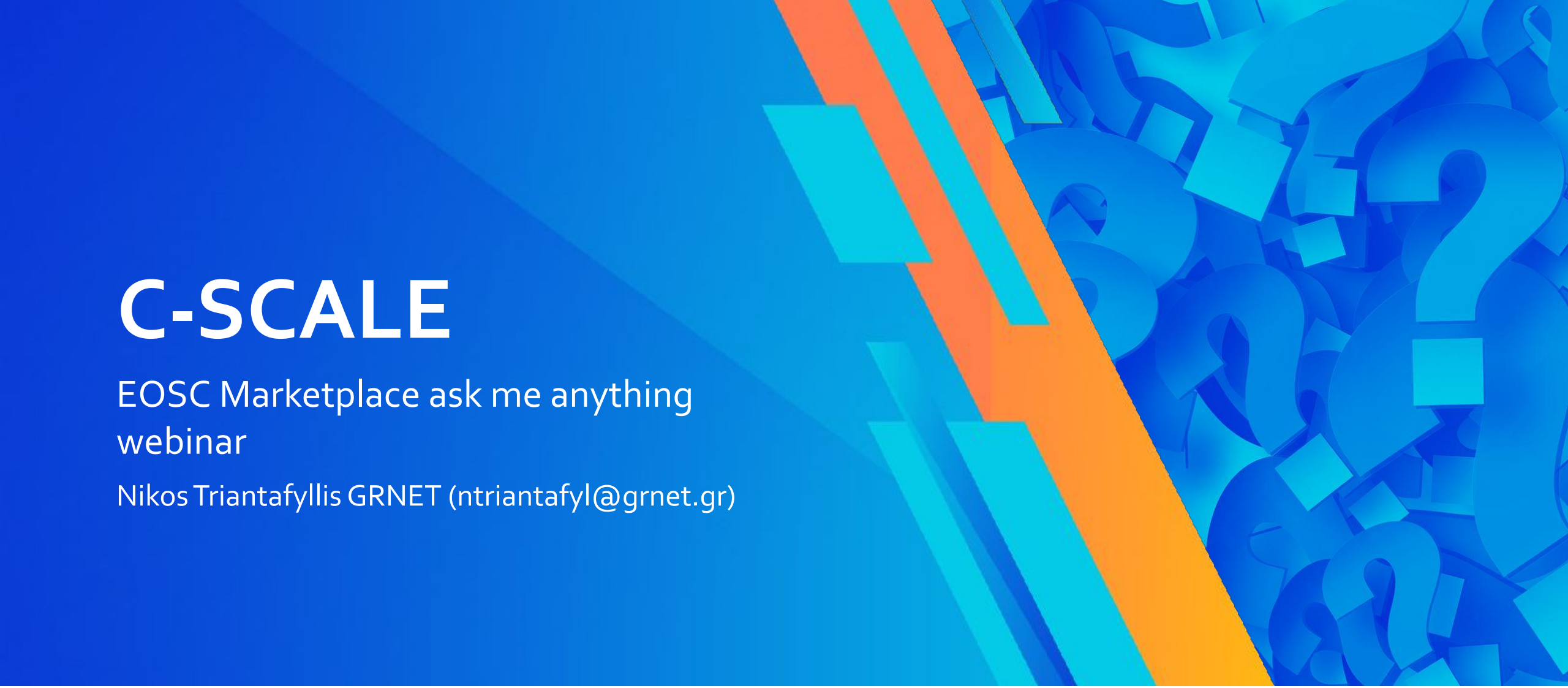

C-SCALE

EOSC Marketplace ask me anything webinar

Nikos Triantafyllis GRNET (ntriantafyl@grnet.gr)

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.

