Federating HPC resources in EOSC via EGI-ACE

EOSC Marketplace ask me anything webinar

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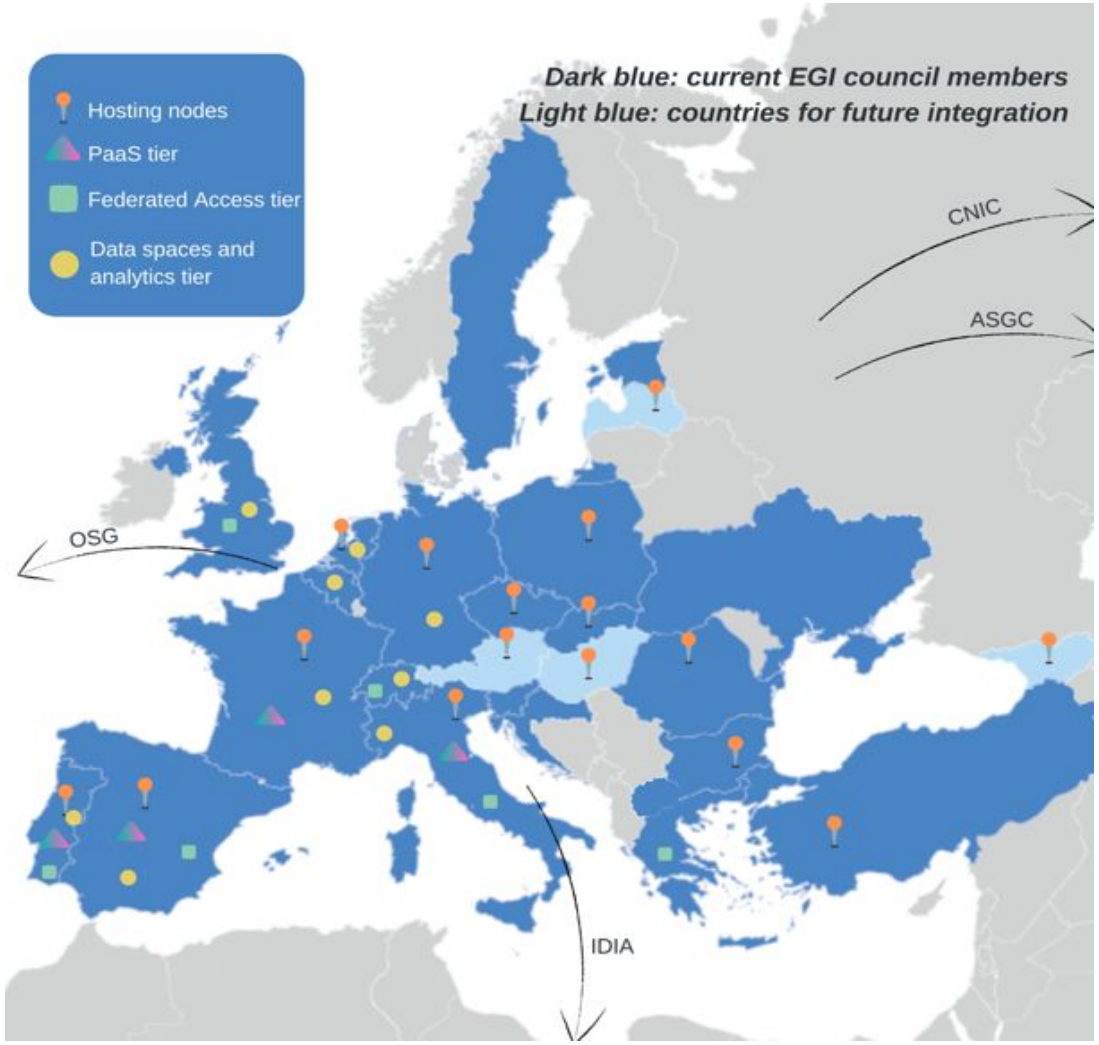
EOSC Future with C-SCALE DICE Data Infrastructure Capacity for EOSC EGI-ACE OpenAIRE NEXUS Reliance

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

EGI-ACE: EGI Advanced Computing for EOSC



Mission

Implement the **Compute Platform of the EOSC** and contribute to the **EOSC Data Commons** by delivering integrated computing, platforms, data spaces and tools as an integrated solution that is **aligned with** major European cloud federation projects and HPC initiatives.

