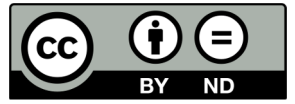
PRACE as EOSC service provider

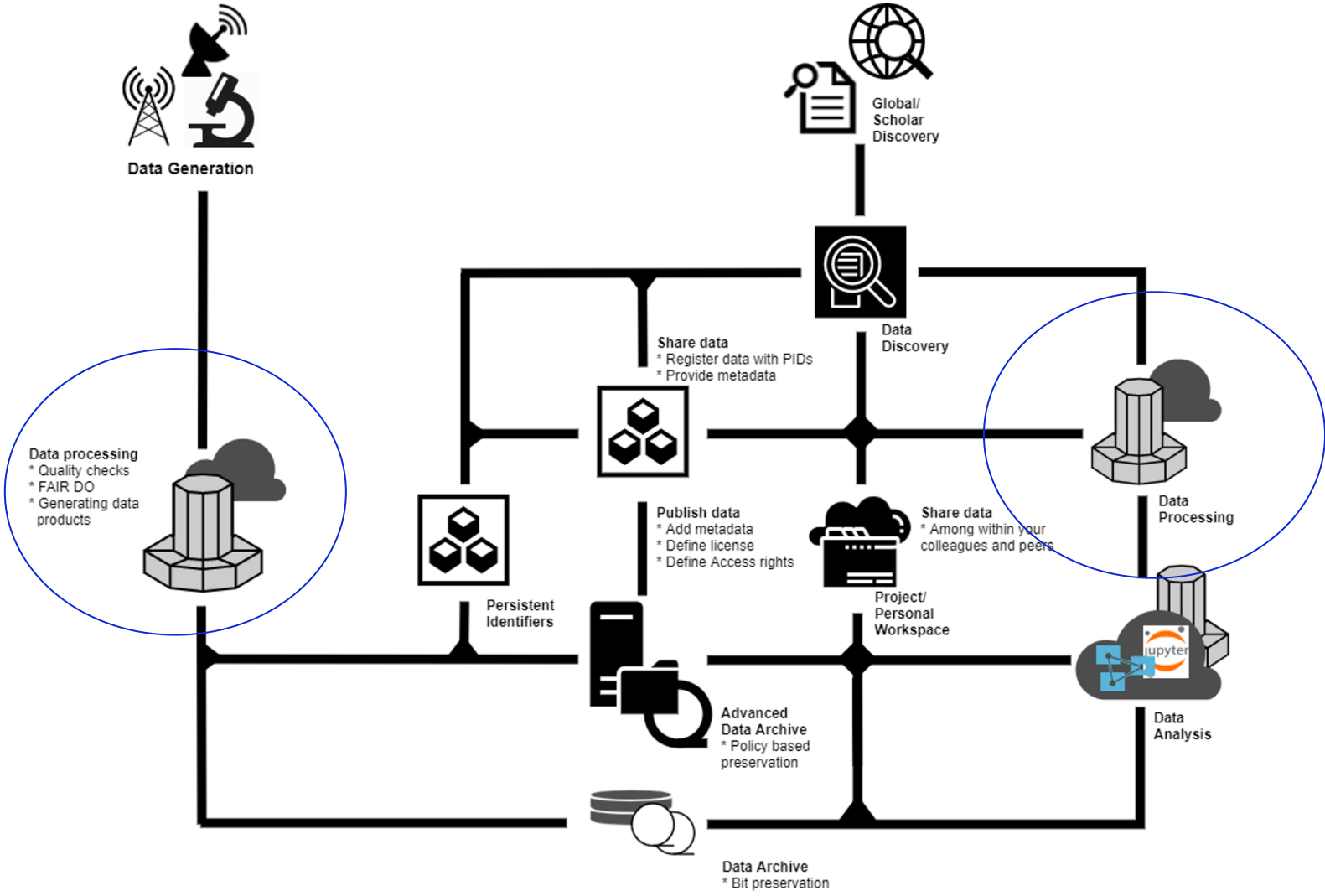
Debora Testi, CINECA, PRACE

The EOSC Future, C-SCALE, DICE, EGI-ACE, OpenAIRE-Nexus, Reliance and ARCHIVER projects are funded by the European Union Horizon Programme calls INFRAEOSC-03-2020 and INFRAEOSC-07-2020 and H2020-ICT-2018-20



EOSC and HPC

- EOSC plans to become one of the first entry point for researchers looking for and accessing services for their data management workflow
- Computing resources are an integral part of most of the research data workflows
- Success of EOSC in creating a web of data will depend on the possibility for researchers to easily find and access computing resources of different kinds



Partnership for Advanced Computing in Europe - PRACE

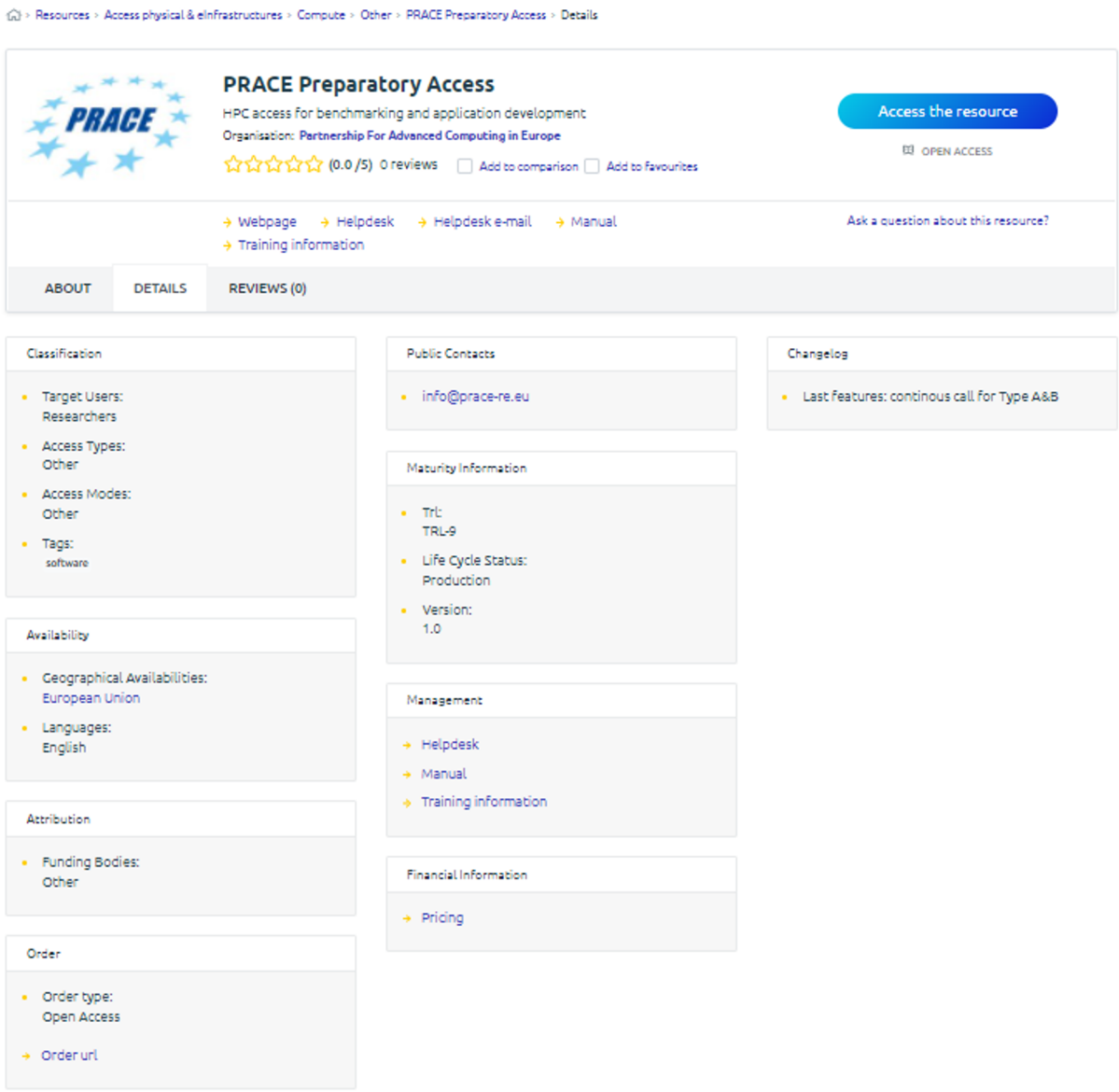
- The **mission** of PRACE is to enable high-impact scientific discovery and engineering research and development across all disciplines to enhance European competitiveness
- The main **objective** of PRACE is to enable large-scale research projects beyond what national capacities can provide, both in terms of scope and duration
- The access mechanisms:
  - include a thorough peer-review process to evaluate the scientific and technical excellence of projects
  - have a rather long acceptance process (3 to 6 months)
- This makes them less amenable for integration into EOSC catalogue

