Data Storage Platforms

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Data management coordinator
ELIXIR Norway/Digital Life Norway
9th of March 2021

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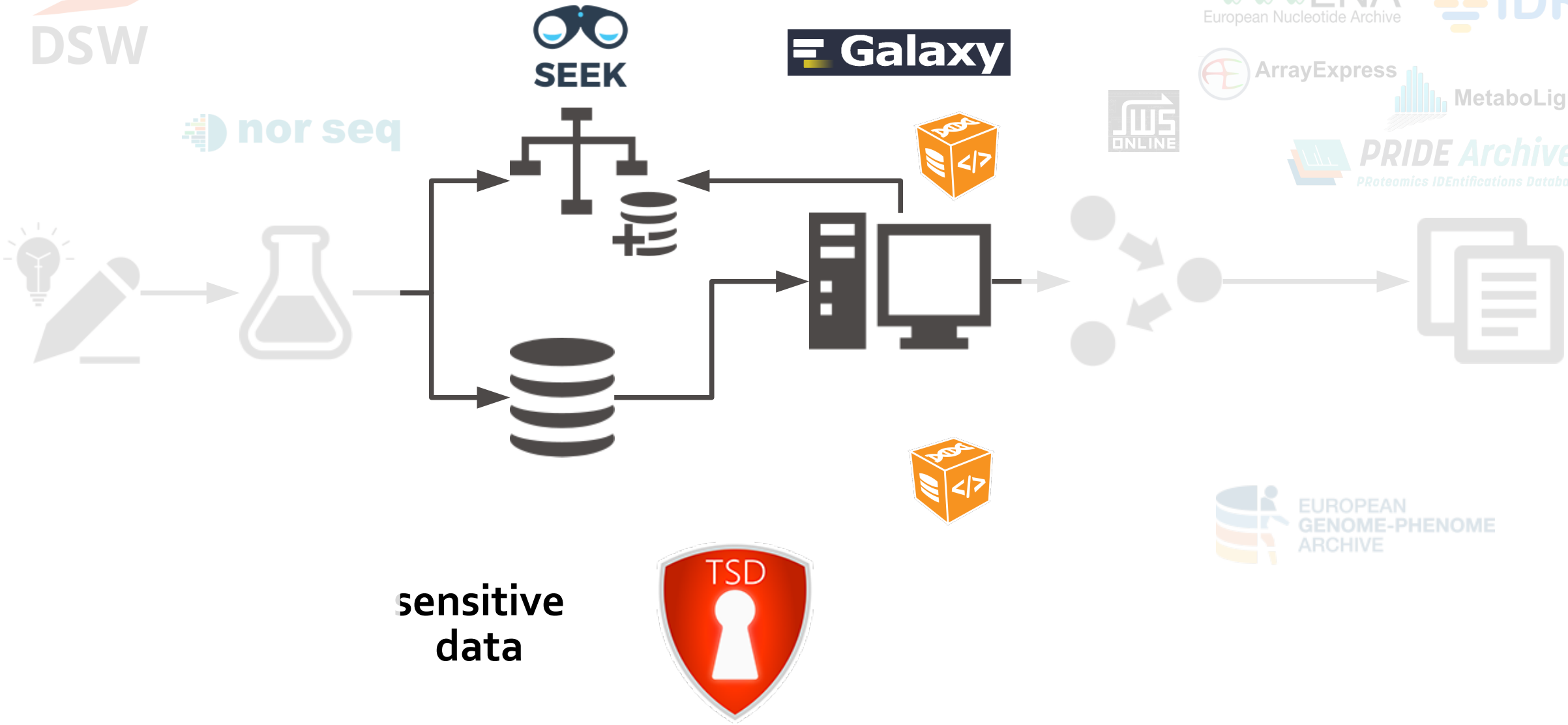
NeLS

Norwegian e-Infrastructure for Life Sciences



NeLS

nor seq

Feide ola@uib.no

My Projects

NeLS

Norwegian e-Infrastructure for Life Sciences

Data curation

Tekle, et al. (2018) F1000Res

github.com/elixir-no-nels/nels-core

https://nels.bioinfo.no/

NeLS

nor seq

Feide ola@uib.no

My Projects

NeLS

Norwegian e-Infrastructure for Life Sciences

Flexible work on active data

Data curation

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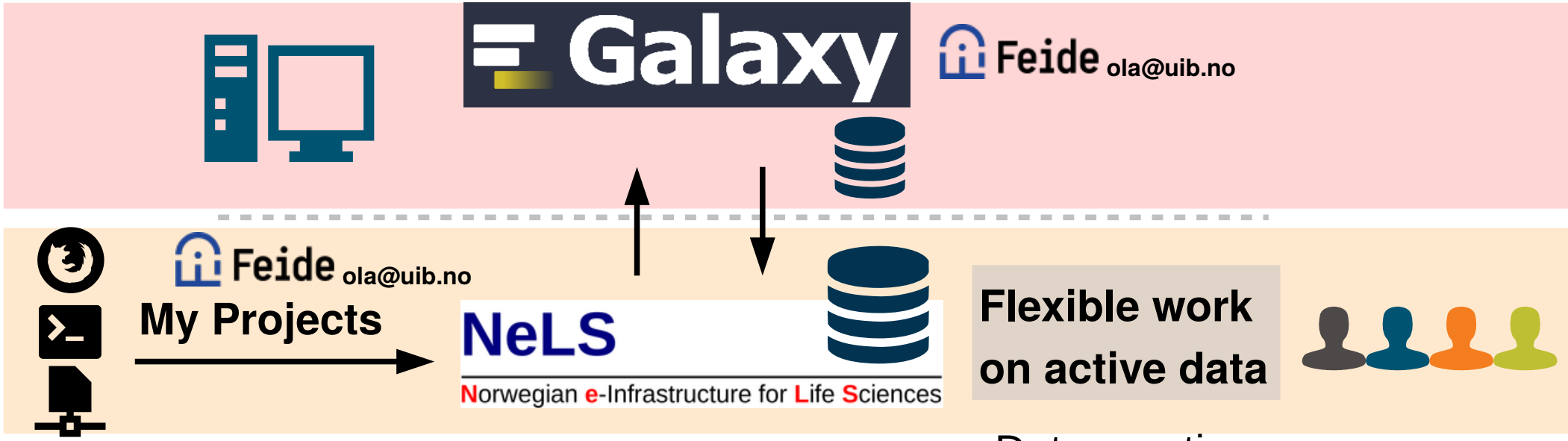

