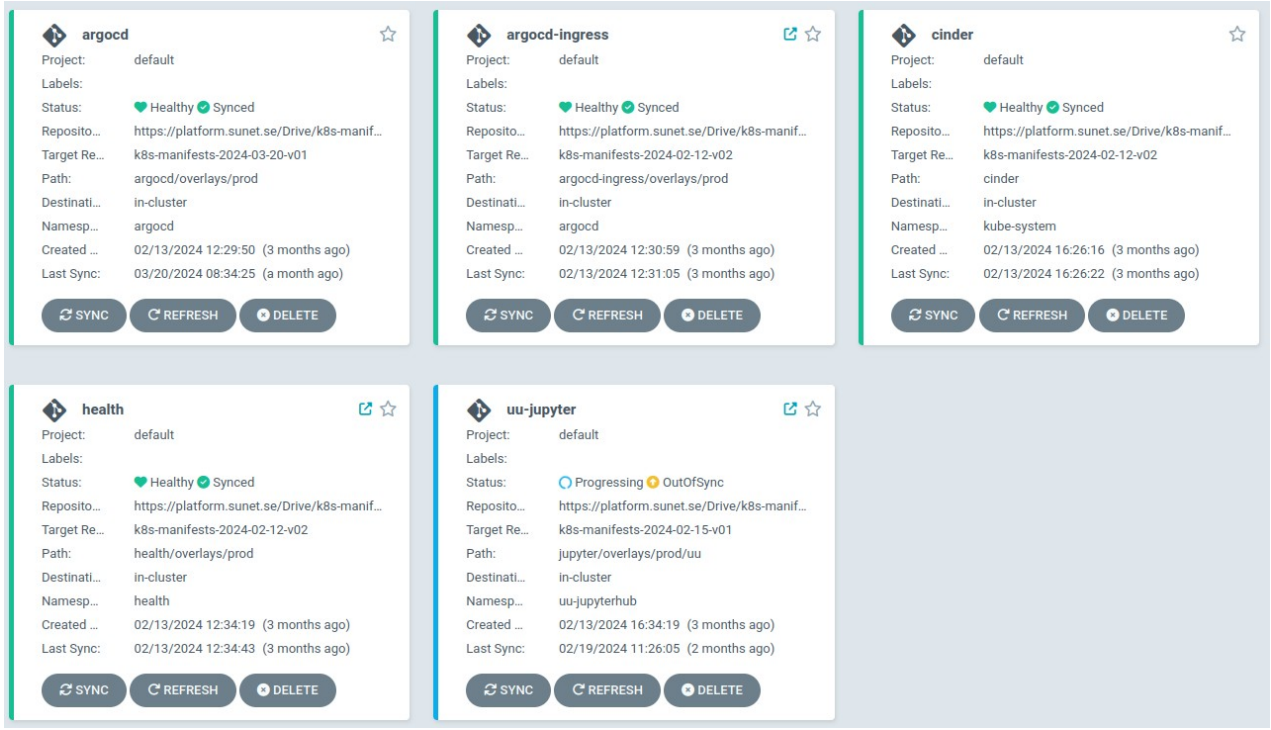
Notable: TNC 2024 - From Data to DOI with a Berry Solar Cell

- Execute Experiment
  - Jupyter notebook with instructions to make a simple organic solar cell
  - Measure data an 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