PRACE and EOSC

- Other HPC related resources and services can be more relevant for EOSC:
  - HPC benchmarks and related services
  - HPC development access
  - training and support programmes
- The common characteristic of these services is that:
  - access is provided immediately or after a brief technical review,
  - are open to both public and private sector,
  - the only major requirement is to follow the open access research principle

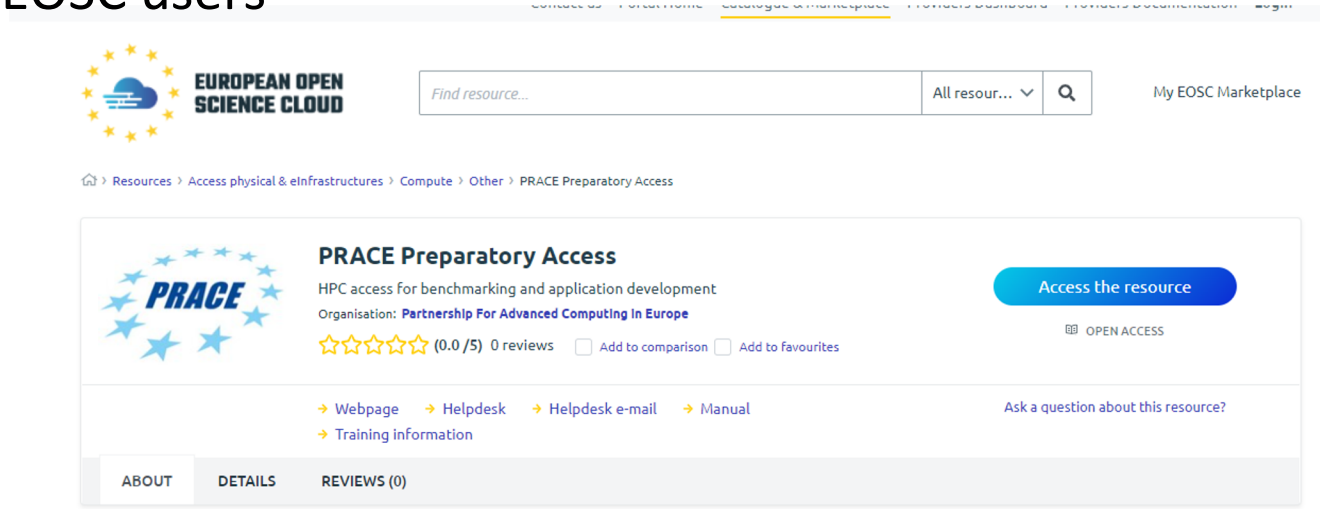
PRACE in the EOSC Catalogue

- Onboarding of both call for access and other services has been already achieved very similarly to all the other EOSC services
- For the HPC resources offering:
  - type of access has been selected so that the user is redirected to the call web page where further the actual submission of the request can be sent



PRACE in the EOSC Catalogue

- These onboarding activities will be used in the next weeks to collect feedbacks for the EOSC Portal team on specific requirements for HPC-related services
- From the current analysis of the onboarding procedure:
  - No major issues have been identified with respect to the information required during the onboarding
  - The time related to resource access provisioning might be not completely in line with the EOSC concept
  - Time required to get access to the resources might be a relevant information and it might be useful to make it more evident EOSC users



PRACE in the EOSC Catalogue

- The PRACE experience shows that onboarding of HPC resources is already possible
- Other calls and services will be onboarded in the future like those for the provisioning of the FENIX resources of the ICEI project
- The **benefit** of onboarding for PRACE and EOSC community is an increased visibility which will be followed by an increased usage, publications and extended base of large-scale HPC codes available
- The onboarding can be enlarged to other type of HPC access offerings like national calls

FENIX-EOSC Collaboration

27.04.2022

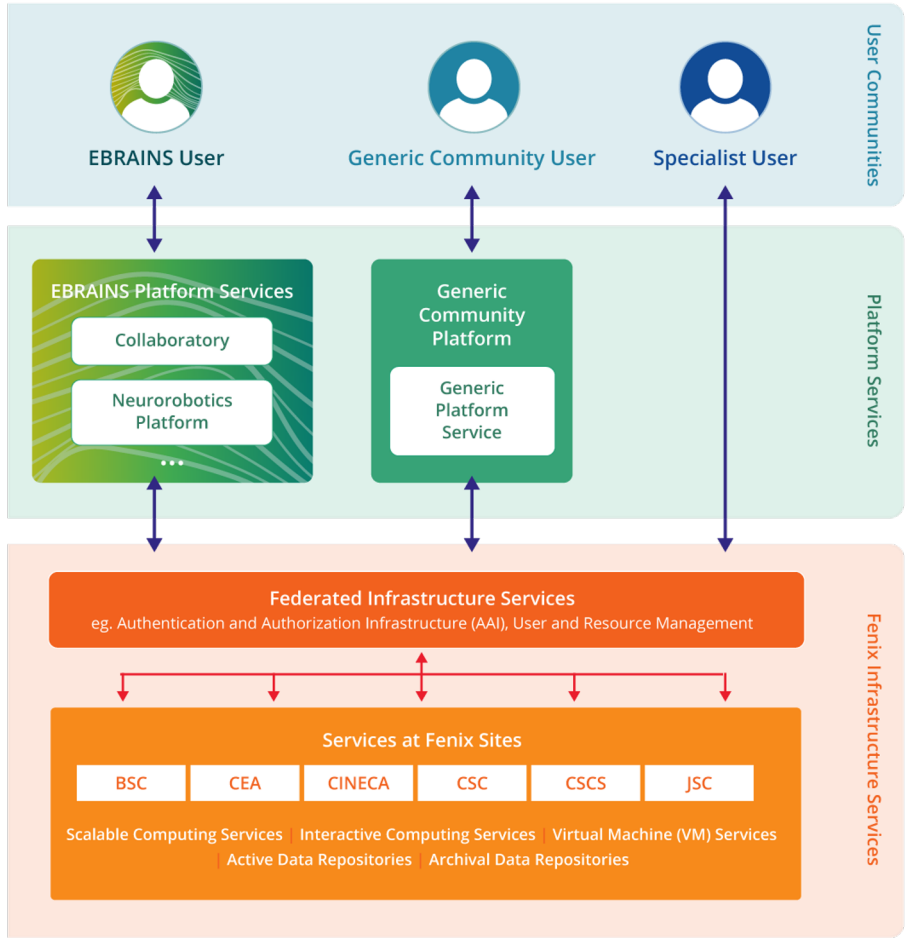
Shiting Long

s.long@fz-juelich.de

The ICEI project has received funding from the European Union's Horizon 2020 research and innovation programme under the grant agreement No 800858.

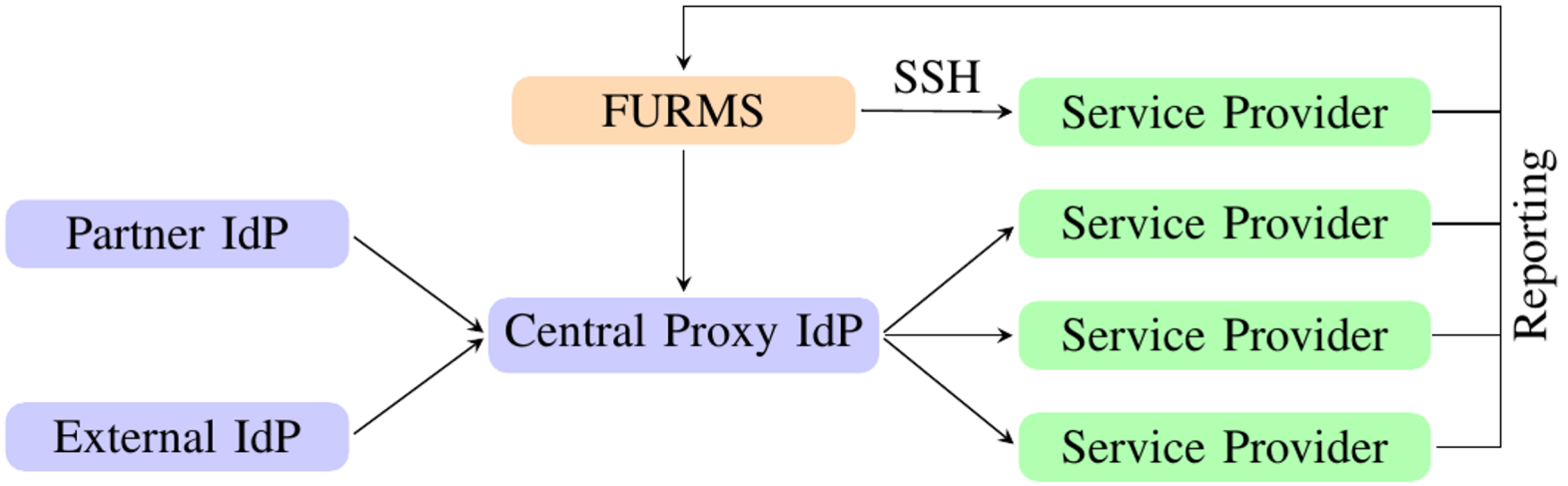
FENIX

- A collaboration of HPC centers: BSC (ES), CEA (FR), CINECA (IT), CSC (FI), CSCS (CH), JSC (DE).
- Working on harmonisation and federation of e-infrastructure services offered by partner sites.
- Aims to serve relevant science and engineering domains that strongly benefit from diverse e-infrastructure services for their collaborative research.