Grant agreement ID: 101017567

Total/EC Budget: € 12,009,988/€ 8,000,000

33 Partners, 23 third parties

Coordinator: EGI Foundation

Effort: 1472 PMs, 48 FTEs - **49% VA** (35 services, 38 providers)

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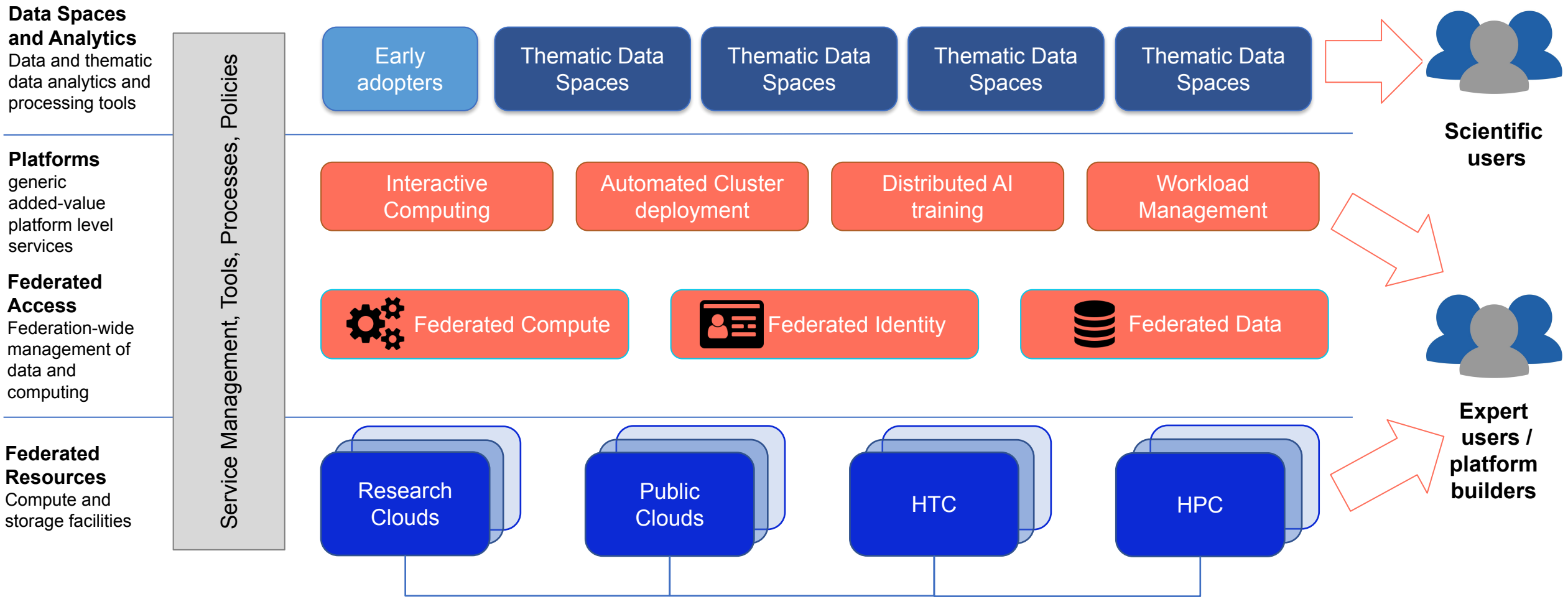
Architecture



⇒ Foundation of the EOSC Compute Platform - http://go.egi.eu/egi-ace

⇒ Governance, Architectures and Business Models for Data and Cloud Federations: the EOSC and GAIA-X Case Studies - https://zenodo.org/record/5081865

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HPC integration in EGI-ACE

Objective: Provide interoperability guidelines for HPC systems with the EOSC Compute Platform delivered by EGI-ACE

Explore the usage and integration of HPC guided by 4 scientific pilot use cases with combined cloud and HPC needs, focusing on the areas of:

1. Access federation: Federated Authentication and Authorization
2. Application federation: Portable execution of container-based workloads
3. Data federation: Data transfers between systems
4. Operation federation: Presence in EOSC Portal, A/R monitoring, Usage accounting, Resource allocation, CRM…

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EOSC Future with C-SCALE · DICE Data Infrastructure Capacity for EOSC · EGI-ACE · OpenAIRE NEXUS · Reliance

HPC Pilots

- HEP: Benchmarking heterogeneous resources and data transfers
- PROMINENCE: run containerised workloads, including individual jobs as well as workflows, across any number of clouds simultaneously. Expand towards HPC.
- ENES: Run containerised Ophidia HPDA framework on HPC resources from Jupyter
- ELI-NP: create virtual HPC clusters on demand on top of the cloud resources to run Particle-in-Cell (PIC) simulations

HPC integration handbook

Support for hybrid HPC-cloud workloads with:

- Federated identity – use same account in all EOSC Compute Platform systems
- Portable execution with udocker
- Operational integration: accounting

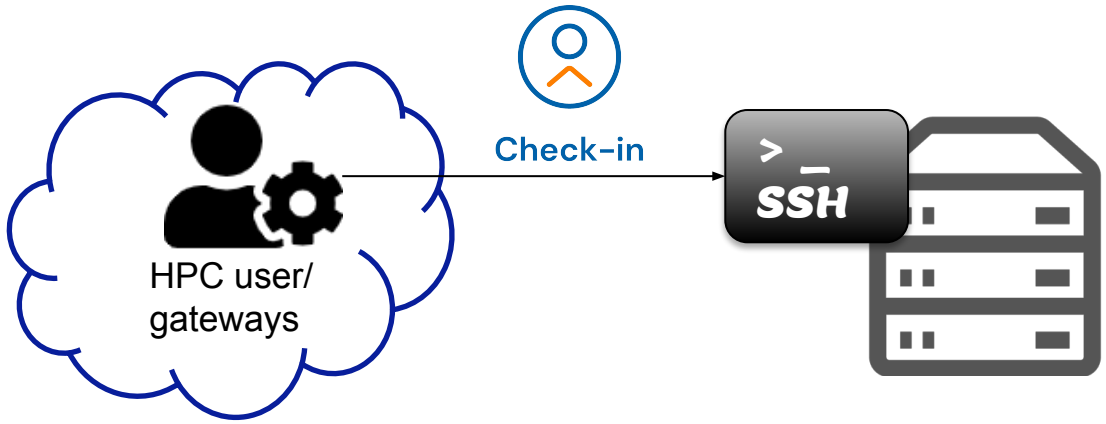
1st version released in February

Ongoing work:

- Data Transfer: DataHub/FTS and other solutions
- Operational integration: monitoring
- On-demand HPC

Final version to be released in July

Accessing HPC with Federated identity



ssh-oidc

- enables ssh access with tokens from federated AAI (Check-in)
- No modification to ssh client or server
- Keep control of access
  - Based on users entitlements (VOs)
- Approved by Security experts

Learn more: https://github.com/EOSC-synergy/ssh-oidc

EGI Accelerated Cloud

- New service to be onboarded in EOSC marketplace
- Hybrid Cloud + HPC resources offer
  - Host services/gateways at the cloud, perform heavy calculation at the HPC
  - Federated identity – use same identity for accessing resources
  - Central accounting and monitoring
- Start with 4 providers that are members of EuroCC

CESGA Centro de Supercomputación de Galicia

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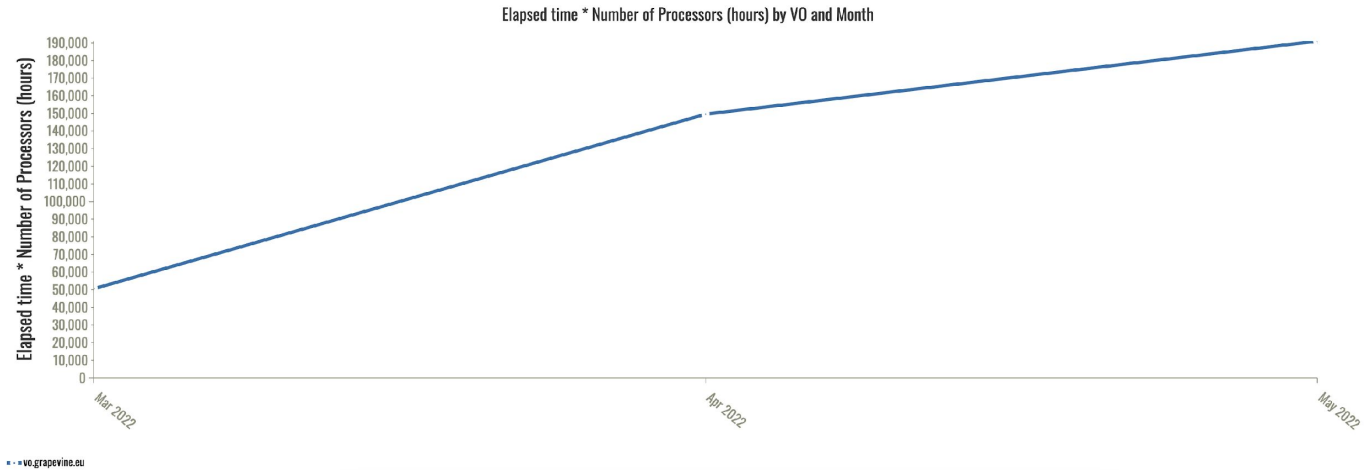
TÜBİTAK

LIP

Future work

1. Complete technical pilots from use cases
2. Deliver the final version of the integration handbook
3. Onboard the "EGI Accelerated Cloud" service on EOSC marketplace
4. Start production usage



See you next time!