nor seq

Tekle, et al. (2018) F1000Res

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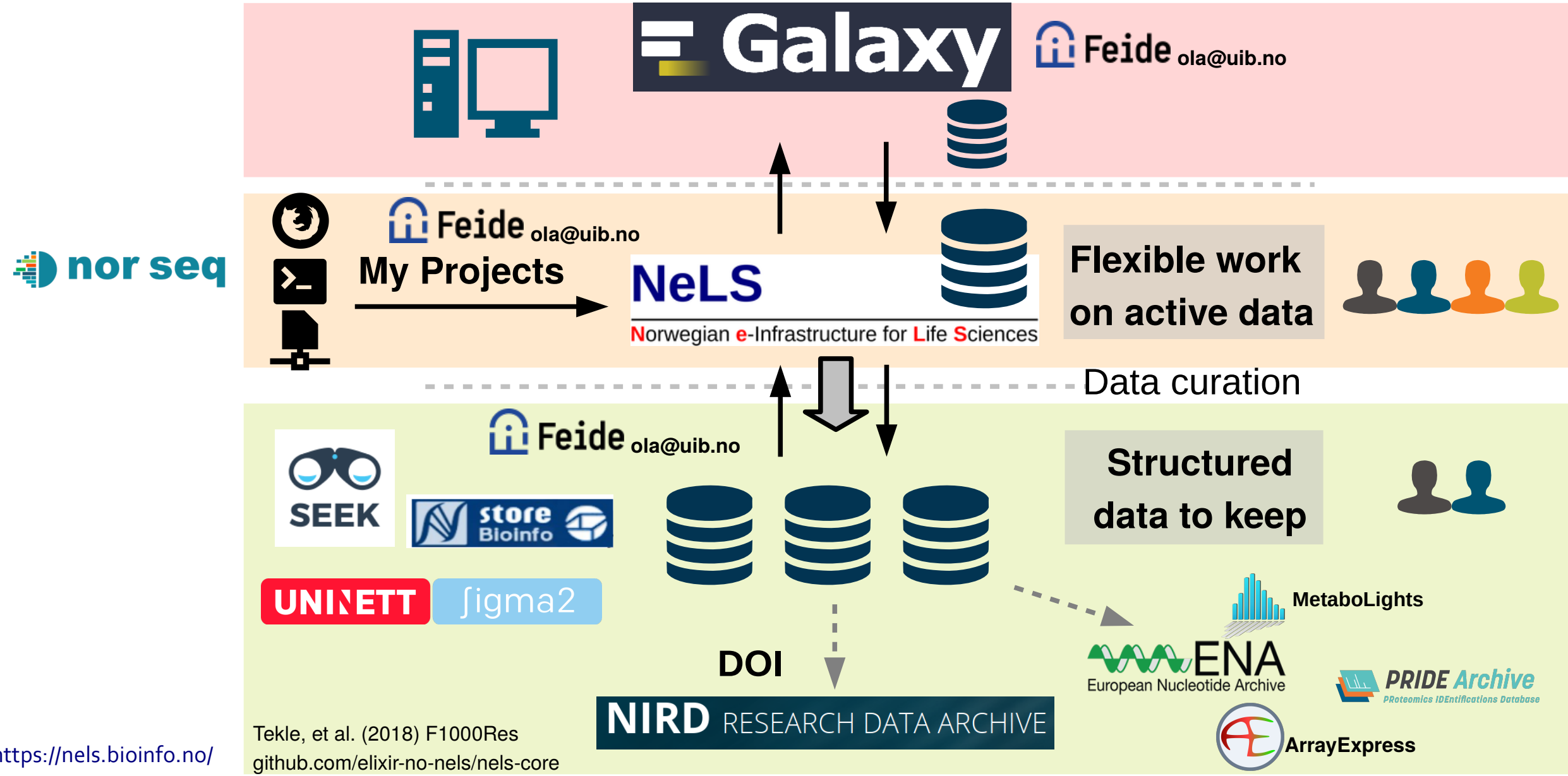