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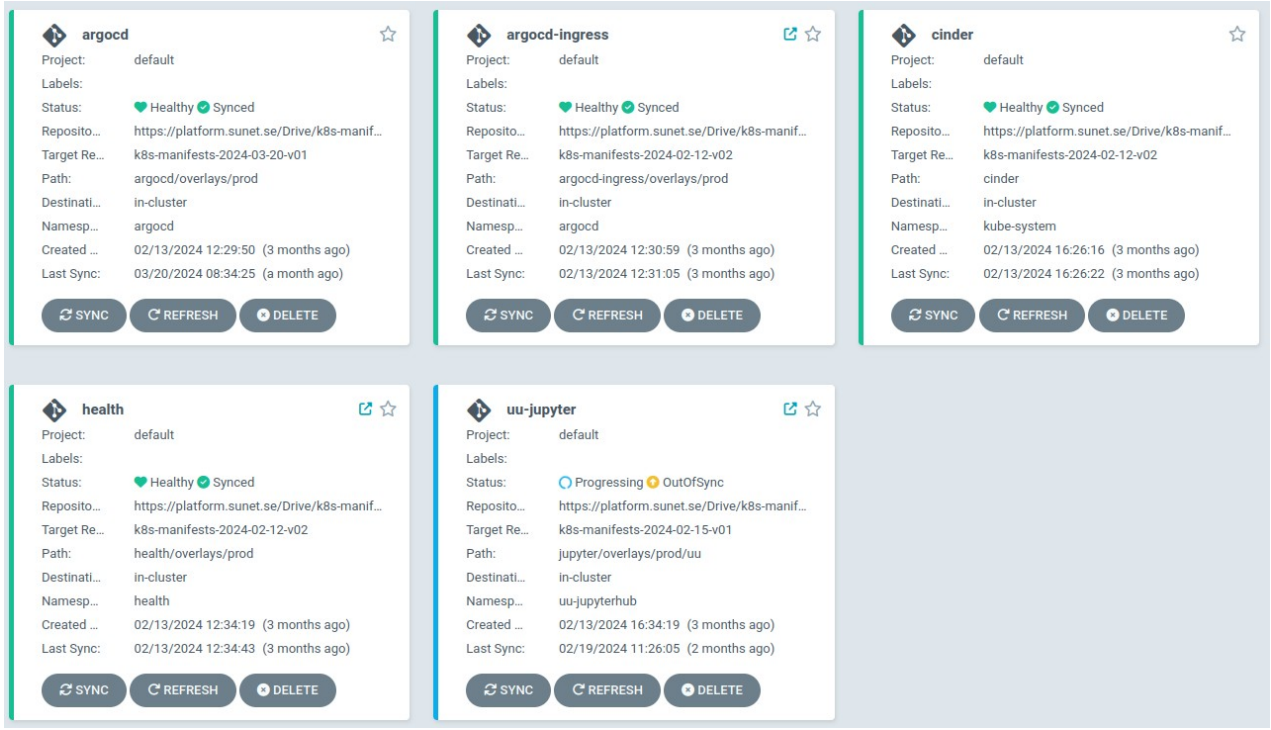
ArgoCD for Kubernetes

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



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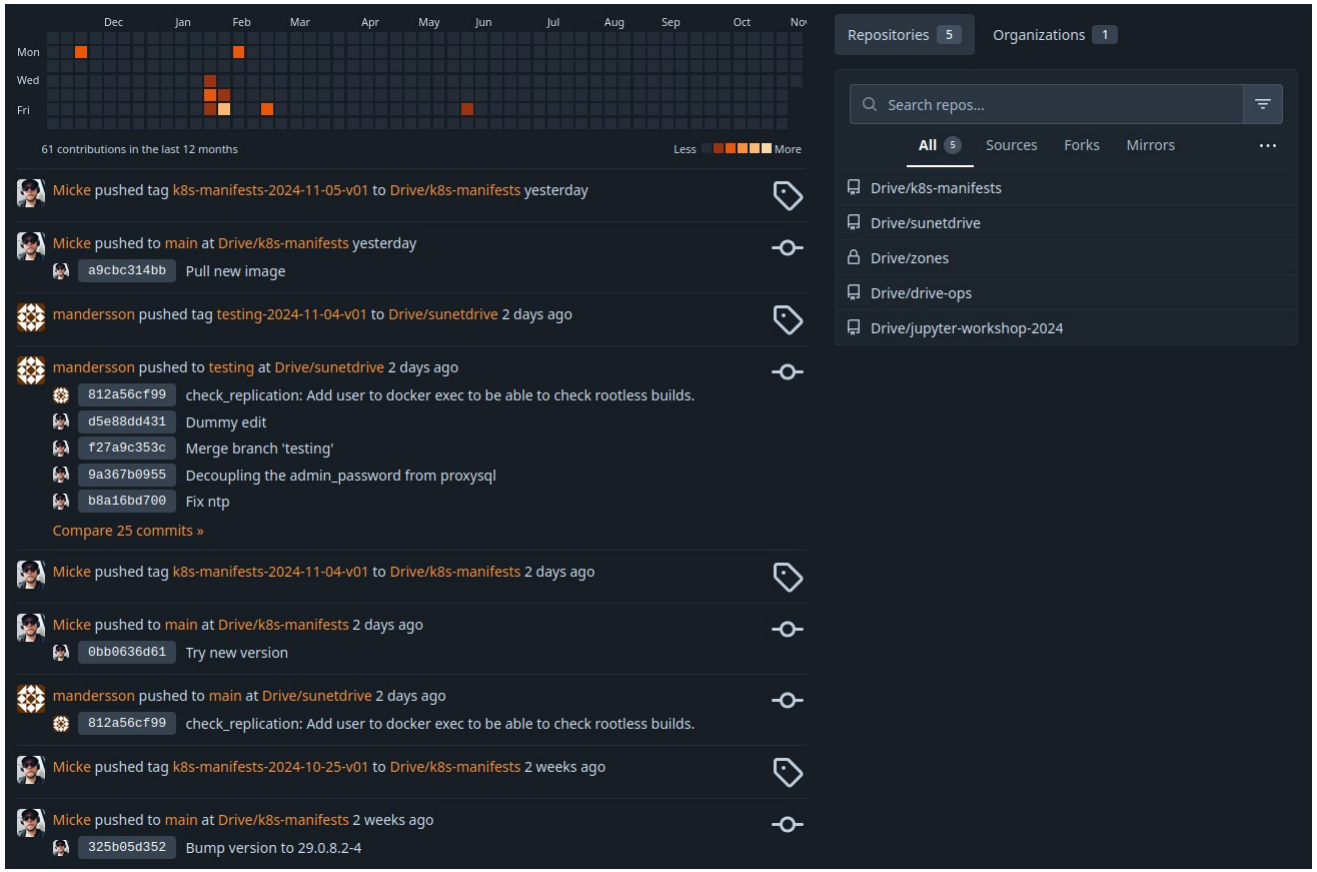
Sunet Platform