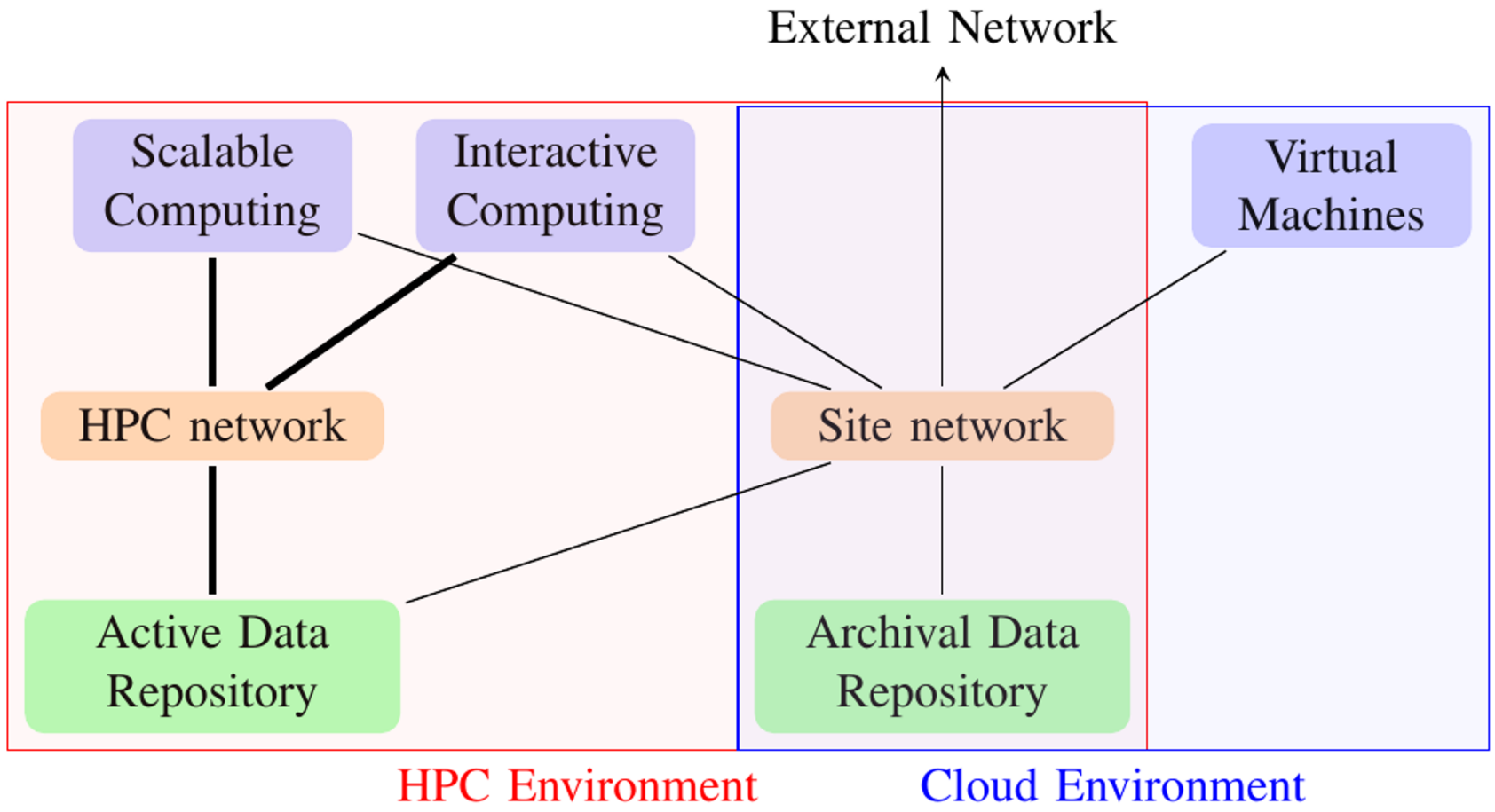


Federation Approach: AAI

- Federation of IdPs via Central Proxy IdP
  - Support for SAML and OIDC
- Fenix User and Resource Management Service (FURMS)
  - FURMS = Attribute provider
  - Examples: SSH keys, group membership