Tekle, et al. (2018) F1000Res
github.com/elixir-no-nels/nels-core

https://nels.bioinfo.no/

NeLS

Days - weeks

Months

Years

Decades

Galaxy

Feide ola@uib.no

Feide ola@uib.no

My Projects

NeLS

Norwegian e-Infrastructure for Life Sciences

Flexible work on active data

nor seq

Data curation

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SEEK

store Bioinfo

Structured data to keep

UNINETT

Sigma2

DOI

NIRD RESEARCH DATA ARCHIVE

MetaboLights

ENA European Nucleotide Archive

PRIDE Archive PRoteomics IDEntifications Database

ArrayExpress

Tekle, et al. (2018) F1000Res

github.com/elixir-no-nels/nels-core

https://nels.bioinfo.no/

NeLS - Accessibility

small datasets

Feide

ola@uib.no

NeLS - Accessibility

small datasets

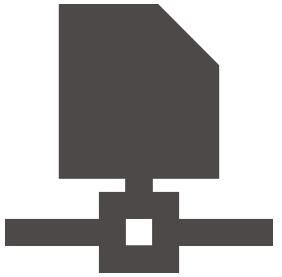
Feide

ola@uib.no

larger datasets

ssh-key

git



sFTP

https://nels.bioinfo.no/

Data Analysis in NeLS

Name	Annotation	Owner	Community Rating	Community Tags	Last Updated↓
16S Workflow with Mothur program		kjetil-klepper	☆☆☆☆☆		Oct 17, 2020
NGS Pipeline for Paired End Reads (R1 and R2)		kjetil-klepper	☆☆☆☆☆		Oct 17, 2020
miRNA differential expression (miRBase, hg38)		kjetil-klepper	☆☆☆☆☆	nels	Oct 15, 2020
miRNA differential expression (MirGeneDB, hg38)		kjetil-klepper	☆☆☆☆☆	nels	Oct 14, 2020
COVID-19: PE Variation		kjetil-klepper	☆☆☆☆☆	nels	Oct 13, 2020
Pre-process COVID-19 PE collections		kjetil-klepper	☆☆☆☆☆	nels	Oct 13, 2020
Pre-process COVID-19 PE single sample		kjetil-klepper	☆☆☆☆☆	nels	Oct 13, 2020

NeLS - Getting Access

NeLS

Norwegian e-Infrastructure for Life Sciences

Typically > 1TB data

Free < 10TB & <15 mill. NOK

Allocation through Helpdesk: contact@bioinfo.no

Direct upload through Norseq facilities

https://nels.bioinfo.no/pages/user-terms.xhtml

SEEK

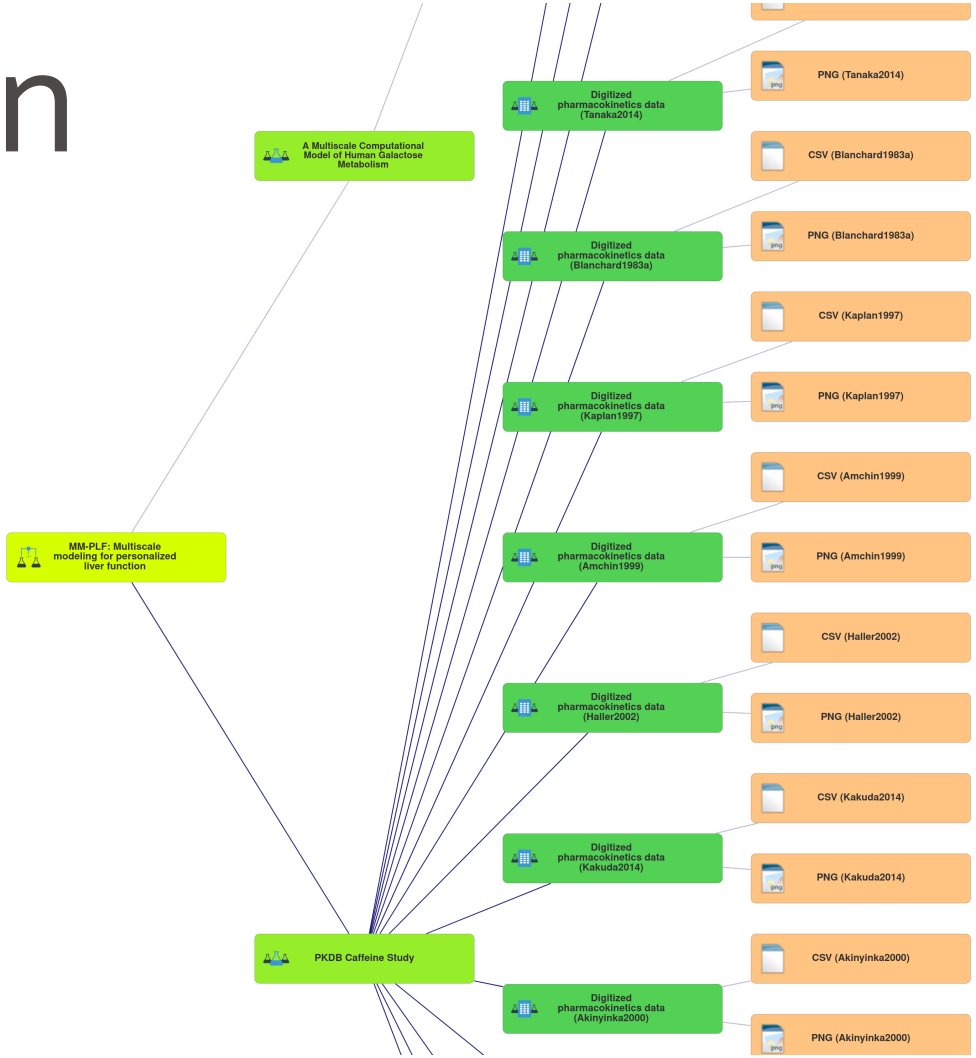
https://seek4science.org/
https://fairdomhub.org/