High Performance Computing (HPC)

Determination, demands and infrastructures

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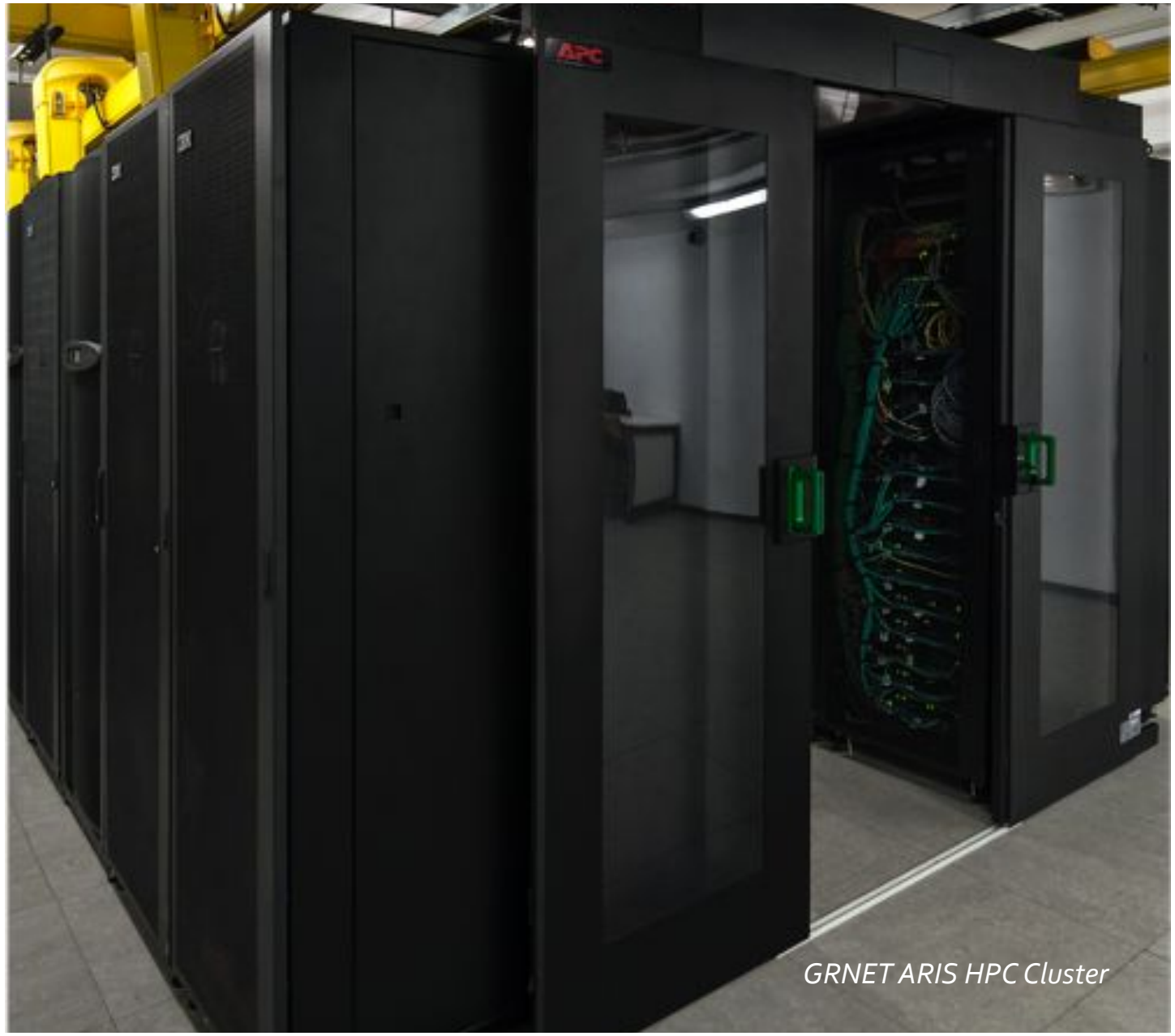
High Performance Computing (HPC)

- High-Performance Computing (HPC) is the ability to process data and perform sophisticated calculations at high speeds

- An HPC cluster consists of hundreds or thousands of compute servers, so-called nodes. The nodes in each cluster work in parallel with each other, boosting processing speed to deliver high-performance computing

