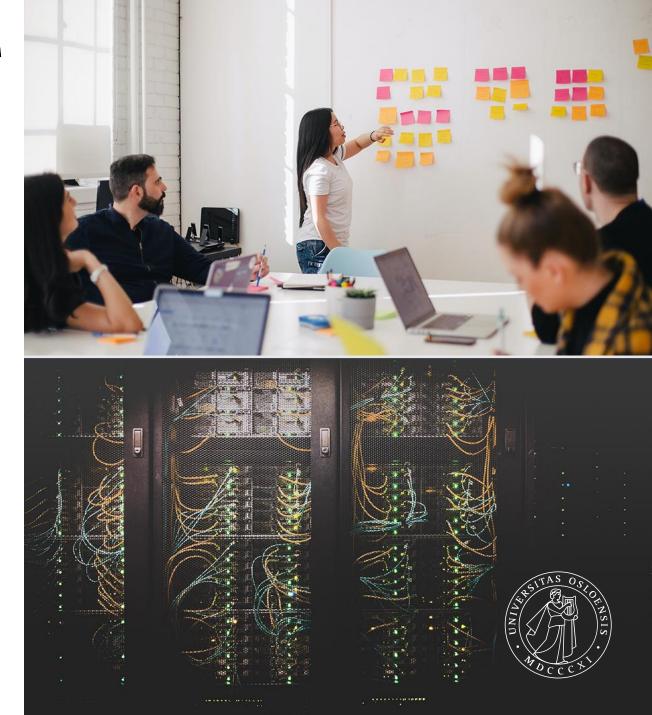
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# **Educloud Research**





# Why Educloud Research?

#### **UiO VDI Project**

- Every user a full desktop
- World-Wide access
- Access to "Lagringshotellet"
- Flexible application methodology

#### TSD

- Lot's and lot's of users and projects
- Permitted for all dataclasses
- World-Wide access
- Everyone can join

#### but.....

- Only for UiO-users
- Legacy infrastructure

#### but....

- No Internet
- Shared desktop resources
- Login is project based

#### Educloud

- Internet access
- Individual desktop
- World-Wide access
- Everyone can join
- One username

#### but....

No "black" data

### **Guidlines and requirements**

"Collaborate securely with researchers on one single platform across borders."

≻UiO owned and operated (in USIT datacenters)

>Data-centric model (all services can, if permitted, access all data)

➤Secure access (minimum two-factors ☺)

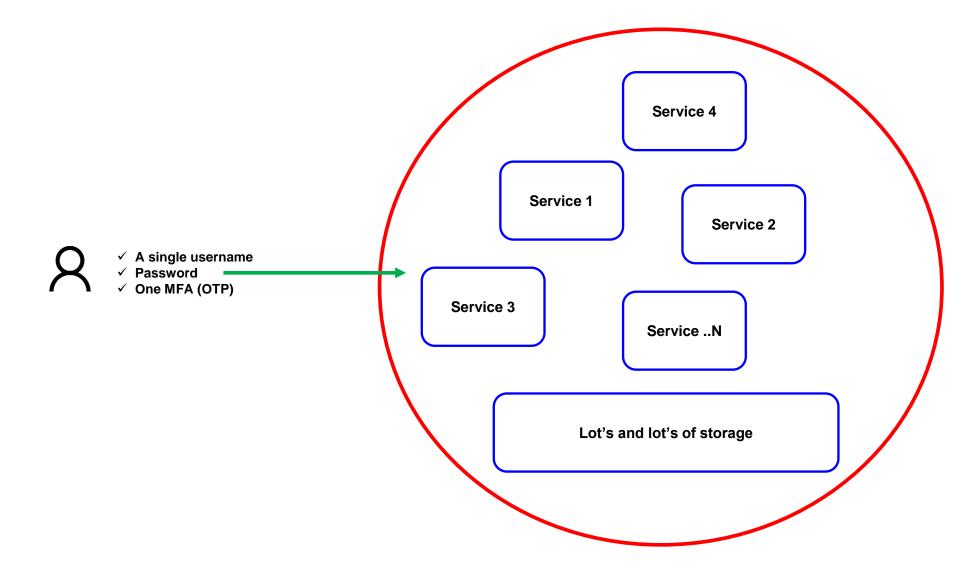
Self Service (portal enabling PIs and users)

Scalable (we hope, the future is not yet known)

>We can provide advanced user support!