SEEK

Investigation

Study

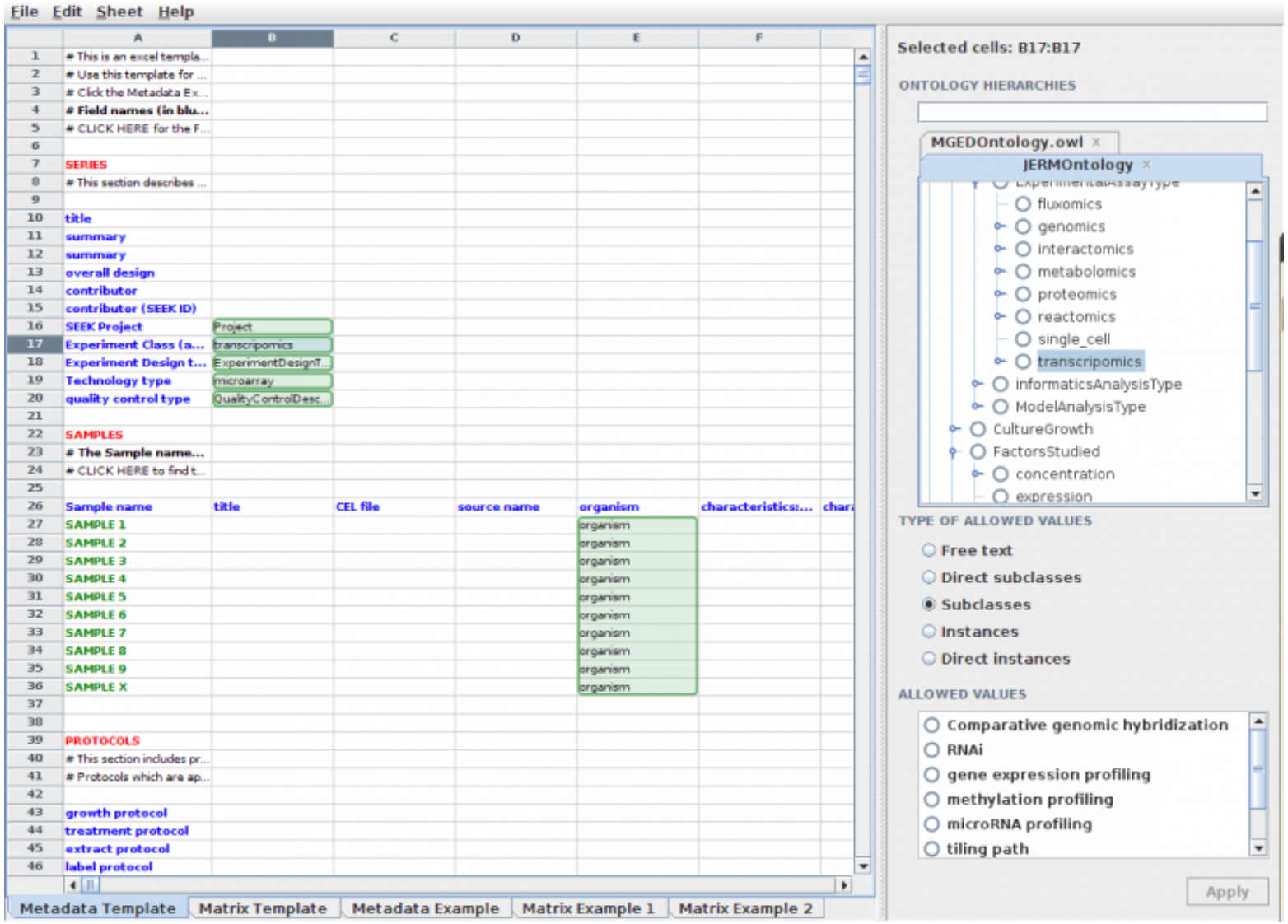
Assay



https://seek4science.org/
https://fairdomhub.org/

SEEK

RightField



https://seek4science.org/
https://rightfield.org.uk/

NeLS
Norwegian e-Infrastructure for Life Sciences

↔

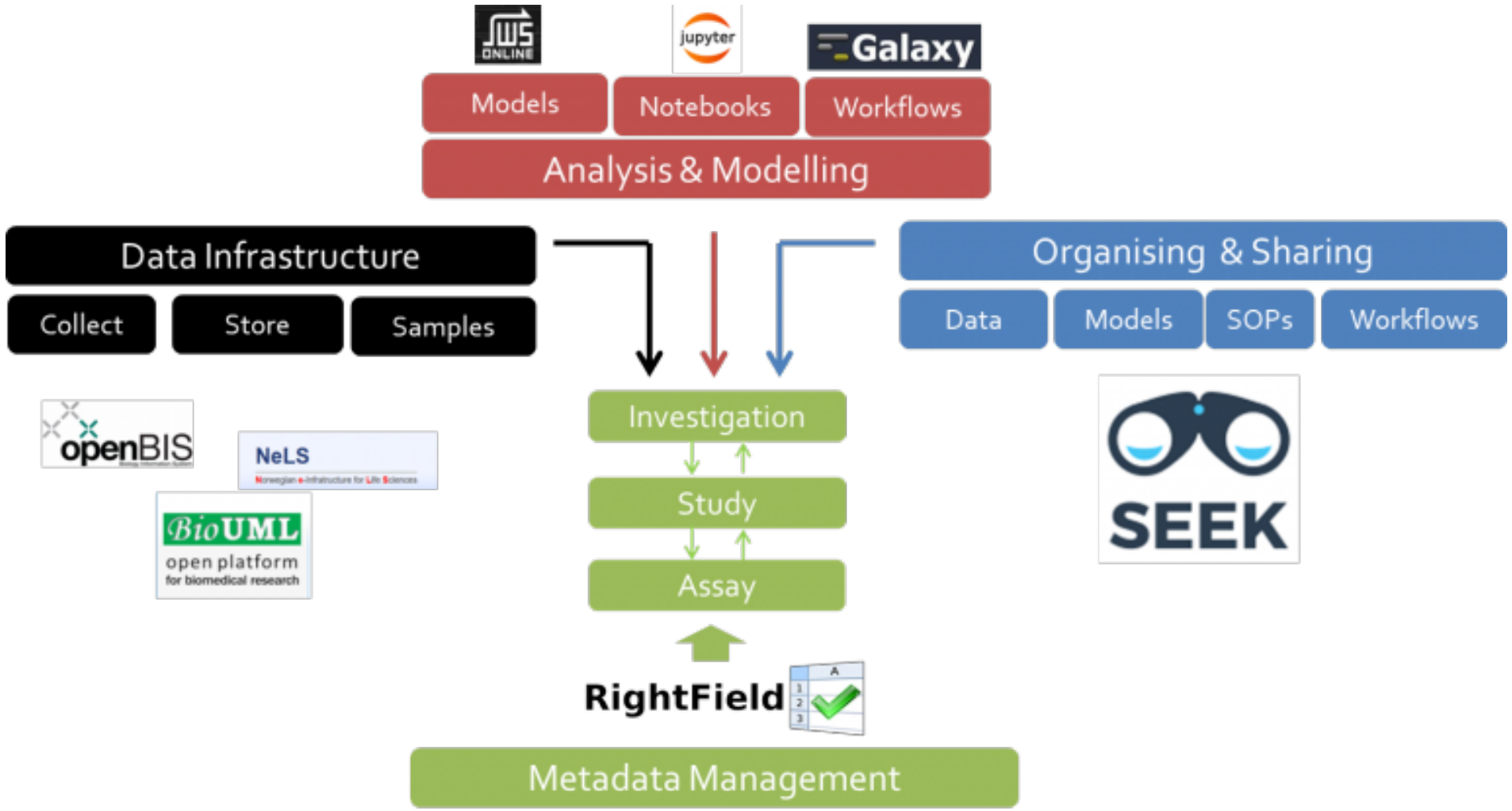
SEEK

Integration

Reference data in NeLS in SEEK

Access data in NeLS through SEEK

Save Metadata to SEEK through NeLS


JWS ONLINE
jupyter
Galaxy
Models
Notebooks
Workflows
Analysis & Modelling
Data Infrastructure
Collect
Store
Samples
openBIS
NeLS
Norwegian e-Infrastructure for Life Sciences
BioUML
open platform
for biomedical research
Investigation
Study
Assay
RightField
Metadata Management
Organising & Sharing
Data
Models
SOPs
Workflows
SEEK

National HPC infrastructure

UNINETT Sigma2

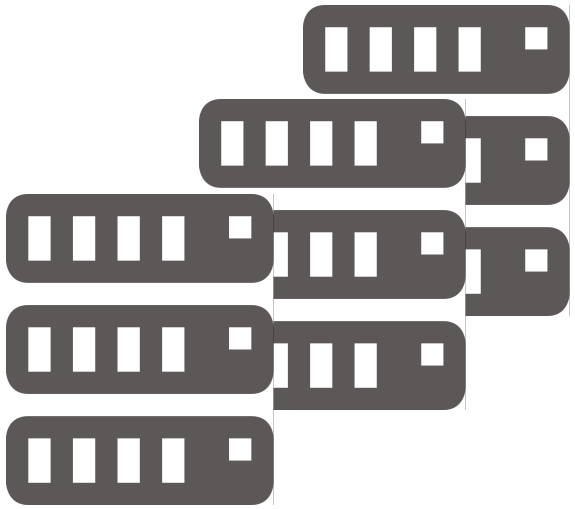
