



HPC – introduction

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TLP: WHITE Public

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EGI Conference 2024

- **Project activities around HPC integration**
- **HPC Federation Working Group**
- **Coming next: EGI HPC service**

EGI-ACE

- Pilot integration of HPC providers into the EOSC Compute Platform, explore technical integration through a set of pilots
- HEP, Fusion, Nuclear Physics & Climate use cases



C-SCALE

- Federation of HPC providers delivering SSH access to HPC/HTC (batch processing facilities) with common AAI
- EO-oriented used cases

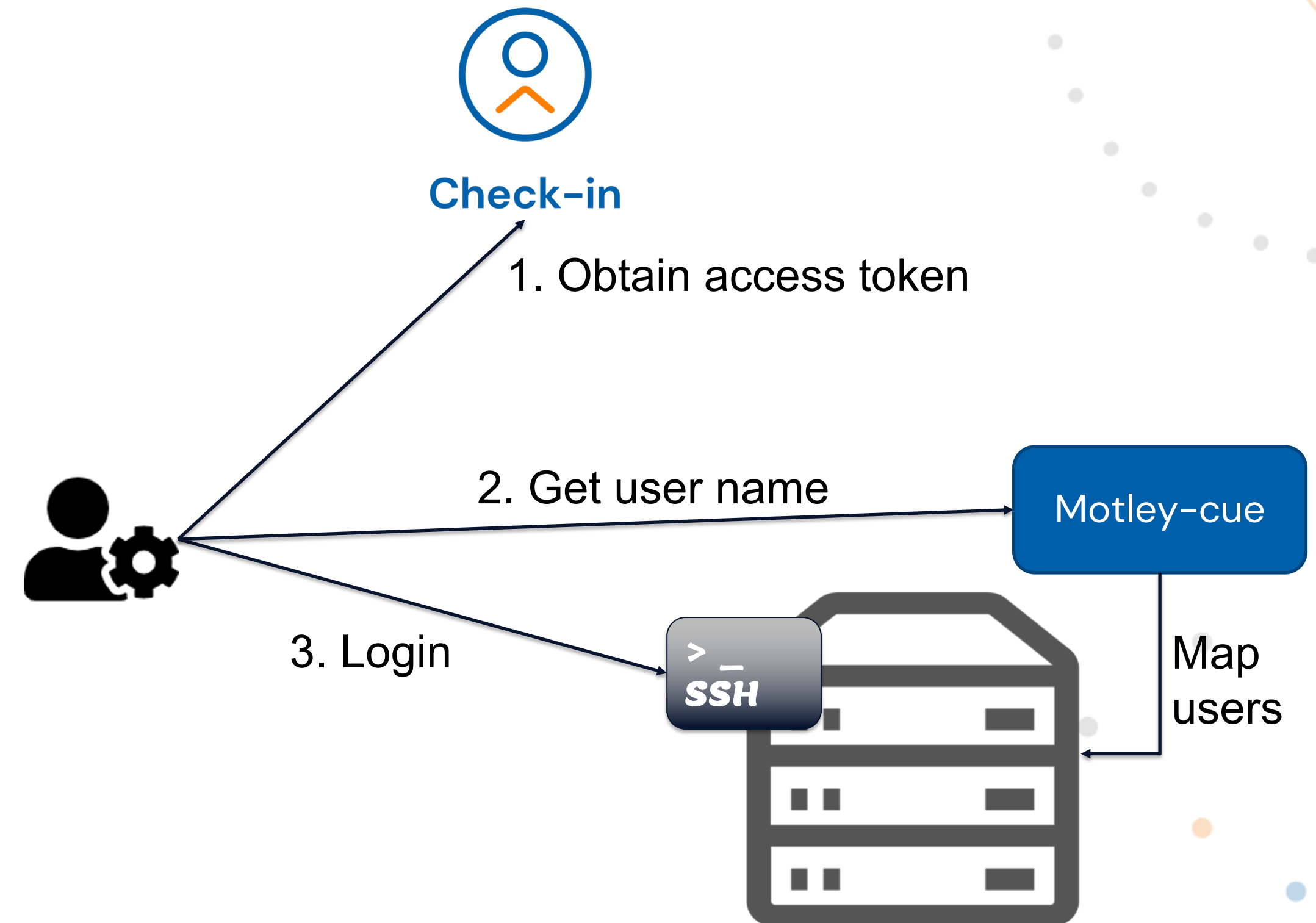


ssh-oidc: use ssh with OIDC access tokens

- Enable login to HPC (and VMs) with existing AAI
- No modification to ssh or sshd
- Architecture discussed (and approved) by security experts