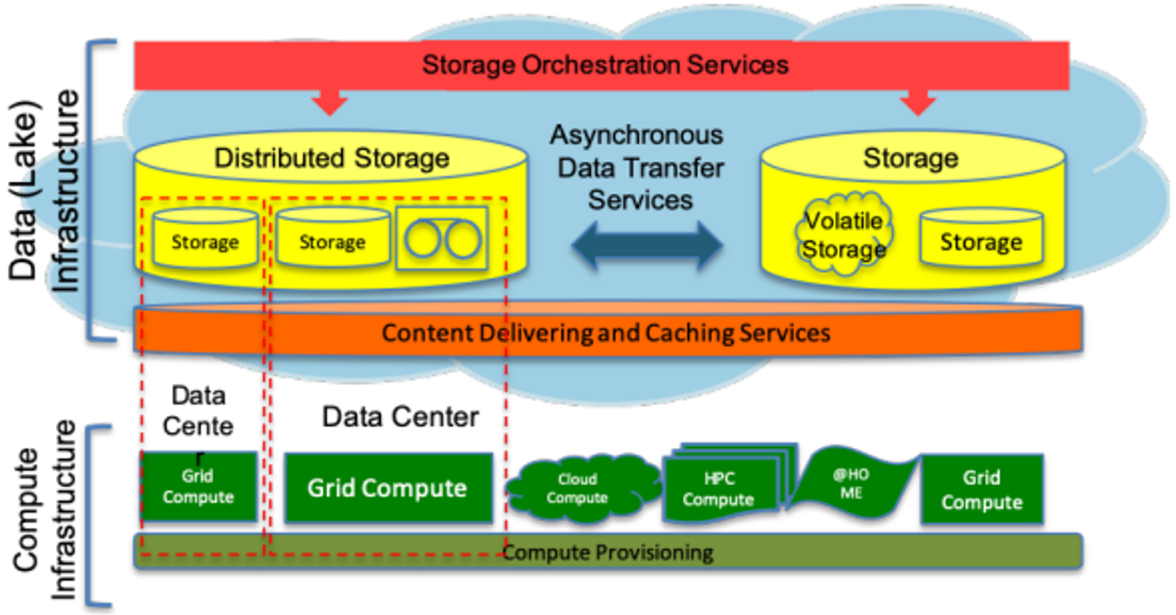


FENIX Architecture Overview

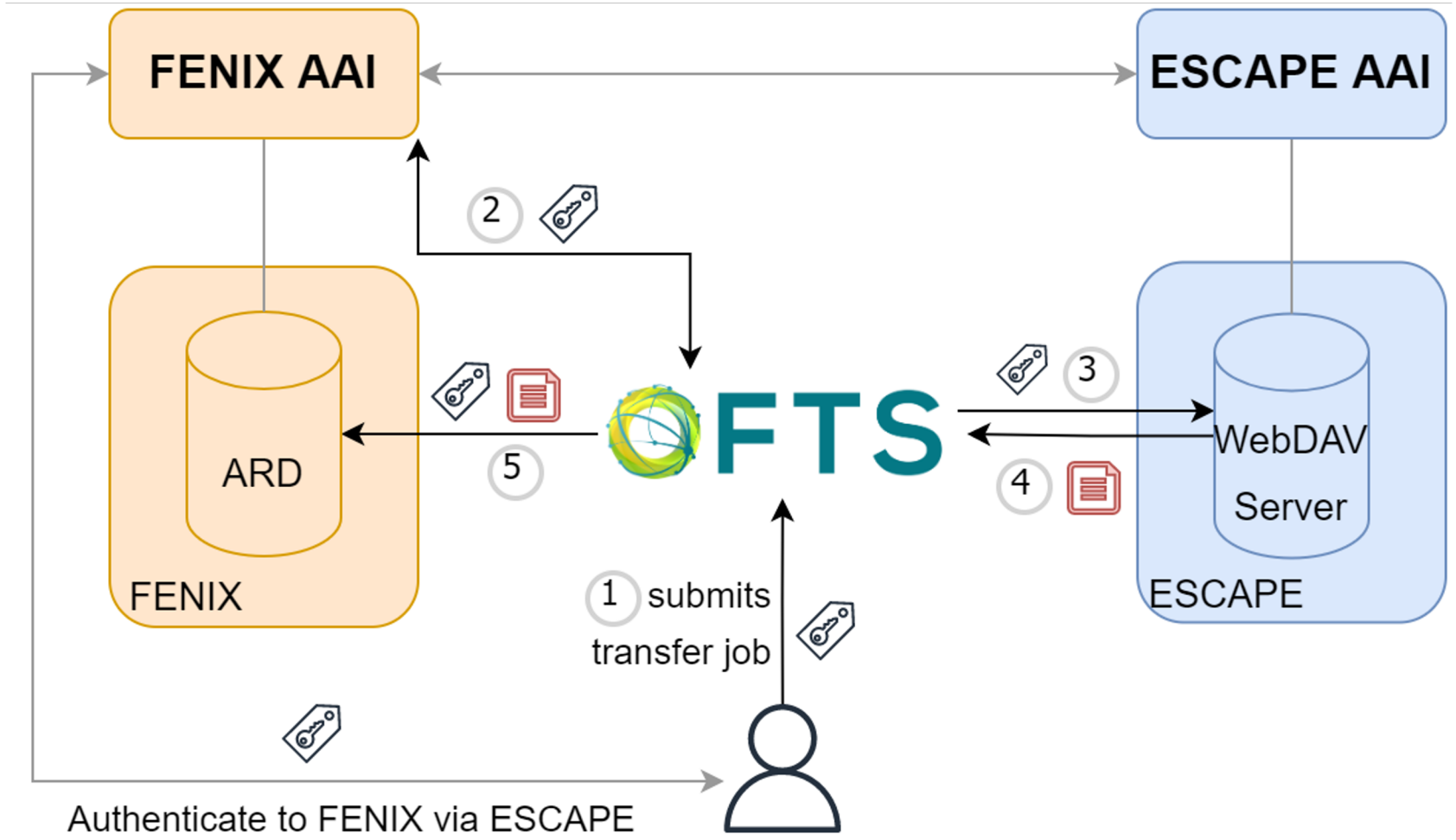


Bridging EOSC & FENIX: ESCAPE Data Lake

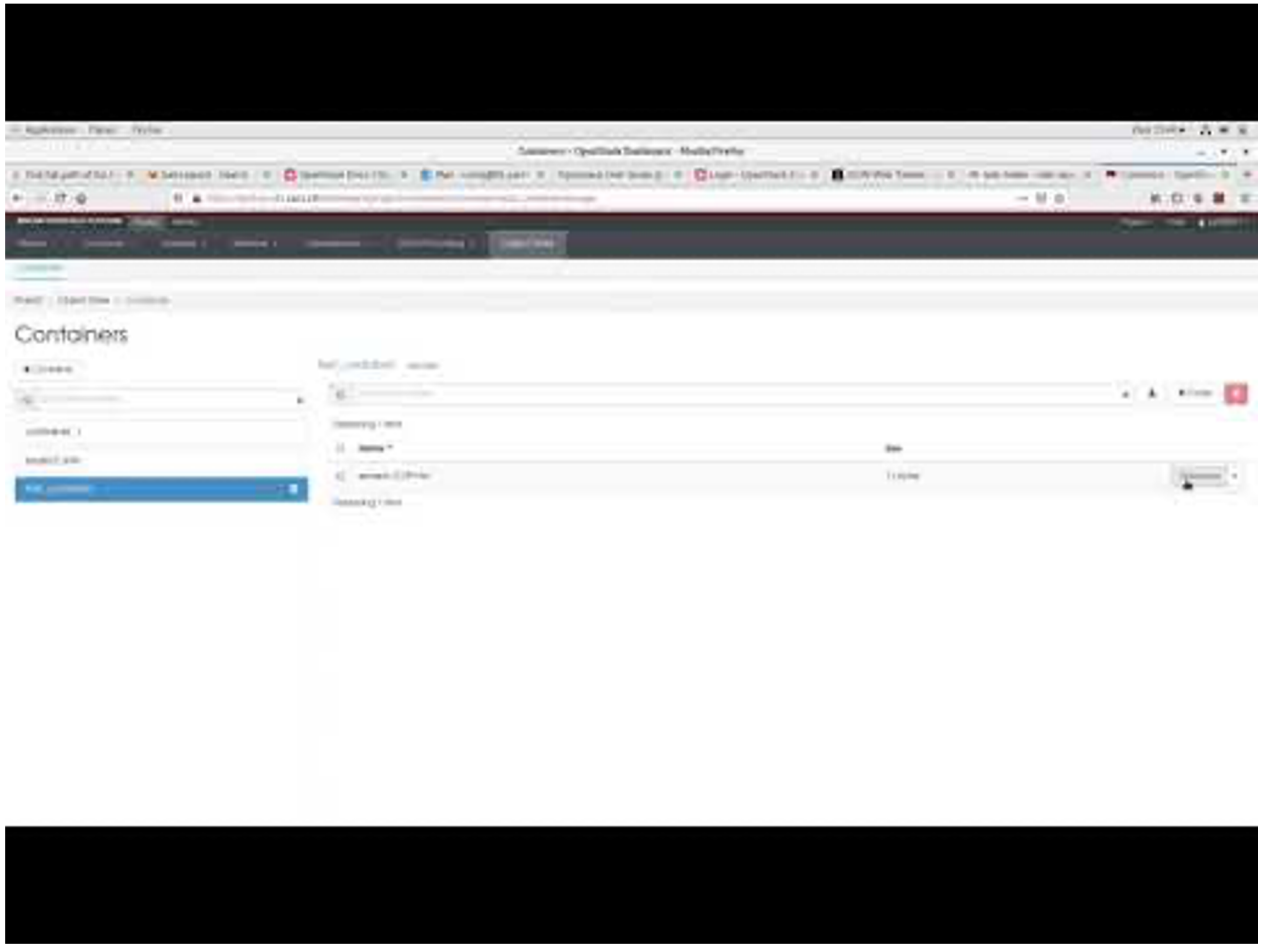
- The data lake provides a flexible and scalable infrastructure to store and access scientific data.
- FENIX Archival Data Repositories can be included in the data lake.



Data Transfer from ESCAPE to FENIX



Demo



Link: https://youtu.be/BigqYSO-axM

FENIX

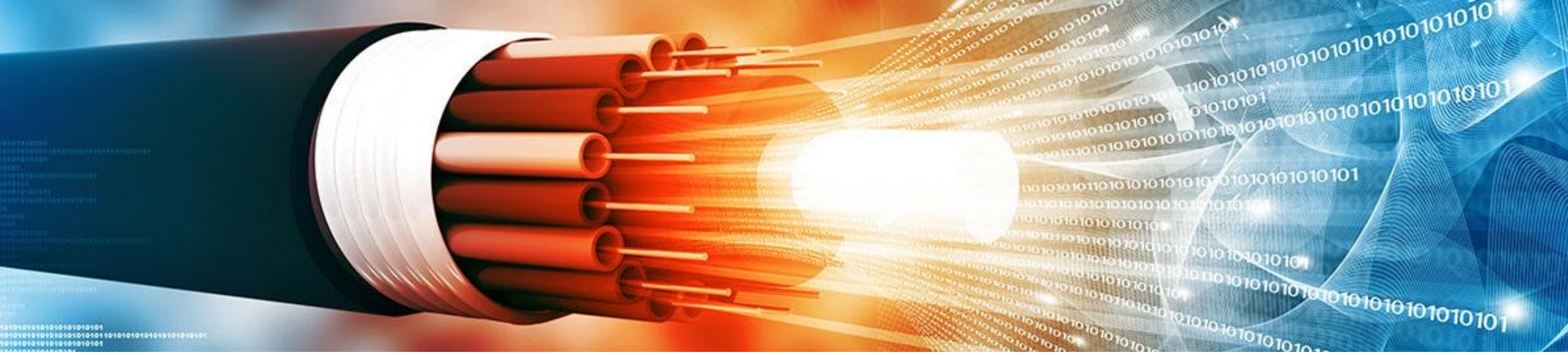
RESEARCH INFRASTRUCTURE

Thank you!