- Advanced Storage Needs
- Advanced Computing Resources
- Free Analysis Toolkit (Rstudio, Jupyternotebook)

https://www.sigma2.no/

National HPC infrastructure

UNINETT Sigma2

NeLS
Norwegian e-Infrastructure for Life Sciences

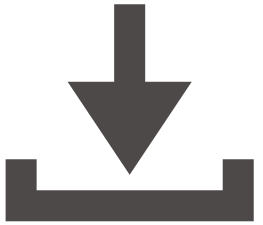


Saga

NIRD

jupyter RStudio

NIRD toolkit



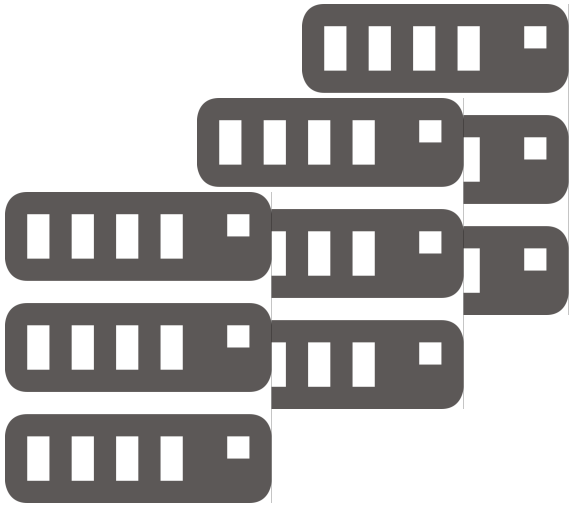
NIRD archive

https://www.sigma2.no/

HPC infrastructure

UNINETT Sigma2 Saga

244 nodes – 9824 cores – 32 GPUs



Total 75TB RAM – 186-3066GB/node

89TB + 60 TB NVMe+SSD

1PB file system

https://documentation.sigma2.no/quick/saga.html

Storage infrastructure - NIRD

UNINETT Sigma2

Geo replicated

Nightly snapshots

12 PB (→ 36 PB next 3 yrs)

https://documentation.sigma2.no/storage/nird.html

Sigma2 - Getting Access

UNINETT Sigma2

Bi-annual calls (January & July) – Reapplication (!)