Straightforward authorisation model

- Allow only members of supported Virtual Organisations or authorised individual users
- VOs are mapped to Unix Groups
- No need for user passwords or ssh keys



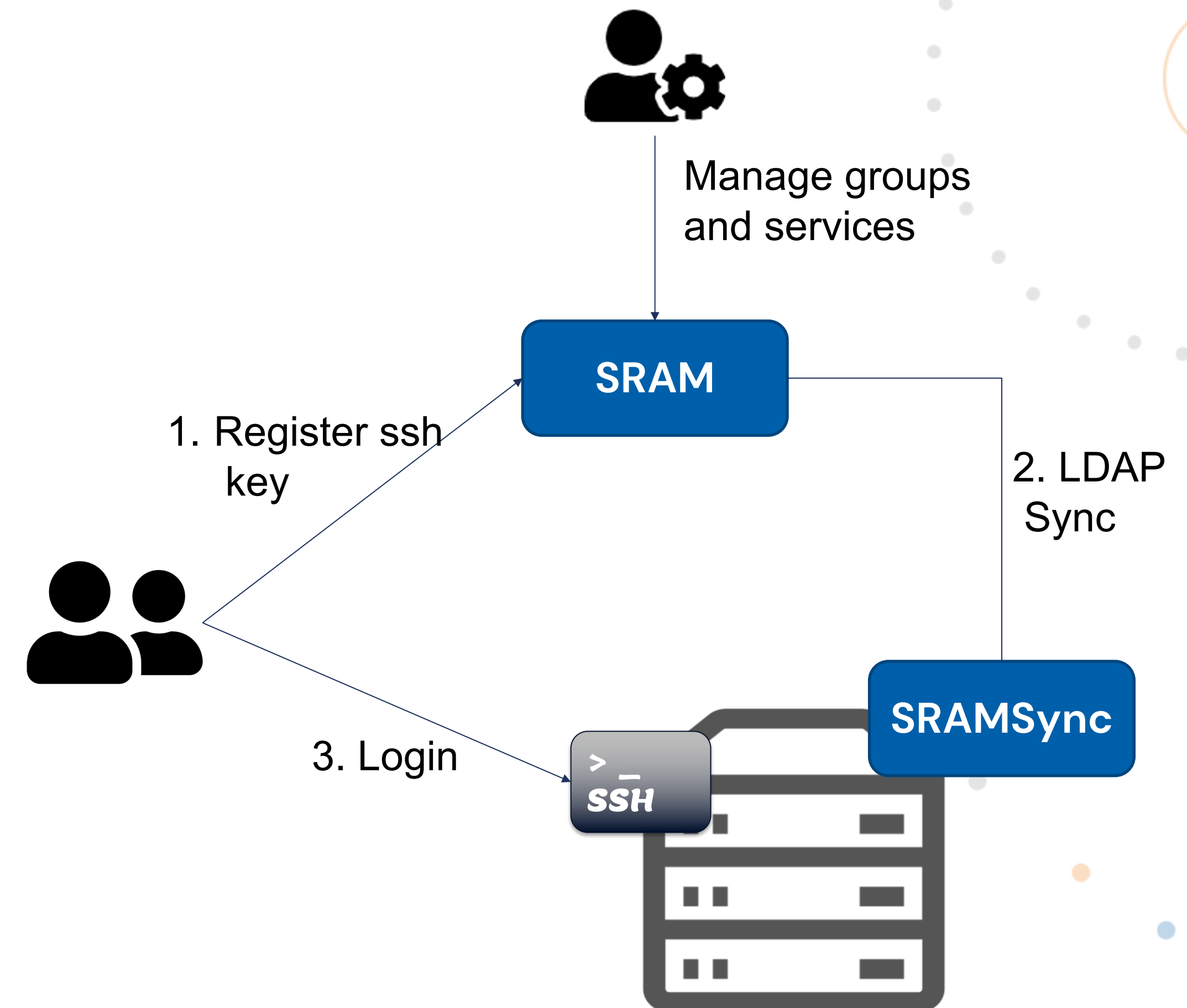
<https://github.com/EOSC-synergy/ssh-oidc>

