HPC meets EOSC

Emerging Tasks, Opportunities and Concerns

Marie Czuray, Katharina Flicker, Andreas Rauber, and Bernd Saurugger
Austrian Scientific Computing (ASC)

The **E**uropean **O**pen **S**cience **C**loud (EOSC) Federation is transforming compute- and data-intensive research. This has an impact on high-performance computing (HPC) infrastructures, operations teams, and the user experience. The EOSC Support Office Austria coordinates these developments in Austria.

EOSC Federation Impact on HPC

- Seamless discovery of and access to datasets and tools
- Federated workflows, data repositories, and services
- Integration of Jupyter Notebooks across multiple sites
- Governance & roles (Operations Manager, Security Officer)

EOSC Nodes form the building blocks of the EOSC Federation, the 'web of FAIR data and services'.
The EOSC EU Node, National Nodes such as SURF and ICSC, and Thematic Nodes like CERN and BBMRI-ERIC are demonstrating how federated services can enable cross-institutional research workflows and connect computing, data and services across Europe.

EOSC Association: EOSC Federation Handbook Version 2 (Jan 2026). DOI: 10.5281/zenodo.18454649

Tasks for HPC

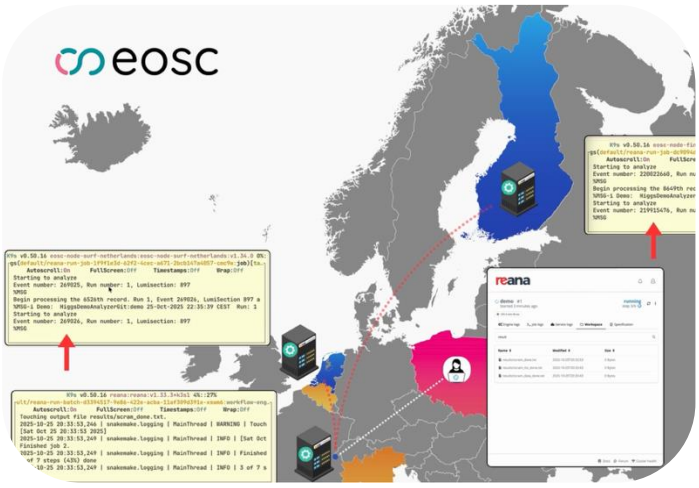
- Common AAI (Authentication & Authorization Infrastructure)
- Tighter integration of HPC into end-to-end research workflows
- Catalogues, accounting, monitoring
- Domain-specific services: pipelines, visualization, simulation
- Service publishing & interoperability

Benefits for HPC

- Broader access to services for researchers
- More efficient resource utilization
- Specialization of infrastructures
- Shared building blocks for sustainable operations

Concerns of HPC

- Interoperability across infrastructures
- Security and data governance
- Policy alignment between institutions
- Sustainable funding and responsibilities



Example: Federating CERNs RENA Pipeline
https://www.youtube.com/watch?v=5HuQWAx4Mwc

Explore other use cases at: eosc.eu/scientific-use-cases.

The EOSC Federation supports the scientific community by providing specialised services and optimising the use of resources. This creates new operational tasks and governance roles for HPC while enabling integrated research workflows.

The following have proposed services in preparation for the Austrian EOSC Node:

Supported by
Federal Ministry Women, Science and Research Republic of Austria

eosc.at support office austria