User contribution model (projects > 15 mill. NOK)

Application for small grants continually

https://www.sigma2.no/how-apply-user-account
https://www.sigma2.no/data-storage#get-access

TSD – National sensitive data service

Maximum classification

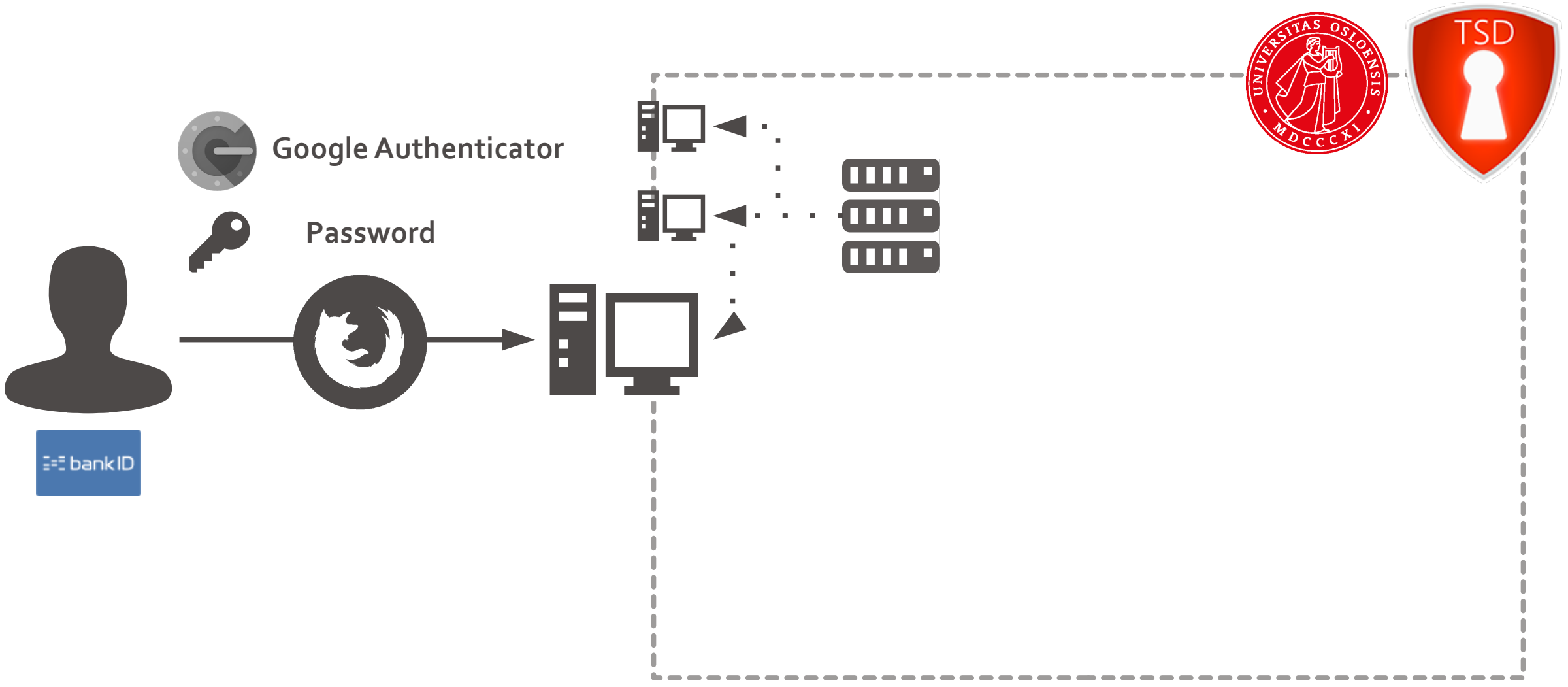
2-factor authentication

Attached HPC resources

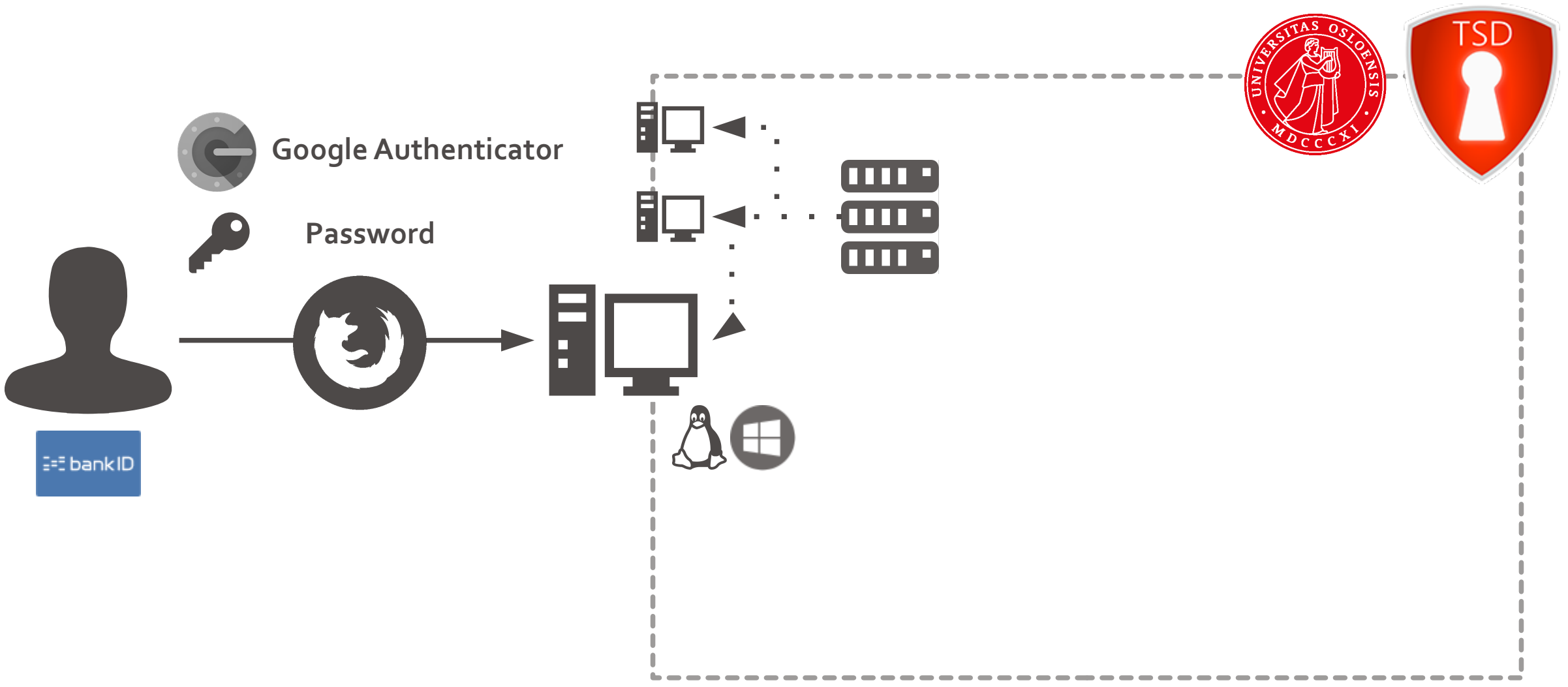
https://www.uio.no/english/services/it/research/sensitive-data/index.html