Seamless SSH access integration for users across distributed clusters:

- SRAM for management of federated access
- User information (including ssh keys) exposed via LDAP to participating sites

Customisable authorisation

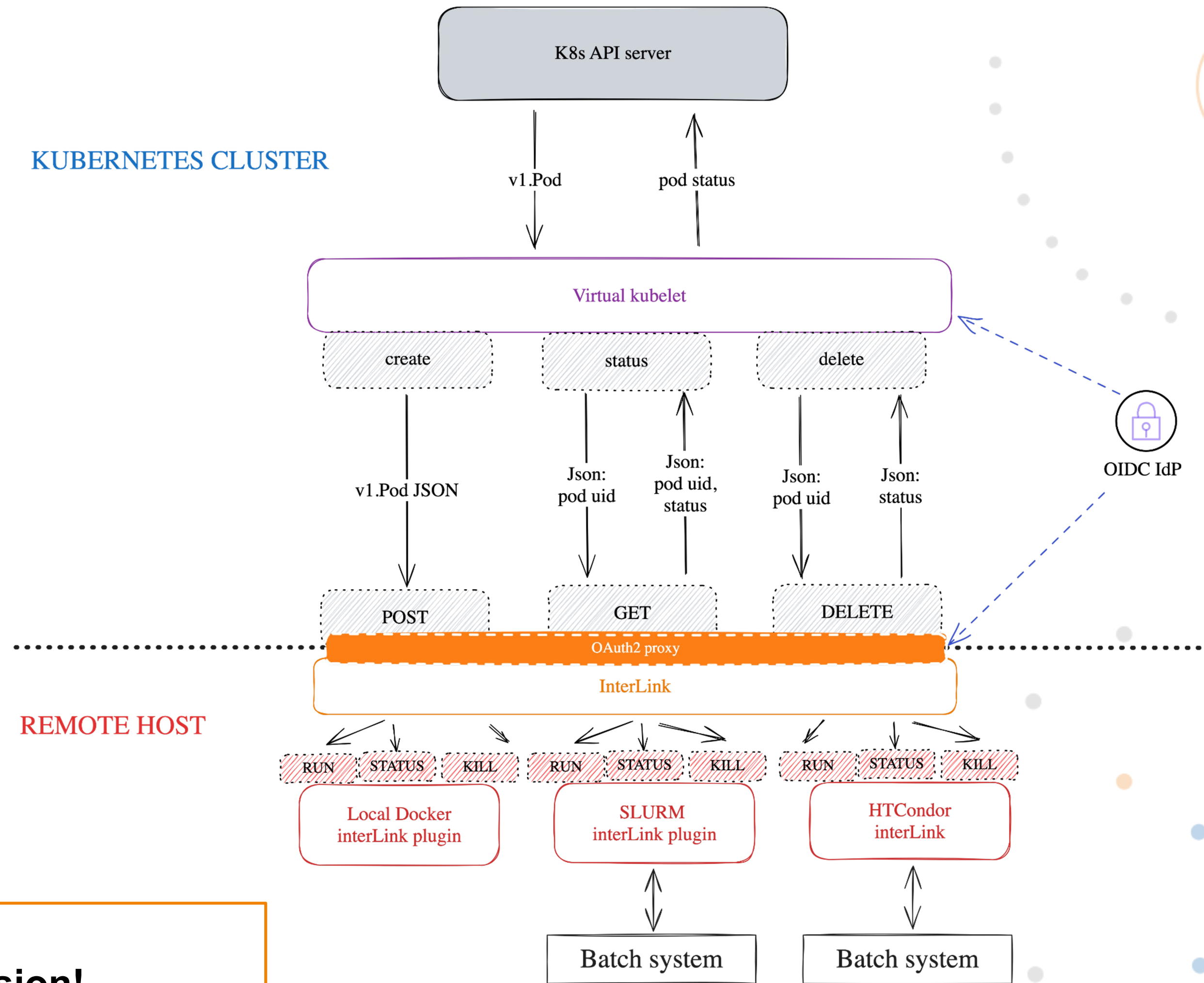
- Site syncs LDAP information matching their policies and needs
- Fine-grained authorisation mechanisms available in SRAM



interTwin Digital Twin engine enables:

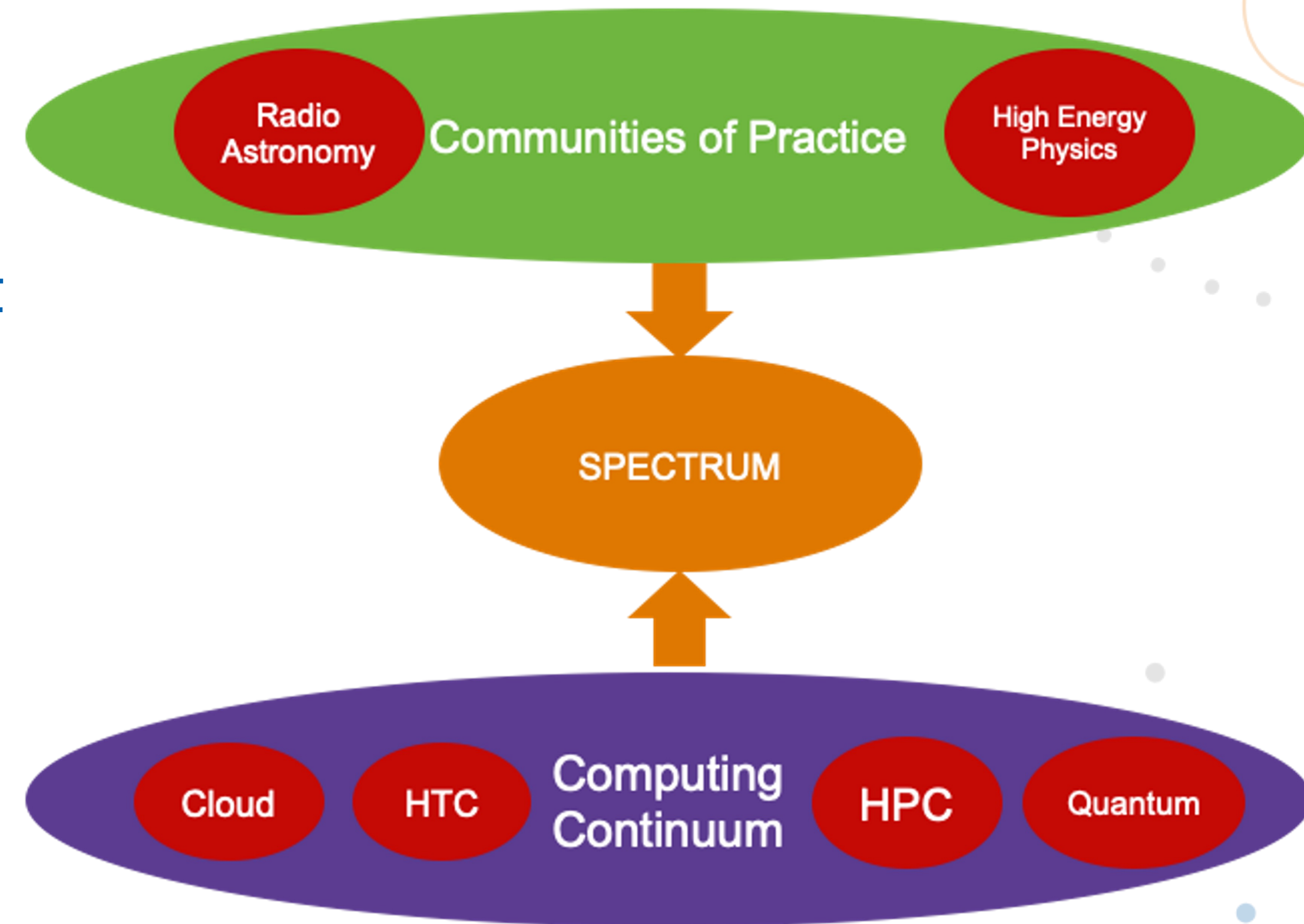
- Access to federated highly heterogeneous and disparate providers: from cloud-edge and multi-cloud to HPC resources
- An offloading mechanism that enables users to transparently take advantage of any type of computing capacity, while keeping the same experience as any regular cloud application.

Hear more in Daniele Spiga's presentation "Toward a compute continuum with interLink" in this session!