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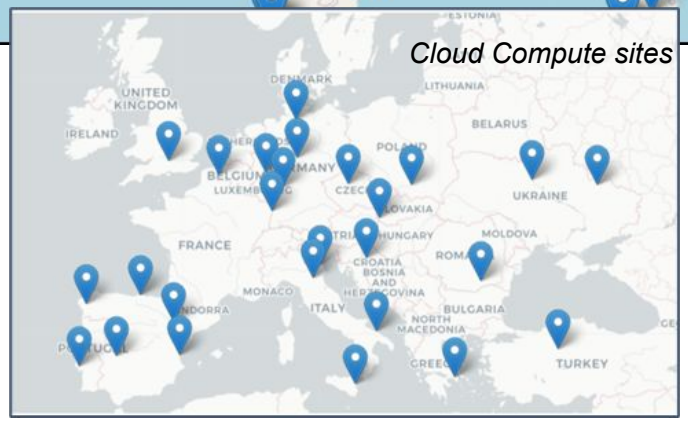
Empowered by EGI

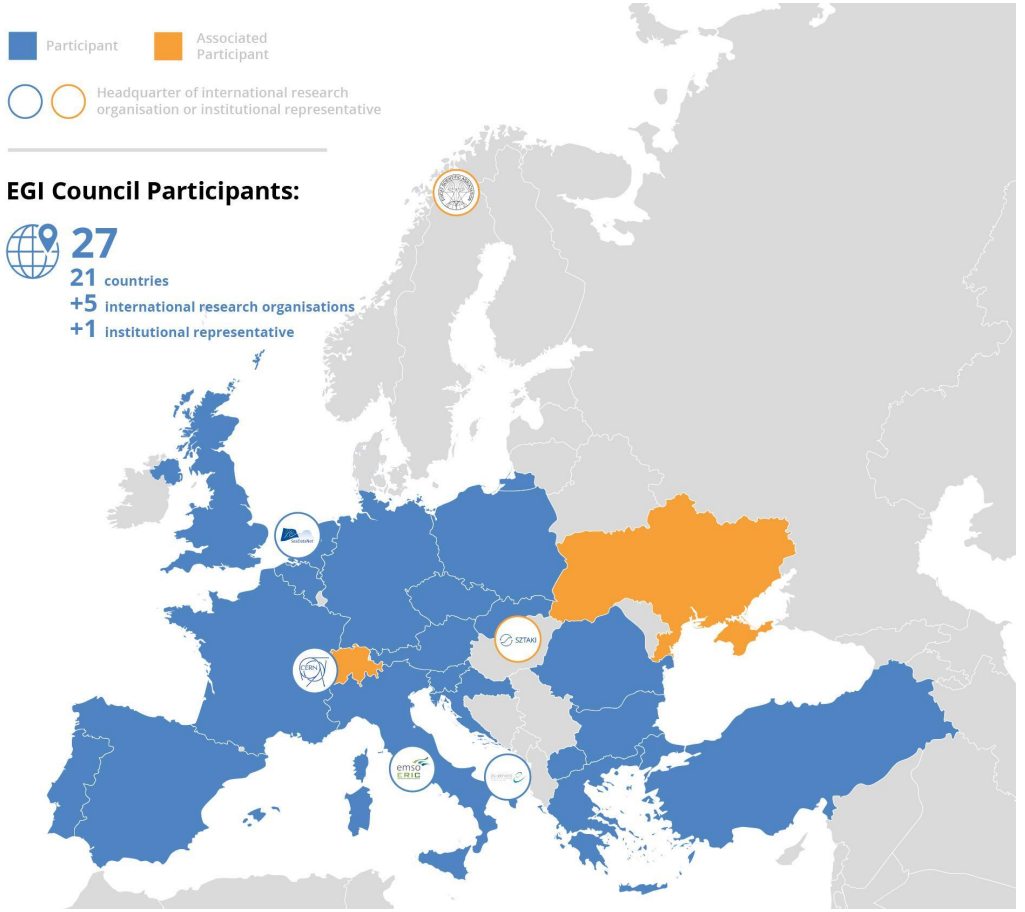
Cloud and High-Throughput Compute for research



HTC: 5.2 billion CPUh/ year

CLOUD: 43 million CPUh/ year

OVER 75.000 users



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