TSD – National sensitive data service

TSD – National sensitive data service



TSD – National sensitive data service



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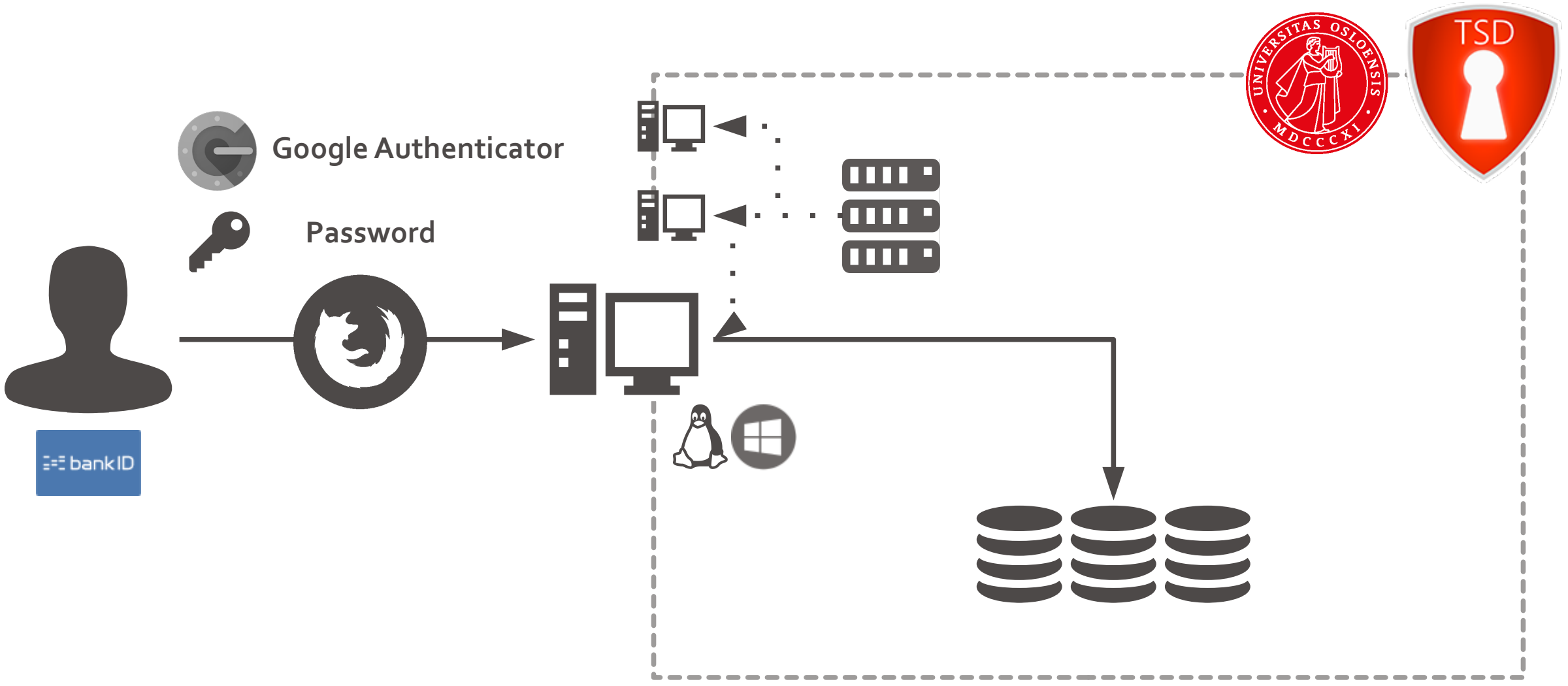