27.04.2022

Shiting Long

s.long@fz-juelich.de



EOSC NORDIC

Connecting users to EuroHPC LUMI via EOSC

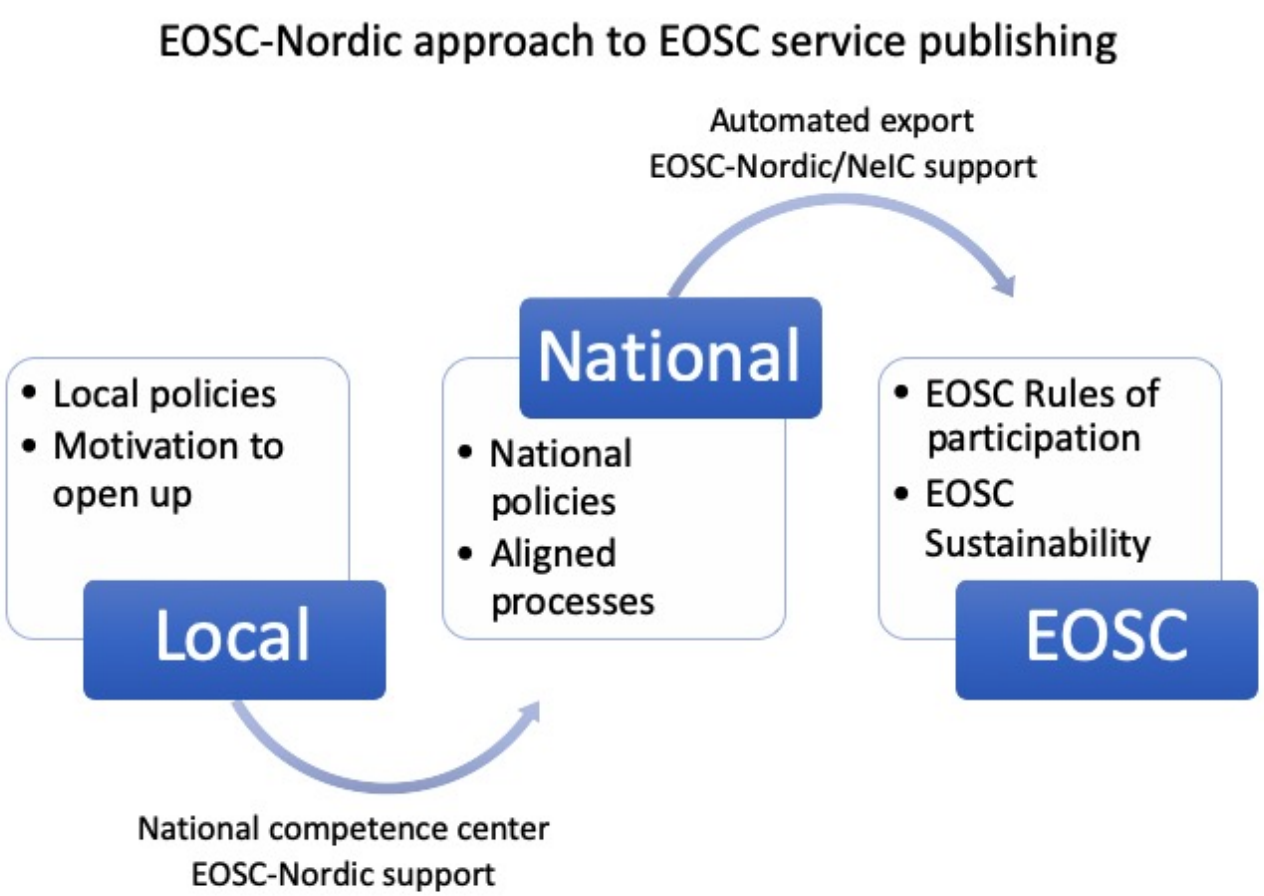
Ilja Livenson, ETAIS/UT

EOSC Future Provider Days, 27.04.2022

EOSC-Nordic project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 857652

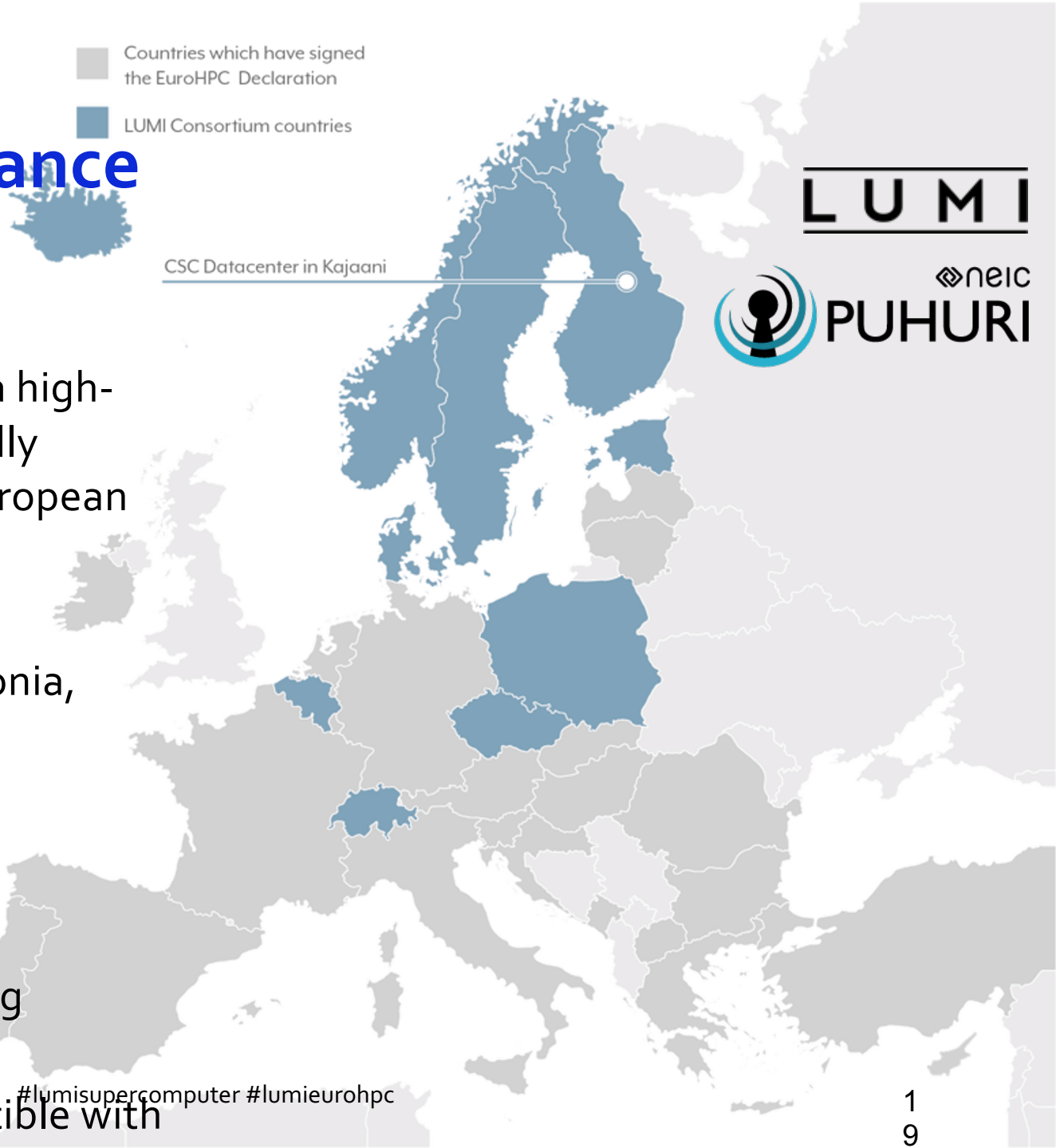
About me

- Working at **HPC department** of University of Tartu
  - Serving local users + collaborations
- Working at ETAIS – **Estonian National RI**
  - Serving national users + collaborations
  - Exposing nationally provided services, incl. EuroHPC
- Working at **EOSC Nordic** (WP3 Services)
  - Serving service providers
  - Trying to make cross-border service delivery easier



How does EOSC affect service delivery for an HPC center?

LUMI – a unique joint endeavor in high-performance computing



- **LUMI research infrastructure** provides a high-quality, cost-efficient and environmentally sustainable HPC ecosystem based on European collaboration.
- **LUMI consortium** members are Finland, Belgium, Czech Republic, Denmark, Estonia, Iceland, Norway, Poland, Sweden and Switzerland.
- The resources of LUMI **are allocated by members and EU** per the investments
- LUMI is using Puhuri service for allocating resources and managing user identities
  - Using MyAccessID AAI to be compatible with

EuroHPC LUMI as a local service

- EuroHPC LUMI is using Puhuri to allow resource allocators to treat **LUMI as a local or national service**
- LUMI has agreed a **common allocation model** used by all allocators
  - CPU kHours, GPU hours, Storage TB-hours
- LUMI only accepts users with **high level of assurance** of digital identity

- Experiment: Let's allow EOSC users to **access LUMI automatically**!