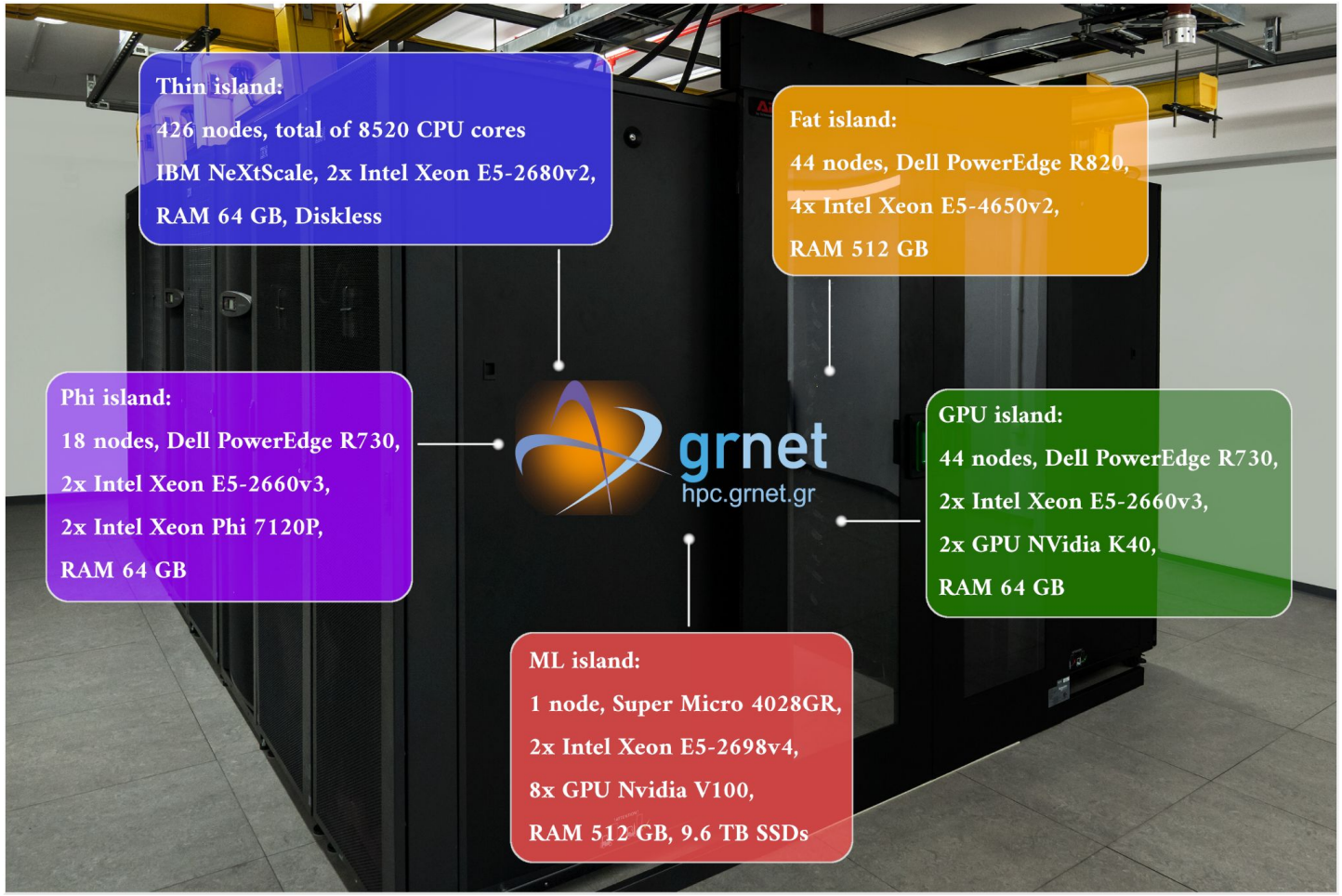
- HPC solves large problems in science, engineering, or business, that are too complex for the desktop. It might take hours, days, weeks, months, years but if you use an HPC Cluster, it might only take minutes, hours, days, or weeks



