EOSC | Federation

Scientific use case

Enabling seamless access between EOSC Federation and EuroHPC resources

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EOSC Node | Finland

EOSC Node | EUDAT
Data, Computing & Digital

EOSC Node | SURF
The Netherlands

EOSC Node | Germany

EOSC Node | PaNOSC
Physical Sciences & Engineering

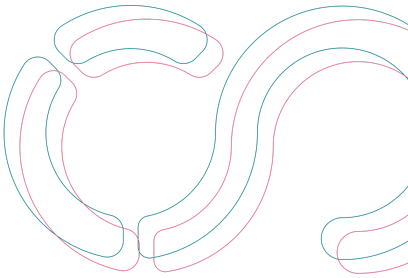
EOSC Node | GÉANT
Data, Computing & Digital

Description

The aim of this use case is to showcase the synergies between the EOSC Federation and EuroHPC through the EuroHPC Federation Platform (EFP). The EFP is developed by a consortium led by CSC in which GÉANT is responsible for enabling the Federated identity layer and Single-Sign-On (SSO) through MyAccessID. In this use case GÉANT will collaborate with other Nodes to demonstrate a federated and trusted identity domain providing seamless access between services and resources offered through EOSC Nodes and EuroHPC HPC computing sites. In this use case we plan to run a workflow, moving data from an EOSC Node to an EuroHPC HPC system, process the data on the EuroHPC HPC system generating output, storing this output on a EFSS service and analyse the research output through a Jupyter notebook provisioned through an EOSC Node. The concept of Dataset-as-a-Service will be explored in this use case by offering access to the FAIR dataset while stored on the European computing site.

Contributing EOSC Nodes

- EOSC Node Finland, providing access to the LUMI supercomputer for running the processing job, and for creating metadata and publishing the data while in HPC environment (DaaS)
- EOSC Node EUDAT, for storing the research output data and making the data accessible to/from the LUMI supercomputer
- EOSC Node SURF/Netherlands, providing the cloud computing resources to run the analysis Jupyter Notebook
- EOSC Node PaNOSC, to run the scientific use case
- EOSC Node Germany, enabling and executing the workflow through the EU Galaxy service across the EOSC Nodes
- EOSC EU Node, providing the Bulk Data Transfer to initiate and manage the data transfers across nodes



Scientific relevance

PaNOSC is the Photon and Neutron Open Science Cluster (PaNOSC) is the Science Cluster representing Photon and Neutron European Research Infrastructures (RIs). Researchers making use of the Photon and Neutron facilities in general generate large datasets requiring many compute resources for processing and generating research outputs. In general researchers need to overcome many barriers to access the services they need to execute the processing and analysis jobs. This becomes more challenging when the services and resources are provided through different infrastructure and identity federations (e.g. EOSC and EuroHPC). The seamless access between EOSC and EuroHPC resources will be demonstrated by executing a researcher's workflow, making use of PaNOSC data, running a processing job on the LUMI supercomputer and an analysis job on the SURF EOSC Node. This use case can be used as a template for other researchers requiring HPC and Cloud resources, needing to bridge the EOSC and EuroHPC domain for processing and doing the analysis producing research outputs.

Technical solution

The technical solution to implement the use case entails the execution of a community processing and analysis workflow through the Galaxy engine (EOSC Node | Germany), data transfers from the PaNOSC data portal (EOSC EU Node) to the LUMI super computer (EuroHPC), starting a processing job at LUMI (EuroHPC), storing output data in the B2DROP EFSS service (EOSC Node | EUDAT), executing an analyse job on the SURF Research Cloud (EOSC Node | SURF). GÉANT enables through MyAccessID as the central hub of the EOSC AAI Federation and the EuroHPC Federation Platform seamless access between EOSC and EuroHPC resources.

Figure 1 shows a high-level overview of the use case to demonstrate seamless access between EOSC Federation and EuroHPC resources.

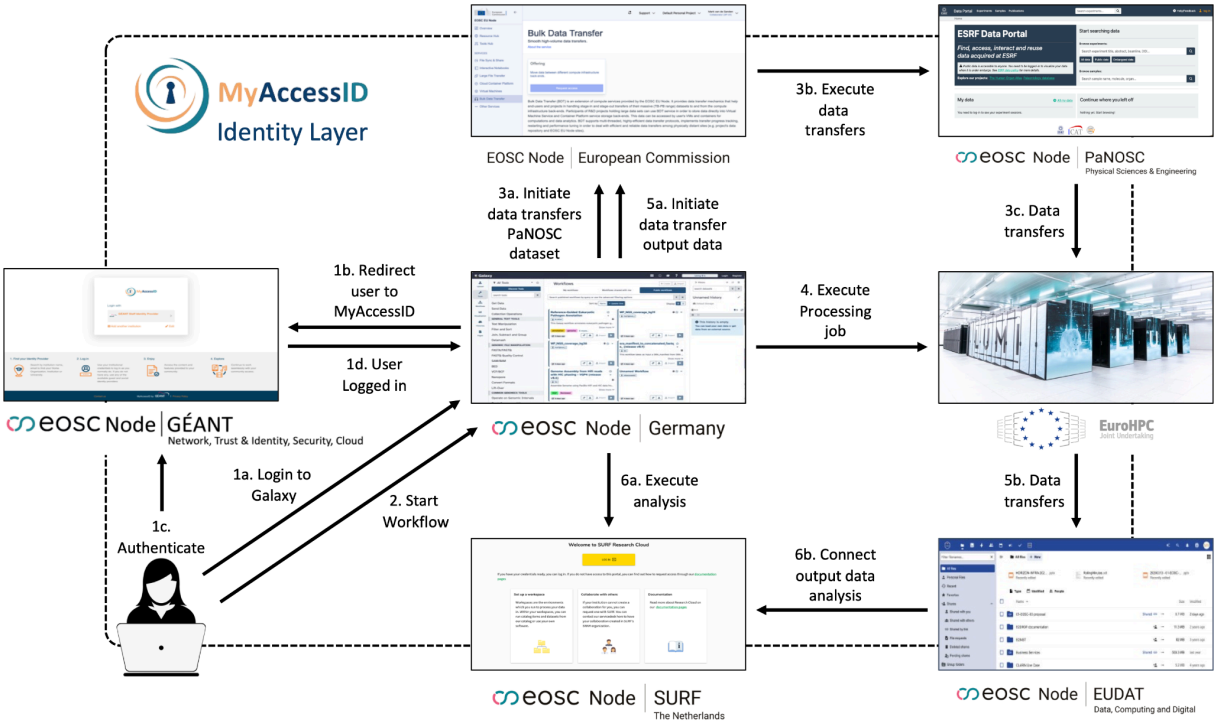


Figure 1: High-level overview to demonstrate seamless access between EOSC and EuroHPC resources

Federation contribution & value of users

This use case will demonstrate a Federated and Trusted Identity Layer between EOSC and EuroHPC, allowing researcher and research communities seamless access between EOSC and EuroHPC resources.

Timeline of realisation of the use case

EOSC Symposium 2027