LUMI ETAIS / Regular Access

lumi etais / regular access

Organisation: **Test Nordic Provider**

(0.0 /5) 0 reviews | Add to comparison | Add to favourites

Access the resource

Manage the resource

ORDER REQUIRED

→ Webpage → Helpdesk e-mail

Ask a question about this resource?

ABOUT | DETAILS | REVIEWS (0)

LUMI share of ETAIS (EE) for Regular Access

SCIENTIFIC CATEGORISATION

Agricultural Sciences

PROJECTS

EOSC Provider Days Demo

test 1

test project from ilja - 2

Create new project

EOSC Provider Days Demo

Created at 26.04.2022 — Single user — University of Tartu

EDIT

DUPLICATE

DELETE

Provide feedback

RESOURCES | PROJECT DETAILS | CONTACT WITH EOSC EXPERTS

PROJECT DETAILS

Project name

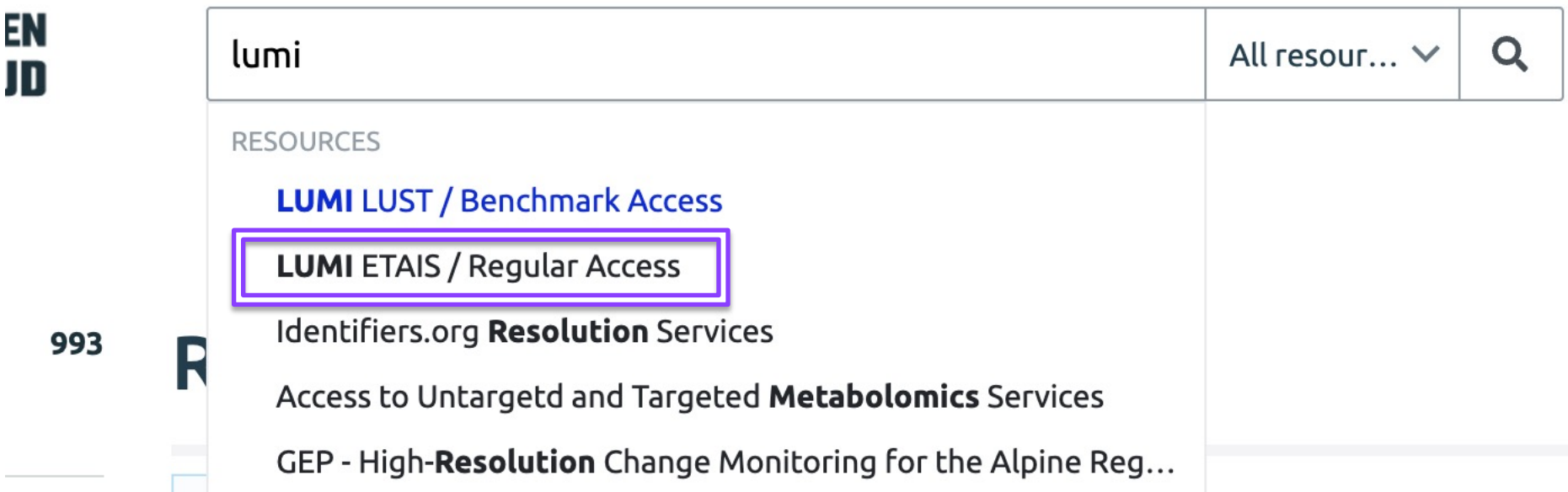
EOSC Provider Days Demo

Email

ilja.livenson@ut.ee

CUSTOMER DETAILS

Customer Typology


EN
JD
lumi
All resour...
RESOURCES
LUMI LUST / Benchmark Access
LUMI ETAIS / Regular Access
Identifiers.org Resolution Services
Access to Untargetd and Targeted Metabolomics Services
GEP - High-Resolution Change Monitoring for the Alpine Reg...
993

Test instance

NAME

model training

Name will be visible in accounting

CPU ALLOCATION

10

Amount of CPU allocation in LUMI Common.

GPU ALLOCATION

0

Amount of GPU allocation in LUMI Common.

STORAGE ALLOCATION

1

Amount of Storage allocation in LUMI Common.

BACK TO PREVIOUS STEP - ACCESS INSTRUCTIONS

Next

MY PROJECTS

EOSC Provider Days Demo

test 1

test project from ilja - 2

Create new project

LUMI ETAIS / Regular Access

READY TO USE

back to EOSC Provider Days Demo project resources

DETAILS | ORDER HISTORY | CONTACT WITH RESOURCE PROVIDER

3 minutes ago — Your resource is now ready to be used

Resource request status: Ready to use

3 minutes ago — Your resource request has been created

Resource request status: New

MY PROJECTS

EOSC Provider Days Demo

test 1

test project from ilja - 2

Create new project

LUMI ETAIS / Regular Access

READY TO USE

back to EOSC Provider Days Demo project resources

DETAILS ORDER HISTORY CONTACT WITH RESOURCE PROVIDER

NEW

Invitation has been sent to your email: ilja.livenson@ut.ee

2022-04-26 12:15:55, Test Admin (test@example.com), Provider

Your message to the resource provider

Send message

Invitation to EOSC Provider Days Demo project

Inbox ×

etais@etais.ee via tartuulikool.onmicrosoft.com

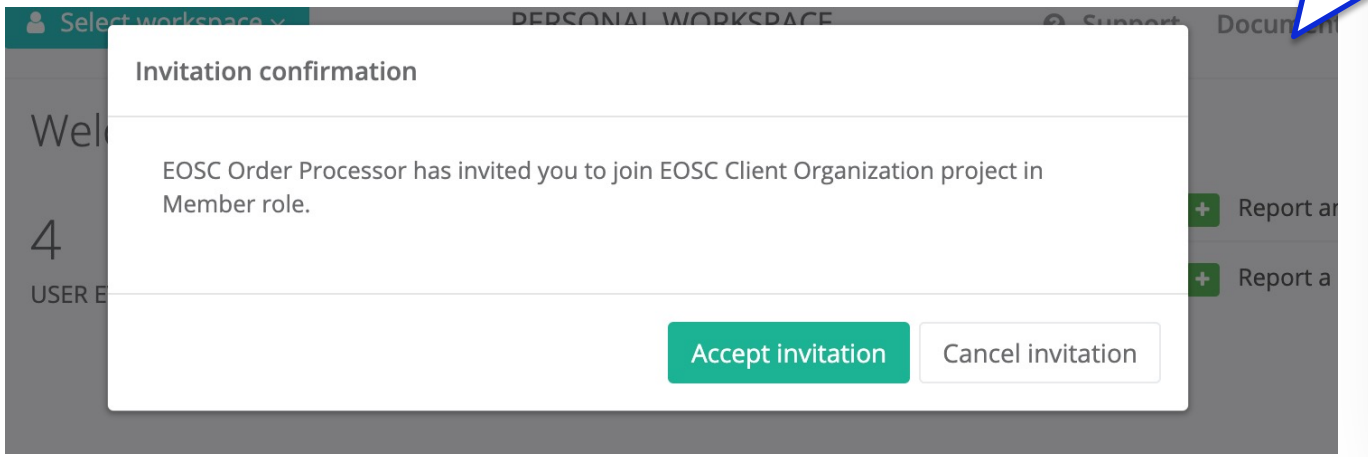
3:15 PM (4 minutes ago)

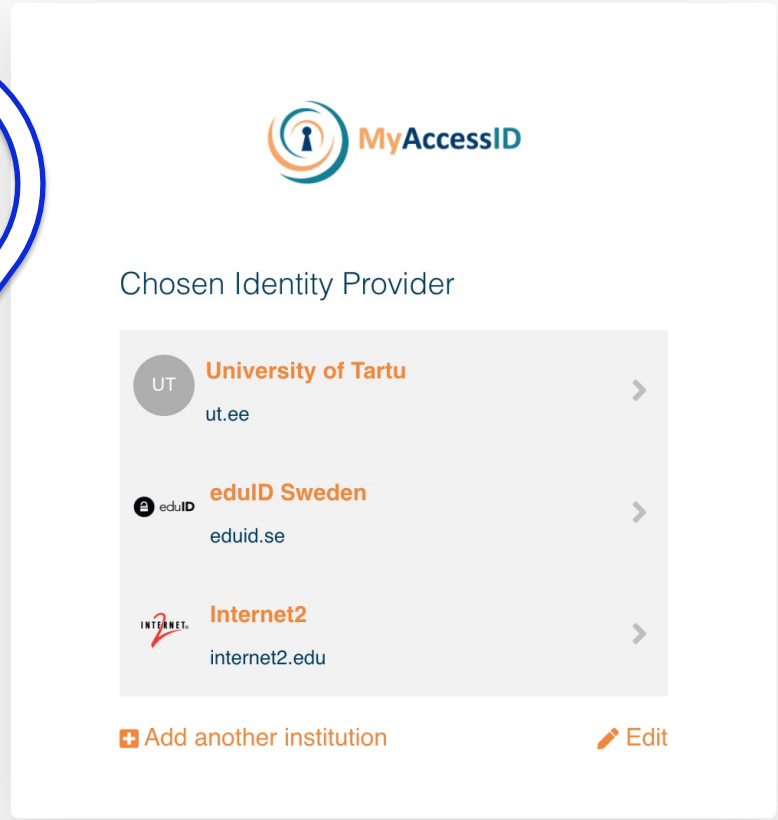
to ilja.livenson

Hello!