GRNET ARIS HPC Cluster

GRNET HPC infrastructure

- Codename: ARIS
- **533** compute nodes organized in **5** partitions/islands (node groups)
- Processing Capability: 535 TFlops
- File System: 2PB IBM GPFS
- Intercon. Network: Infiniband 56 Gbps
- Resource Manager: Slurm v. 16.05.11
- More info: https://hpc.grnet.gr/en



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Copernicus – eoSC AnaLytics Engine (C-SCALE)

Enabling Copernicus Big Data Analytics through EOSC

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C-SCALE Partners

with

C-SCALE Vision

- Larger areas need to be analysed in *more detail in less time*
- VM/laptop workflows do not easily scale and require interaction
- C-SCALE serves European researchers, institutions and initiatives by making Copernicus data, tools, resources and services easier to discover, access and share
- Copernicus is the European Union's Earth observation programme, looking at our planet and its environment to benefit all European citizens. It offers information services that draw from satellite Earth Observation and in-situ (non-space) data.
- Achieved by software deployment across infrastructures

C-SCALE Compute Federation

Distributed Infrastructure:

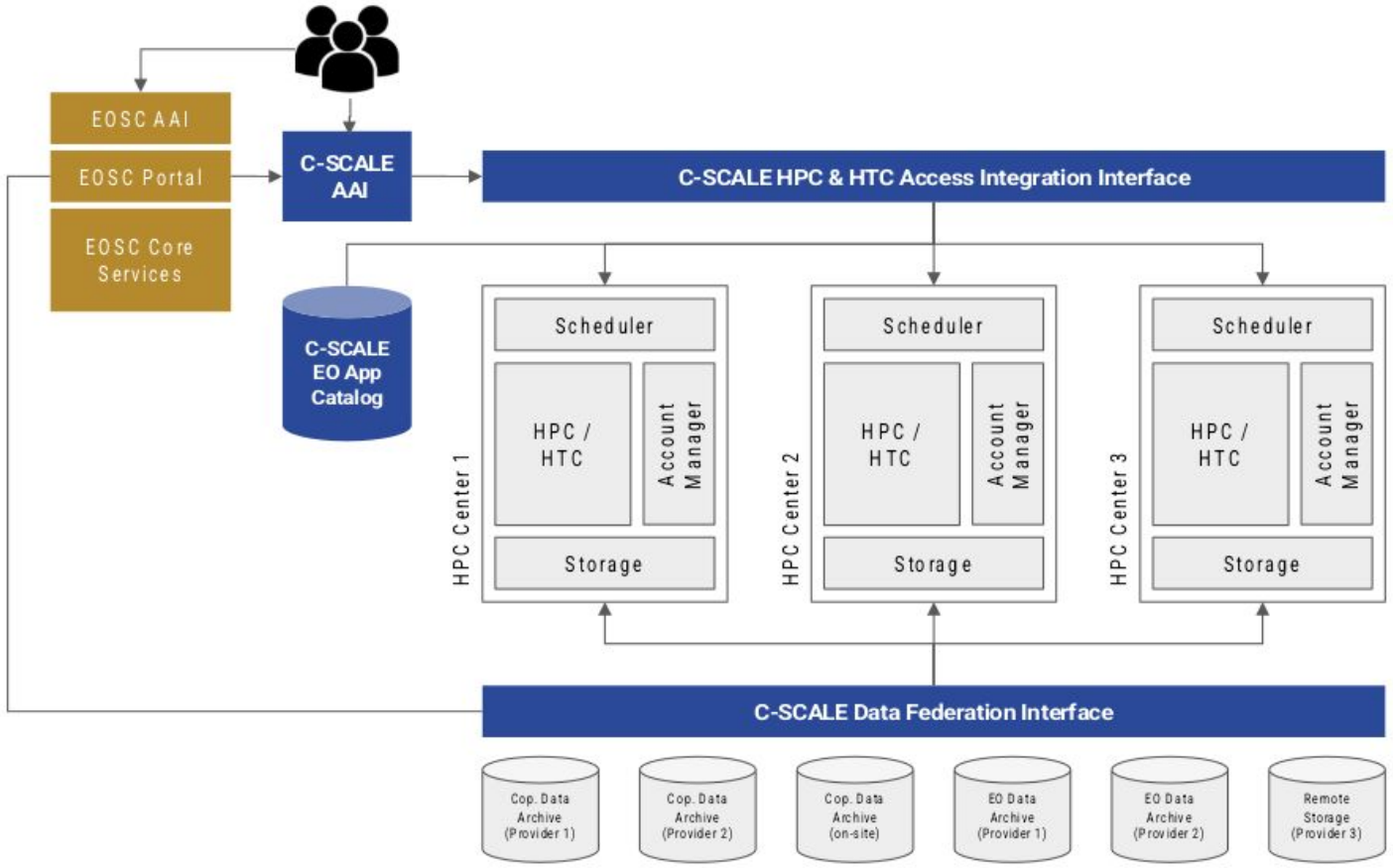
- Flexible, with support for Cloud, Container and HTC/HPC resources
- Common authentication and authorisation
- Following EOSC guidelines
- Common software repository to host user applications *(in progress)*