Spectrum will deliver a **Strategic Research, Innovation and Deployment Agenda (SRIDA)** which defines the vision, overall goals, main technical and non-technical priorities, investment areas and a research, innovation and deployment roadmap for data-intensive science and infrastructures

CoP WGs being set at the moment – will analyse needs and requirements from users and perform landscape analysis



**Hear more about SPECTRUM in tomorrow's session (3:00 PM - 4:15 PM)
"Roadmapping for high energy physics and radio astronomy"**

The HPC WG aims to introduce a federated HPC service in EGI

- Federated user access management on HPC systems, in compliance with EOSC and other relevant initiatives
- Availability and reliability monitoring of federated HPC sites
- Integrated usage accounting across HPC, cloud and HTC sites
- Access to distributed, federated data from HPC systems
- Portable container-based applications for cloud compute, HTC and HPC systems
- Resource brokering and allocation practices for international use cases



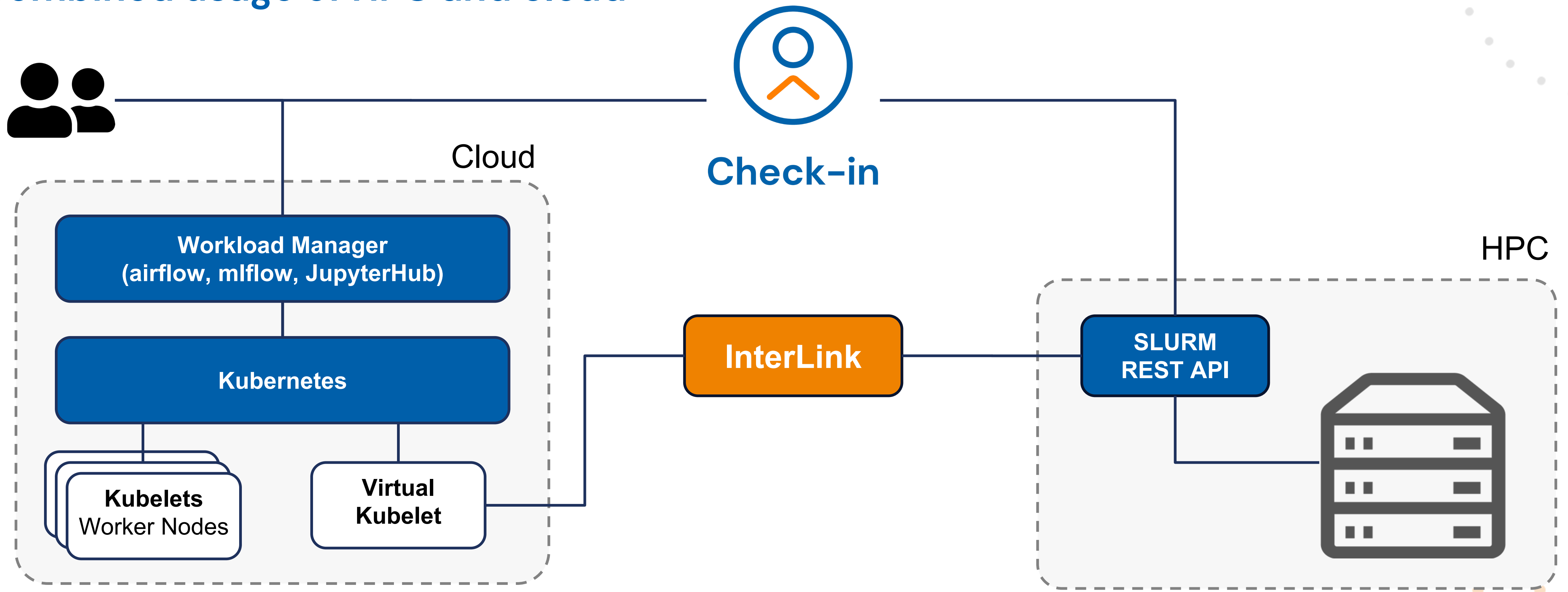
Vilnius University



TÜBITAK



Objective: Facilitate access and usage of HPC in research workflows requiring combined usage of HPC and cloud



Data Access

- Small data – can be easily moved as ‘pre’ / ‘post’ steps of jobs
- Large data – exploring options
 - Pre-staging as part of the user workflows
 - Use of Data Management tools such as RUCIO
 - ...