EOSC Order Processor has invited you to join EOSC Provider Days Demo project in member role.
Please visit this page to sign up and accept your invitation.

Reply Forward





My orders

Project workspace / **My orders**

Showing 1 to 1 of 1 entries.

Search ... | Export as | Refresh

Created at	Created by	State	Approved at	Approved by	Cost
2022-04-26 15:15	EOSC Order Processor	executing	2022-04-26 15:15	EOSC Order Processor	BU 0.00

HPC resources

Project workspace / Resources / **HPC resources**

Offering

Select offering...

Showing 1 to 1 of 1 entries.

Search ... | Import resource | Add resource | Refresh

Name	Offering	Created at	State	Actions
model training	LUMI ETAIS / Regular Access	2022-04-26 15:32	OK	Actions

model training overview OK

Refresh | Actions | Offering details | Plan details

Offering name	LUMI ETAIS / Regular Access	**Backend ID**	e5d3656e60b848b09ceb36d79f8e9760
Client organization	EOSC Client Organization	**Effective ID**	project_465000126
Client project	EOSC Provider Days Demo	**State**	OK
Category	HPC	**Attributes**	Show details
Plan	LUMI Common	**Username**	illivens
Created	2 hours ago, 2022-04-26 15:32		

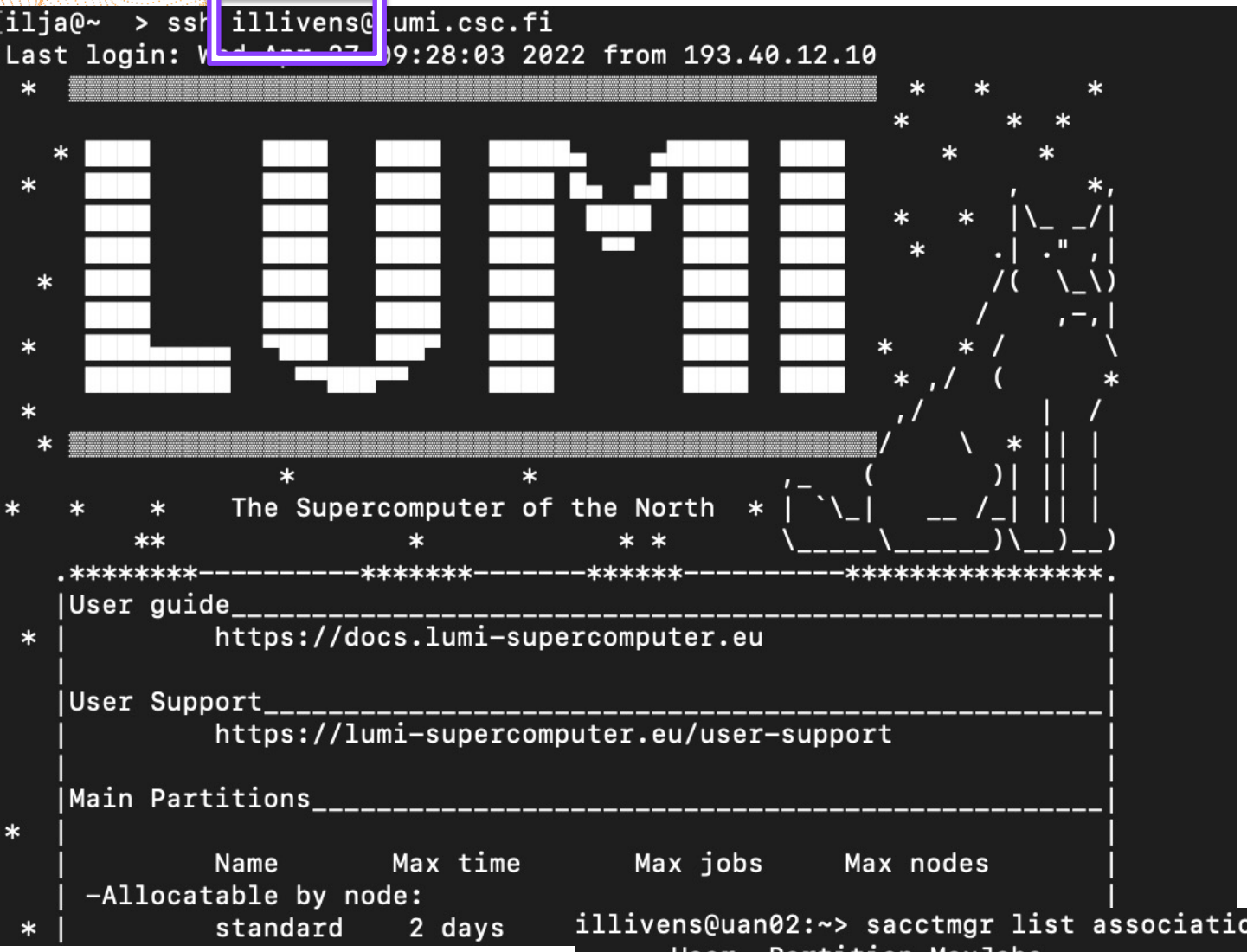
Remote accounts

User dashboard / **Remote accounts**

Showing 1 to 1 of 1 entries.

Refresh

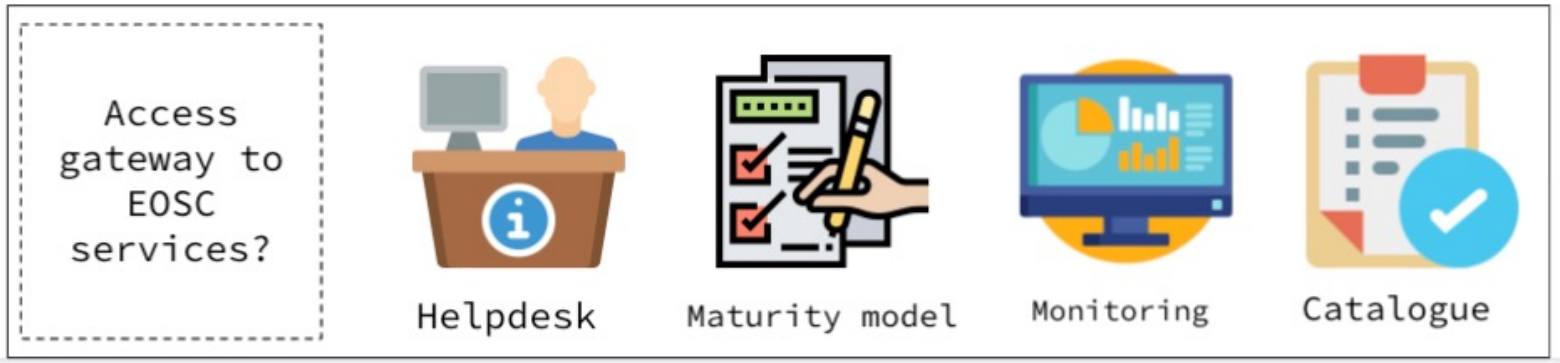
Offering	Username	Created at
LUMI ETAIS / Regular Access	illivens	2022-04-25 11:51