Currently, 8 providers delivering:

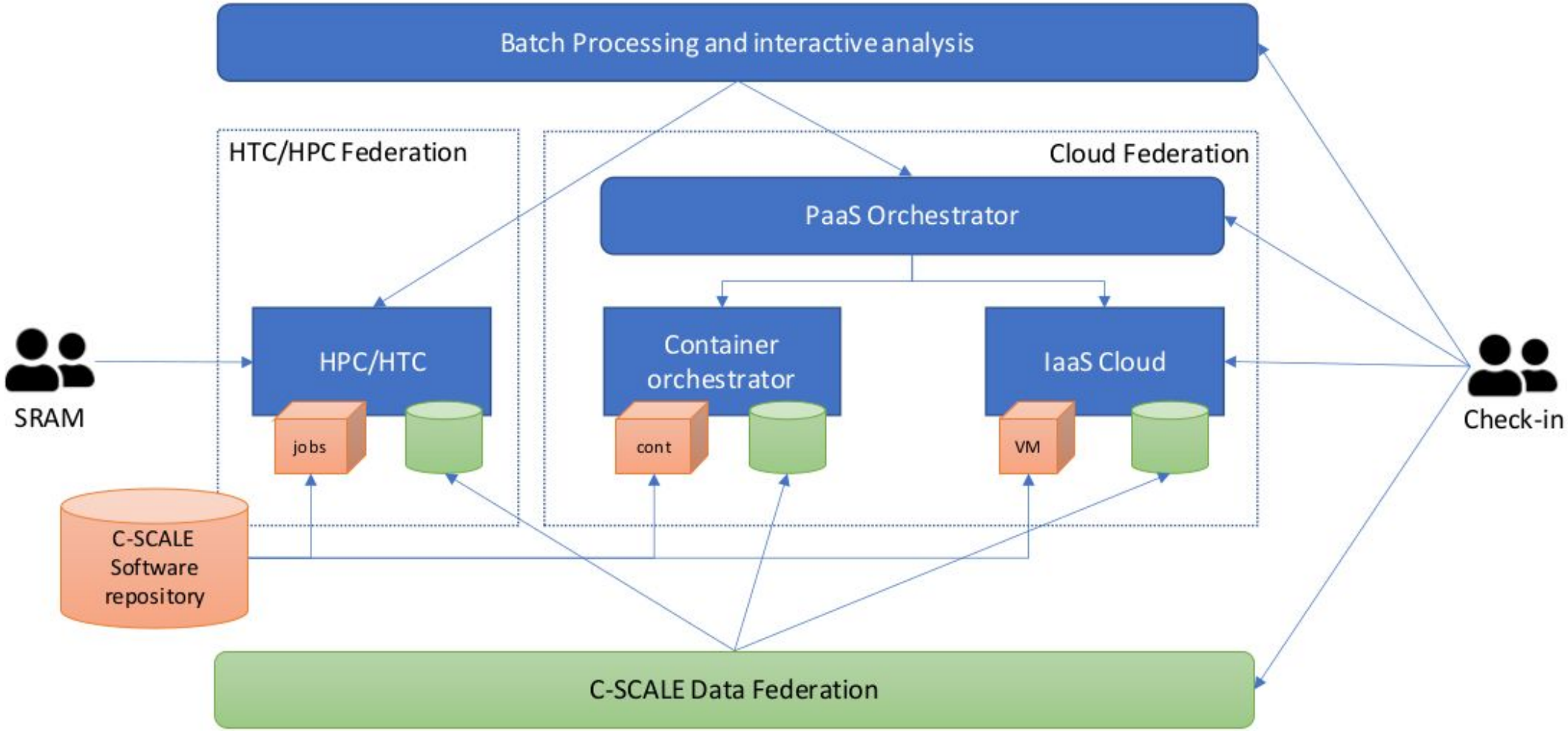
- 12 PB months of storage
- 18 million Cloud CPU hours
- 3.1 million HPC/HTC CPU hours
- 6,000 GPU hours