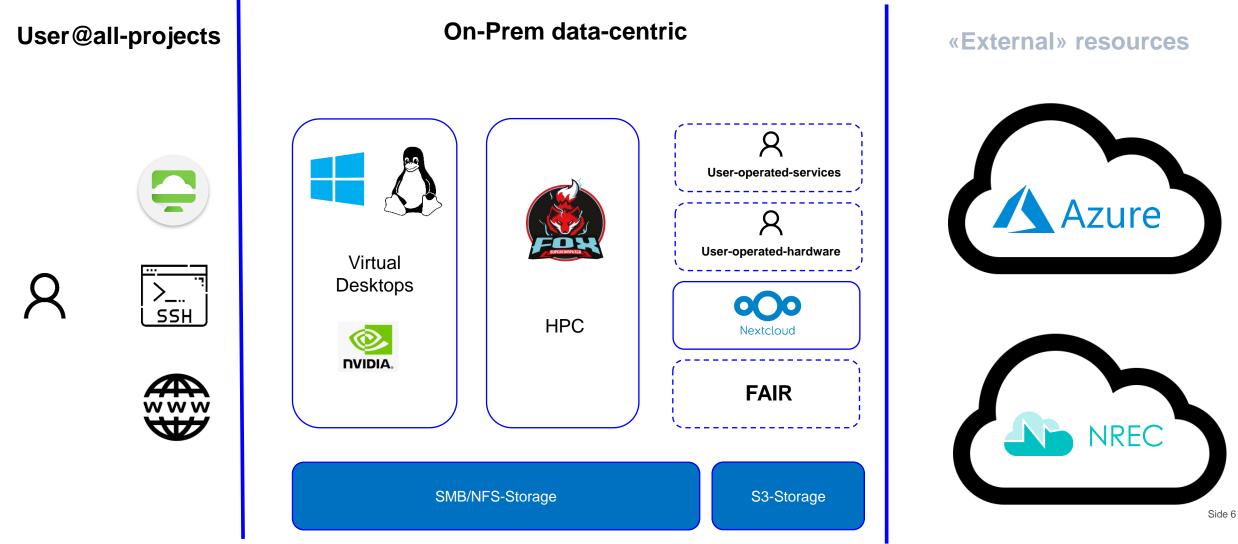


#### Secure access to multiple services



#### **Educloud Research Vision** Data Planning Processing Analyze Publishing Archiving capture 11. </> =

### **Educloud Research - Services**



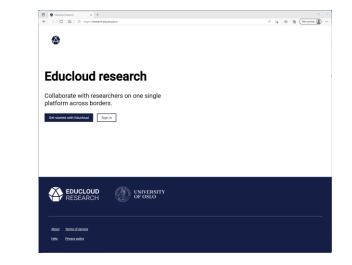
### https://research.educloud.no (Self Service)

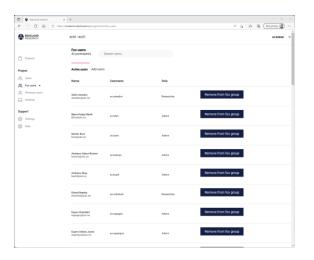
- $\checkmark$  For all project users; PIs, admins, users
- ✓ Inherited IAM from TSD
- ✓ Project admins can entitle users to resources
- ✓ Work in progress:

□ Show cost

□ Assign software

Adjust disk, cpu, memory





# Virtual Desktop Infrastructure (VDI)

(A managed desktop that is on the Internet)

✓ Similar to the setup at UiO (working on persistant)

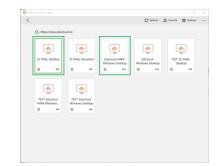
✓ Windows 2019 (will be Windows Server 2022)

✓ RedHat8 (working on Ubuntu)