Allocation of resources and mapping of users

- How to map local users to the Check-in users?
- ALISE from KIT? (Recent developments in Account Linking – ALISE talk on Thursday at 10.20)

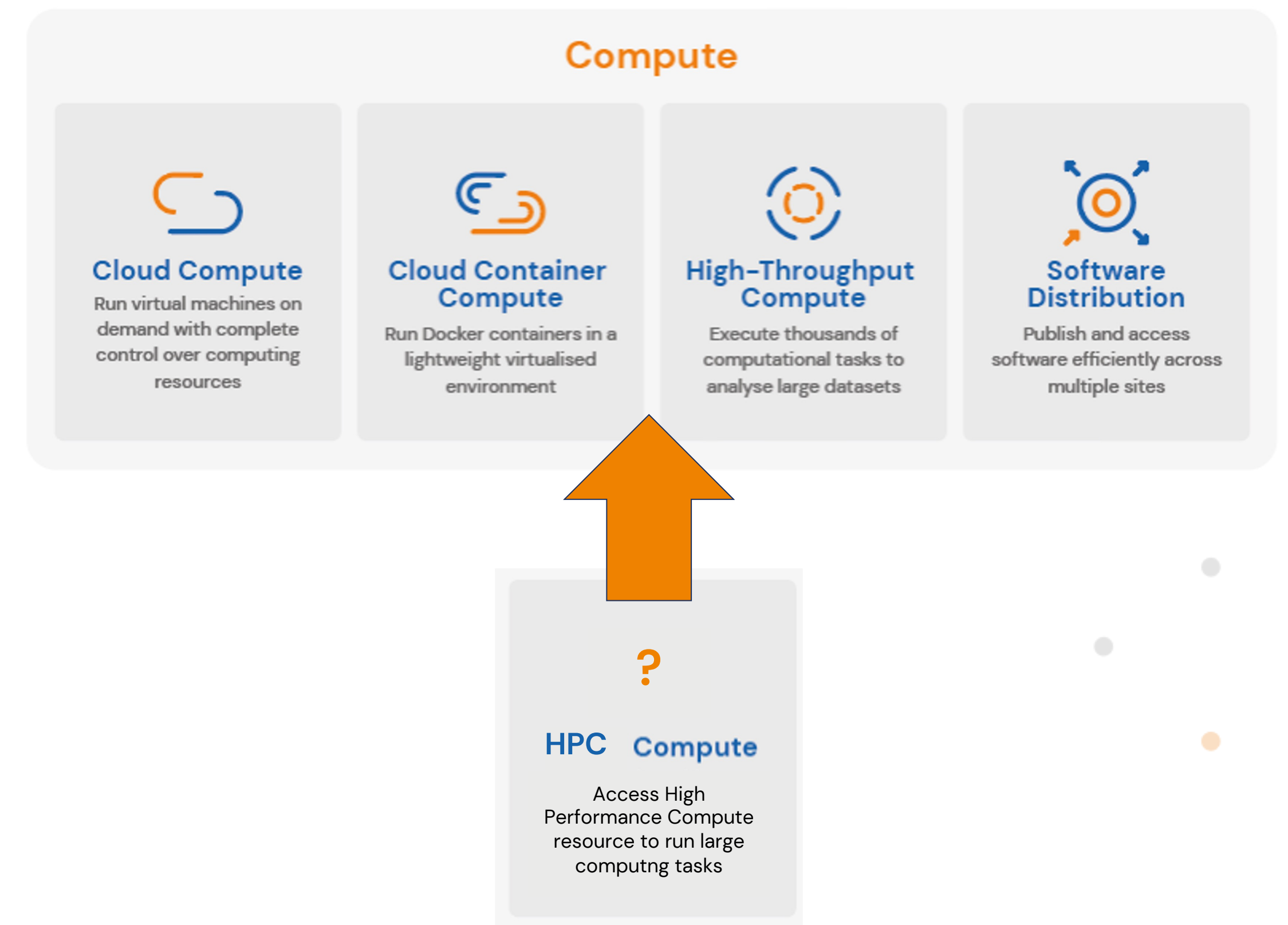
Develop a new service in EGI portfolio

- Beta by end of 2024
- Move to production leveraging the EOSC Data Commons and RI-SCALE projects