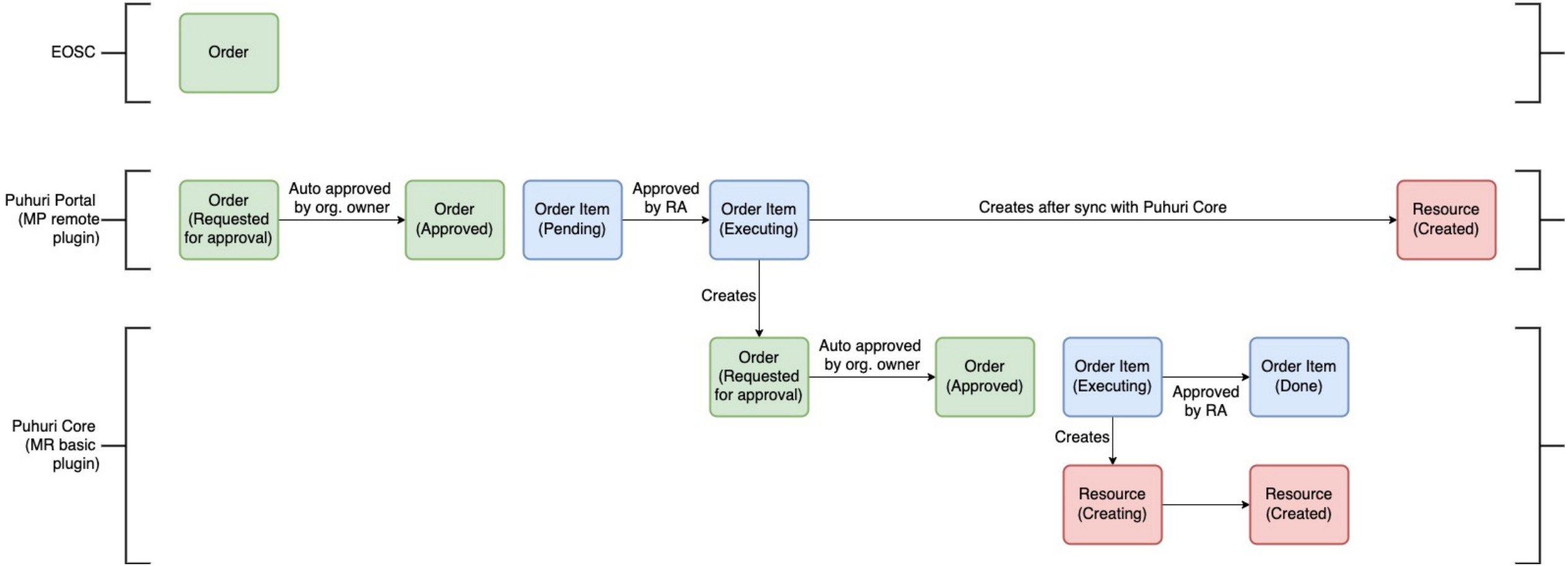

```
illivens@uan02:~> sacctmgr list association Account=project_465000126 format=user,partition,maxjobs
      User  Partition MaxJobs
---------- ---------- -------

  illivens   standard     100
  illivens      small     200
  illivens   largemem      20
  illivens        eap      10
  illivens      debug       1
illivens@uan02:~>
```

Open questions

- Governance:
  - **Who is allocating** resources in EOSC?
  - **Added value for end-user** of EOSC vs national infrastructures
- Maturity:
  - AAI and GDPR **contracts and agreements**
  - **Capabilities** and **models** of EOSC Core services
- Vision:
  - Should EOSC ‘gateway’ become a new concept for HPC centers?



Request and approvals



Many thanks!

Visit https://www.eosc-nordic.eu/ for updates on the project!

The C-SCALE HPC federation for Earth Observation in EOSC

EOSC Future - Provider days

Raymond Oonk, SURF (Netherlands), C-SCALE

EOSC Future with C-SCALE DICE EGI-ACE OpenAIRE NEXUS Reliance ARCHIVER

The EOSC Future, C-SCALE, DICE, EGI-ACE, OpenAIRE-Nexus, Reliance and ARCHIVER projects are funded by the European Union Horizon Programme calls INFRAEOSC-03-2020 and INFRAEOSC-07-2020 and H2020-ICT-2018-20

Why C-SCALE & EOSC ?

1. Society requires *action* on environmental topics (e.g., Green Deal)
2. Larger areas need to be analysed in *more detail in less time*
3. VM / laptop workflows do not easily scale and require interaction
4. Need to *scale up* (HPC) and *out* (HTC)
5. EOSC -> federative/uniform approach

Twin transitions: Digital & Green

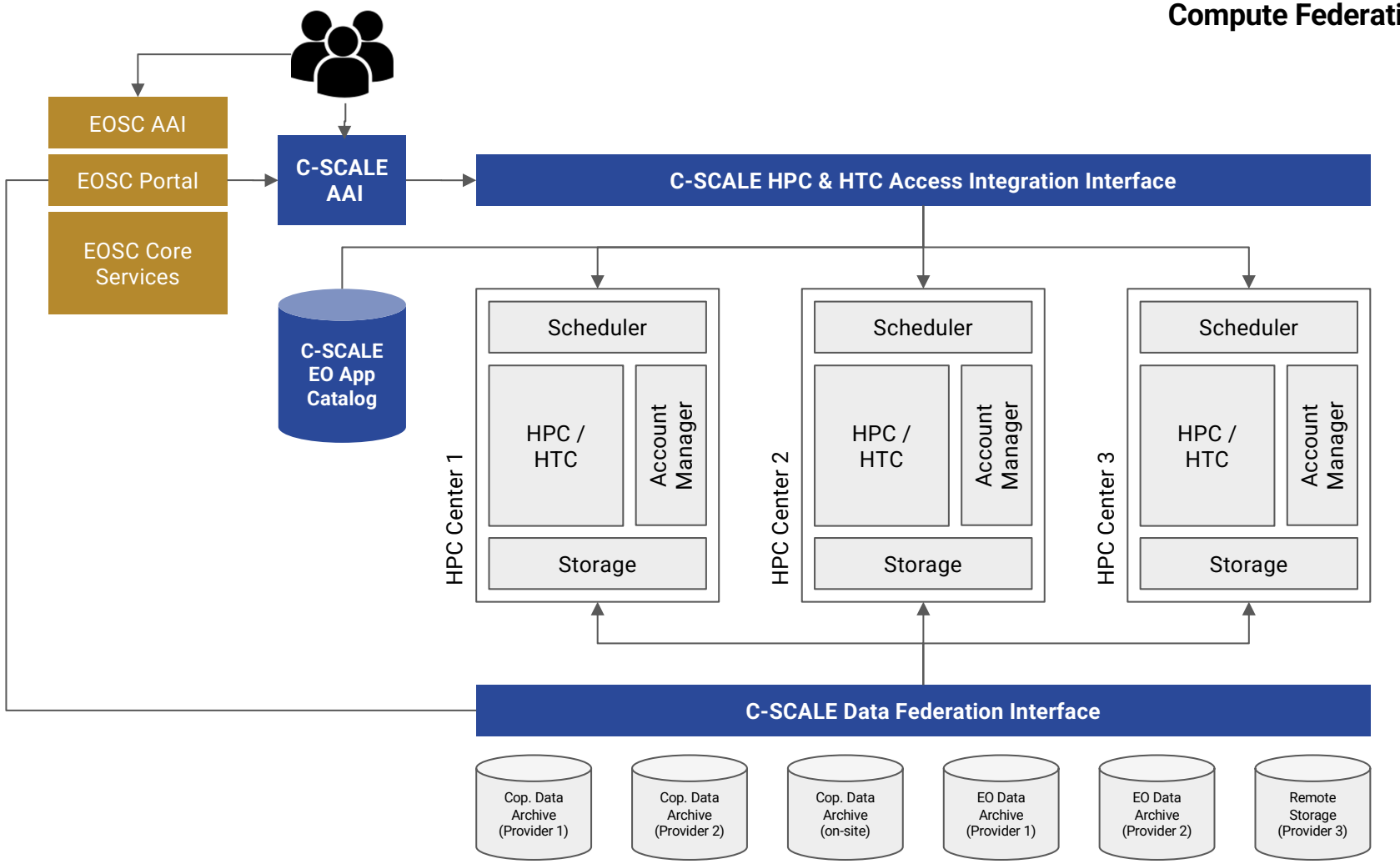
HPC/HTC federation – C-SCALE

1. Objectives
   a. Define the type and level of integration/federation for compute
   b. Implement compute integration/federation leveraging EOSC standards
   c. Integrate managed HPC and HTC resources into the federation
   d. Integrate the federation with the EOSC Core services
   e. Create procedures for 3rd parties to join the federation

2. Goals
   a. " *build an access integration prototype for HPC and HTC systems* "
   b. " *deliver a blue print on which the EO community can build (e.g., DestinE)* "

3. Partners: SURF, GRNET, INFN, EODC, TU Wien, EGI.eu

HPC/HTC federation – How ?



Access integration

(SRAM)

HPC/HTC federation – Challenges

1. Access integration $\neq$ full compute federation
2. Software/workflow optimization
3. Usage agreements, TaC, AUP, …
4. Contract management (EOSC, C-SCALE, Local)
5. Helpdesk (EOSC, C-SCALE, Local)
6. Accounting (EOSC, C-SCALE, Local)
7. Monitoring (EOSC, C-SCALE, Local)

EUROPEAN OPEN SCIENCE CLOUD

HPC/HTC federation – Summary & Outlook

1. C-SCALE Project will run until (at least) June 2023
2. HPC-HTC Access Integration prototype for EO is available
   a. First use cases onboarded
3. Integration with EOSC is ongoing (e.g., marketplace registration)
4. Software deployment across infrastructures
5. C-SCALE is an open federation in and for EOSC
   a. New providers and users are welcome !

https://c-scale.eu
info@c-scale.eu