- 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



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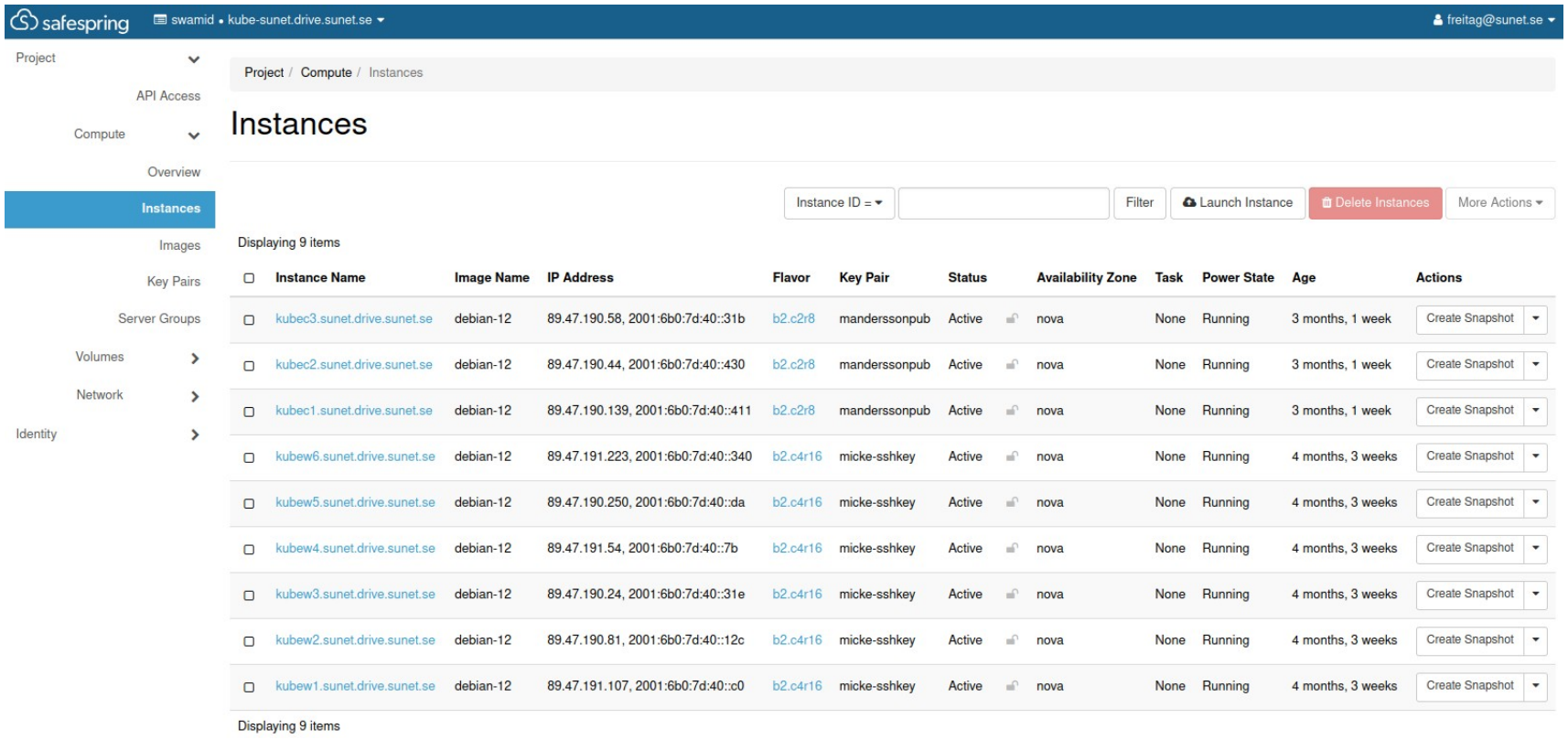
Virtual Datacenter (VDC)