Focus on EGI added-value features:

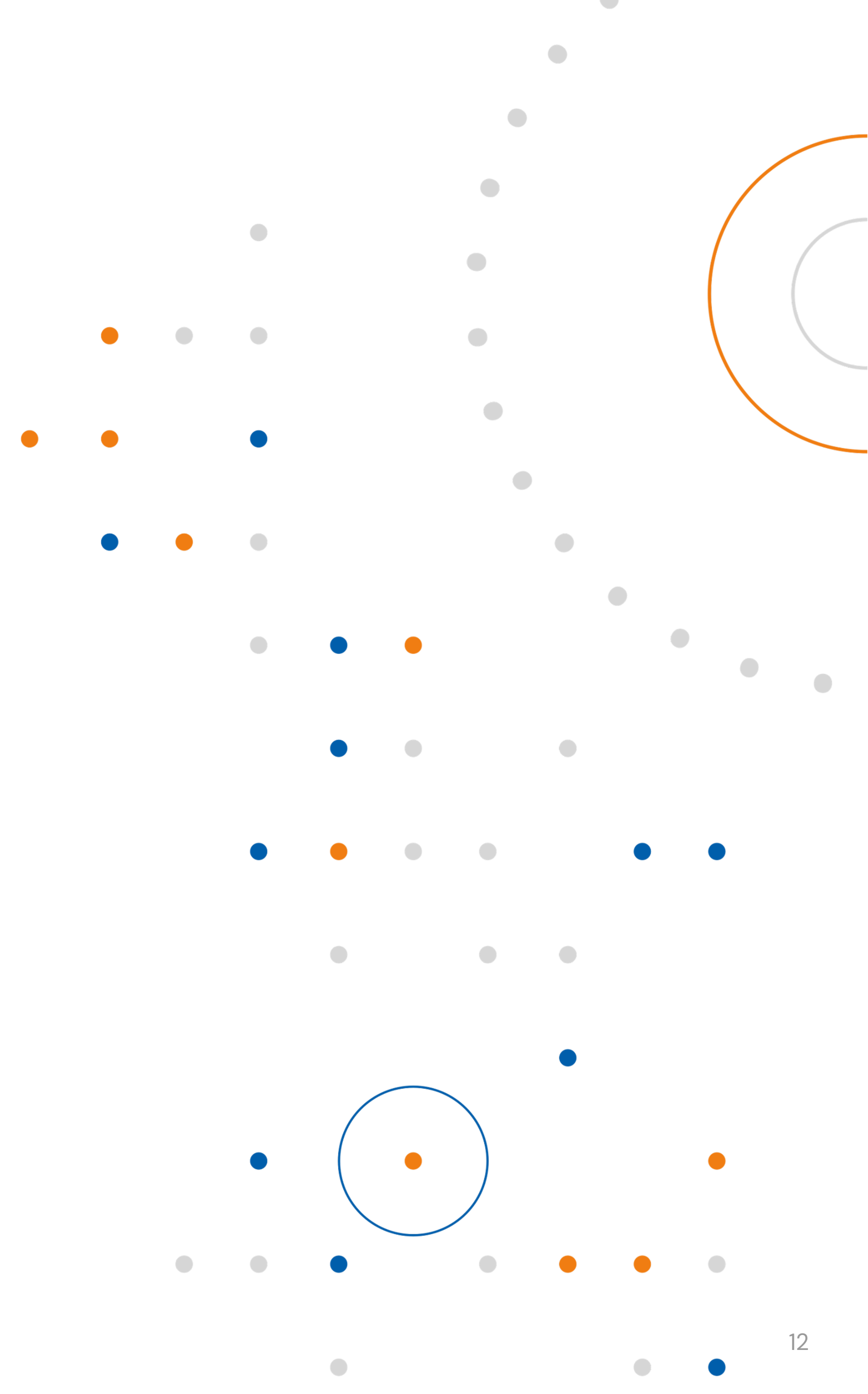
- Federated access to HPC
- Combined usage of cloud (IaaS, PaaS) and HPC
- Data transfer

Rely on the HPC WG members as initial set of providers





Join us shaping
EGSI HPC effort!





Contact us

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Let's talk. Or
meet in person

Get in touch with us

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