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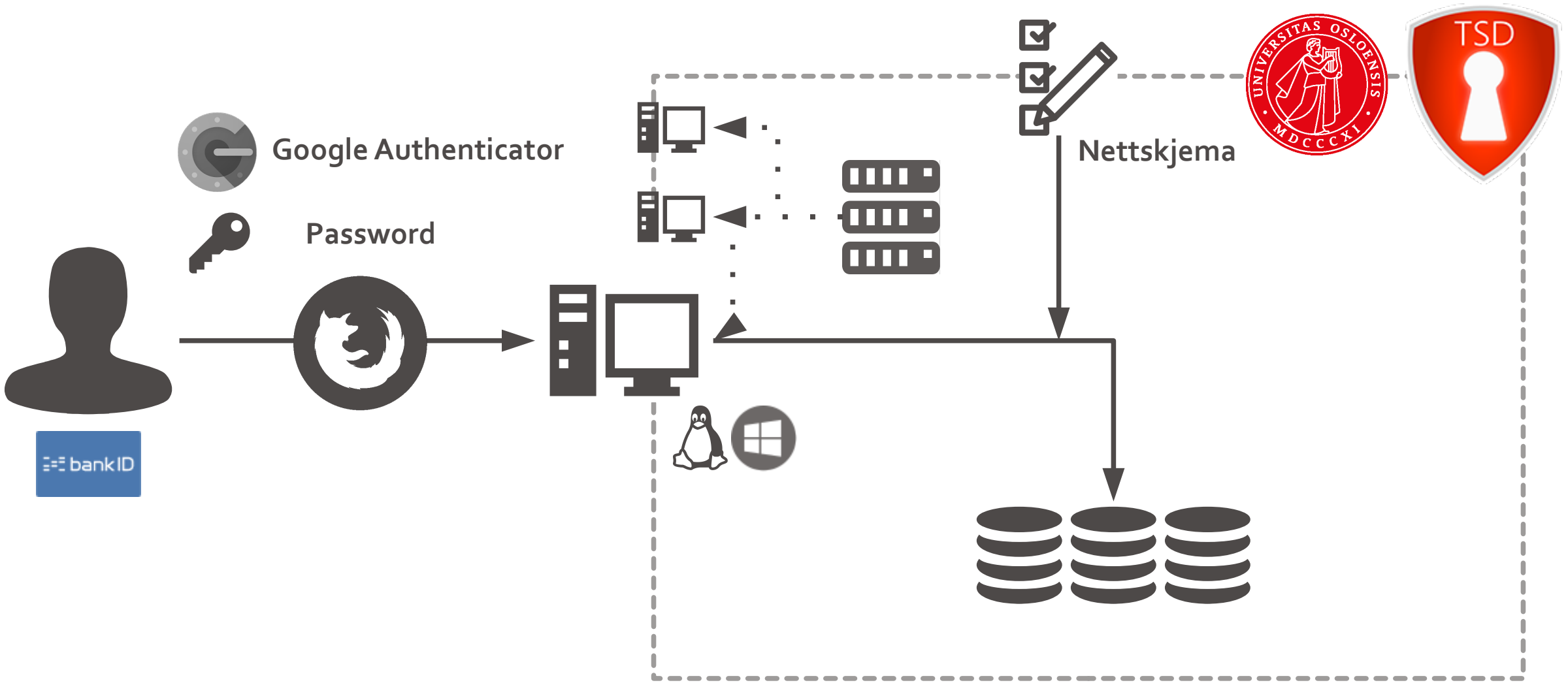

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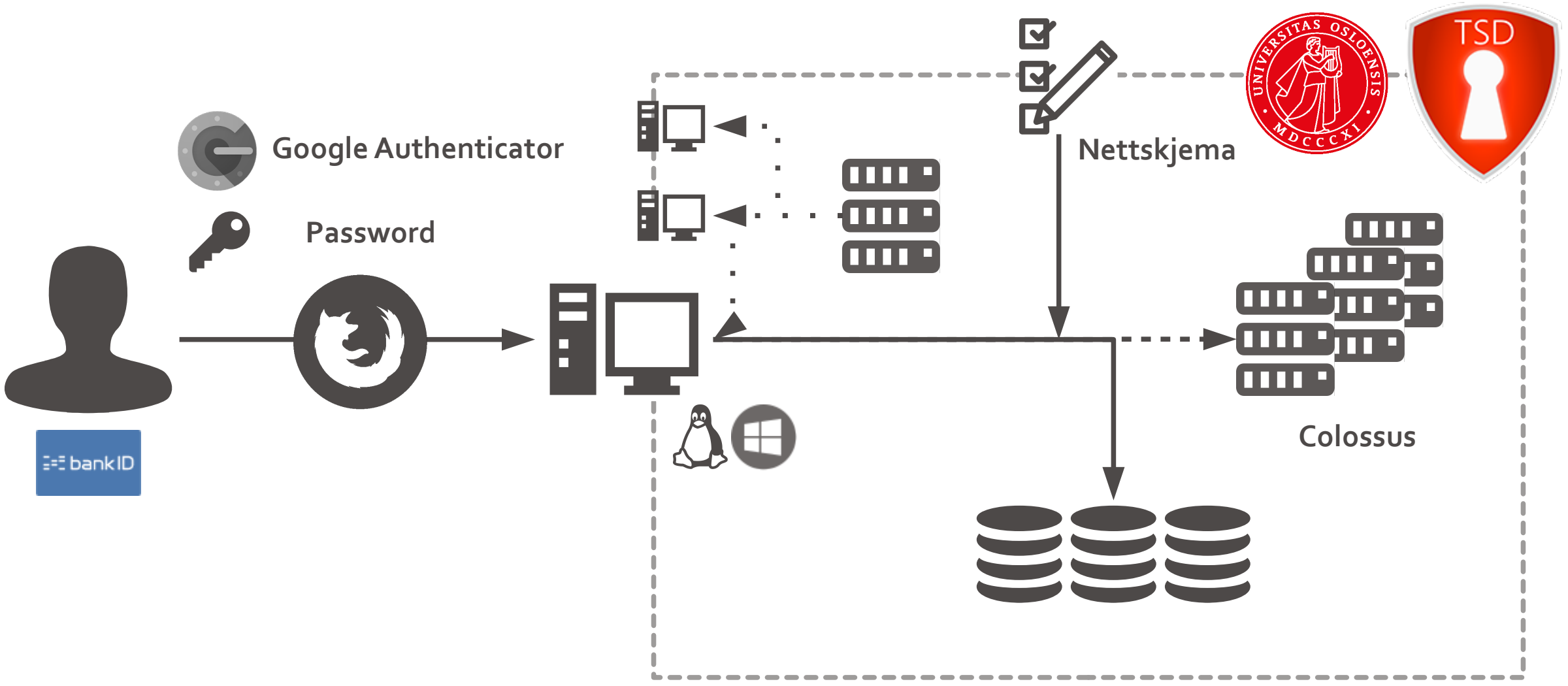

TSD – Getting Access

Subsidized access through Sigma2 calls

User contribution model (non UiO: min 15kNOK/a)

Free storage quotas through NeLS

https://www.uio.no/english/services/it/research/sensitive-data/access/prices/
https://nels.bioinfo.no/