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



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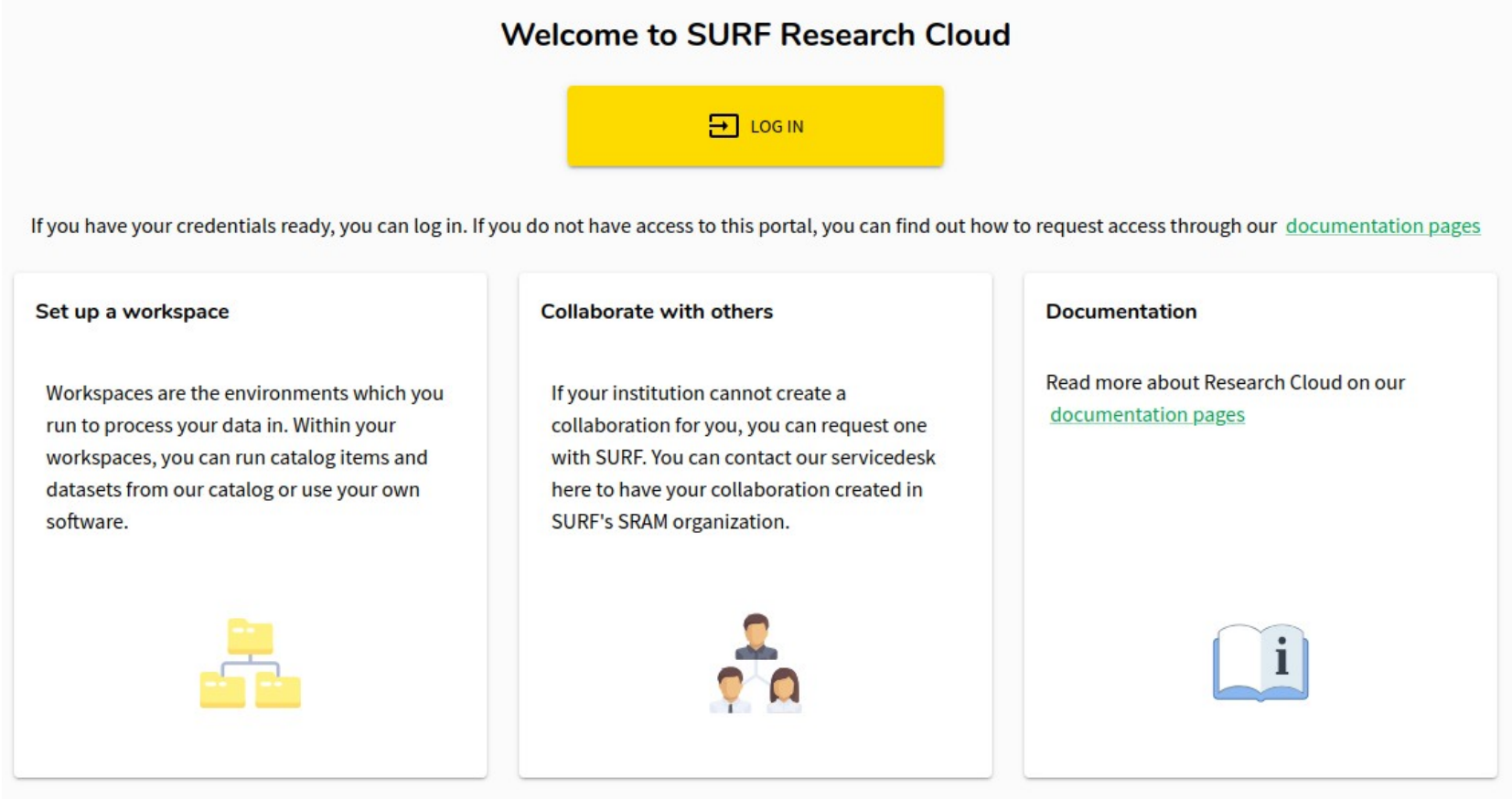
The Future - ResearchCloud

- 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



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Tack! Frågor?

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