✓VMware Horizon to distribute the desktop

✓ Highly customizable

✓ RedHat8 full integration with FOX application stack





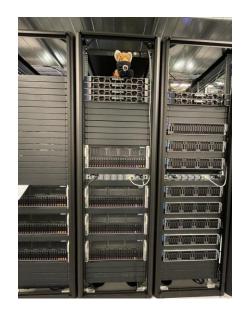


# FOX (HPC)

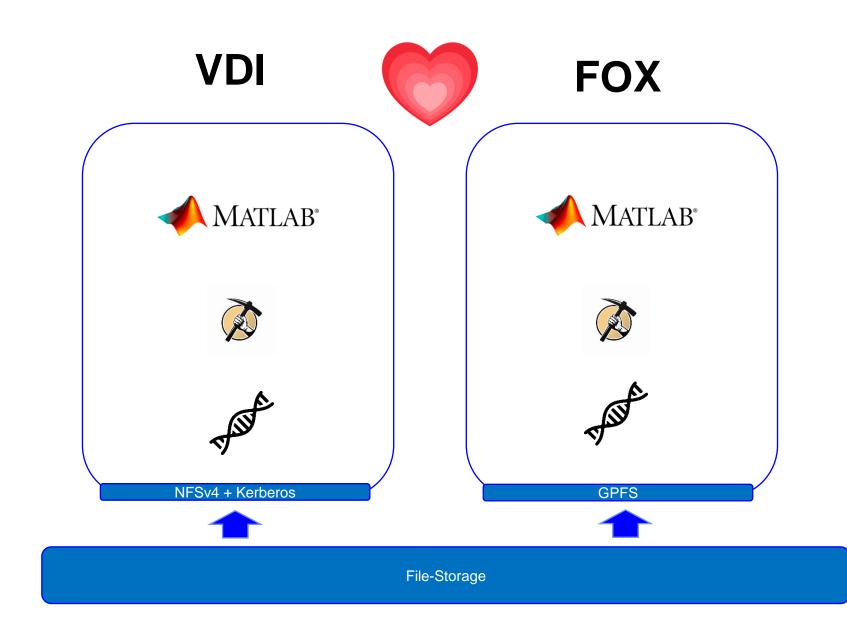
- ✓ Easy access
- ✓ Free for UiO (compute)
- Interactive nodes and job-based nodes (Slurm)
- ✓ 3 AI nodes (4x nvidia A100 per node)
- ✓ Infiniband
- ✓ Buy your own node like NCMM and IFI if needed

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### **VDI and HPC Integration**



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## **Nextcloud – Sync'n Share**

D Shared with -

B Deleted file 8 MB used O Settings



✓ On-Prem sync'n'share

 $\checkmark$  EC user and credentials (again  $\odot$ )

✓ Work in progress:

□ Prevent security issues

□ Mounting as drive in VDI

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< Pending shares				Connect items to a project to make them easier to find				
Tags								
External storage								
Deleted files								
8 MB used								

#### User operated – services and hardware

✓ Option 1: USIT does all

✓ Option 2: USIT is admin

✓ Option 3: User does it all

✓ Option 4: User brings own hardware

ALL management access is through ssh-login nodes or VDI



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# Simple Storage System (S3)

#### Amazon S3 – When a machine is to read or write data

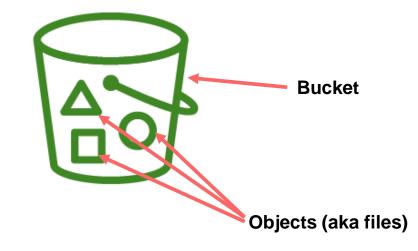
✓ Standardized API
✓ Huge support base
✓ Very flexible

#### **Object storage – Scalable multi-user**

✓ Billions and billions of unstructured files
 ✓ Scales and re-balances automatically
 ✓ High multi-user performance
 ✓ Flexible redundancy



#### **S3 Examples in Python**



import logging import boto3 from botocore.exceptions import ClientError

def create\_bucket(bucket\_name, region=None):

s3 = boto3.client('s3')
with open("FILE\_NAME", "rb") as f:
 s3.upload\_fileobj(f, "BUCKET\_NAME", "OBJECT\_NAME")

s3 = boto3.client('s3')
with open('FILE\_NAME', 'wb') as f:
 s3.download\_fileobj('BUCKET\_NAME', 'OBJECT\_NAME', f)

## **Getting started**

Self service portal : https://research.educloud.no/

Main page : https://www.uio.no/english/services/it/research/platforms/edu-research/