C-SCALE HPC Federation

- Access through a unified system, that is: SRAM
- https://sram.surf.nl
- Providers, collaborations or use cases, and members are registered and associated with each other, respectively



C-SCALE Compute Federation Schema



C-SCALE Objectives

- C-SCALE is an open federation in and for EOSC
- EOSC key element since promotes federative/uniform approach
- New providers and users are welcome
- The C-SCALE project will enhance EOSC Portal with pan-European federated data and computing infrastructure services for Copernicus

C-SCALE integration in EOSC

The C-SCALE project will enhance EOSC Portal

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Integration Objectives

- This open federation will integrate cross-/inter- disciplinary EOSC services, ensuring interoperability between distributed data catalogues, computational tools and infrastructure
- In doing so, the federation will increase the service offer of the EOSC Portal providing state-of-the-art research enabling services to its users.
- It will also provide an open, well-documented framework for integrating new service providers and application developers.

EUROPEAN OPEN SCIENCE CLOUD

C-SCALE

C-SCALE services in the EOSC Portal (soon)

Access

Access to a large C-SCALE EO data archive.

Integration

C-SCALE compute services integrated with the EO Data archive.

Analytic tools

Set of analytics platforms and tools that can be deployed on top of the C-SCALE EO data archive and compute services.

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C-SCALE Data

- C-SCALE will make the unique data resources and body of knowledge of the Copernicus community accessible in a more user-friendly way to new audiences and user communities through the EOSC portal

- It will deliver a modular, open, and robust federation for data discovery, processing and exploitation of Copernicus and, in general, EO Data

Access to a large C-SCALE EO data archive.

C-SCALE Services

- Mainly, divided in two domains:
- Cloud interface: access to Cloud resources of the federation as IaaS and container platforms (Kubernetes) with federated orchestration for the deployment of applications and platforms across providers in a seamless way
- HPC and HTC interface: lightweight, federated and uniform access-integration layer to HPC and HTC systems

Integration

C-SCALE compute services integrated with the EO Data archive.

C-SCALE Analytic Tools

- By collaboratively building on the competences of pan-European e-Infrastructures and existing project initiatives e.g. "Copernicus Data and Information Services" (DIAS), C-SCALE will federate European digital capabilities and lay the foundation for a European open source Big (Copernicus) Data Analytics platform

Analytic tools

Set of analytics platforms and tools that can be deployed on top of the C-SCALE EO data archive and compute services.

Integration Timeline

- The C-SCALE project will enhance EOSC Portal with pan-European federated data and computing infrastructure services and analytic tools for Copernicus
- Integration with EOSC is ongoing (e.g., marketplace registration) **end of summer of 2022**
- More info: https://c-scale.eu
- Contact: info@c-scale.eu

EUROPEAN OPEN SCIENCE CLOUD

+

C-SCALE

EOSC Marketplace

EOSC Portal Catalogue and Marketplace

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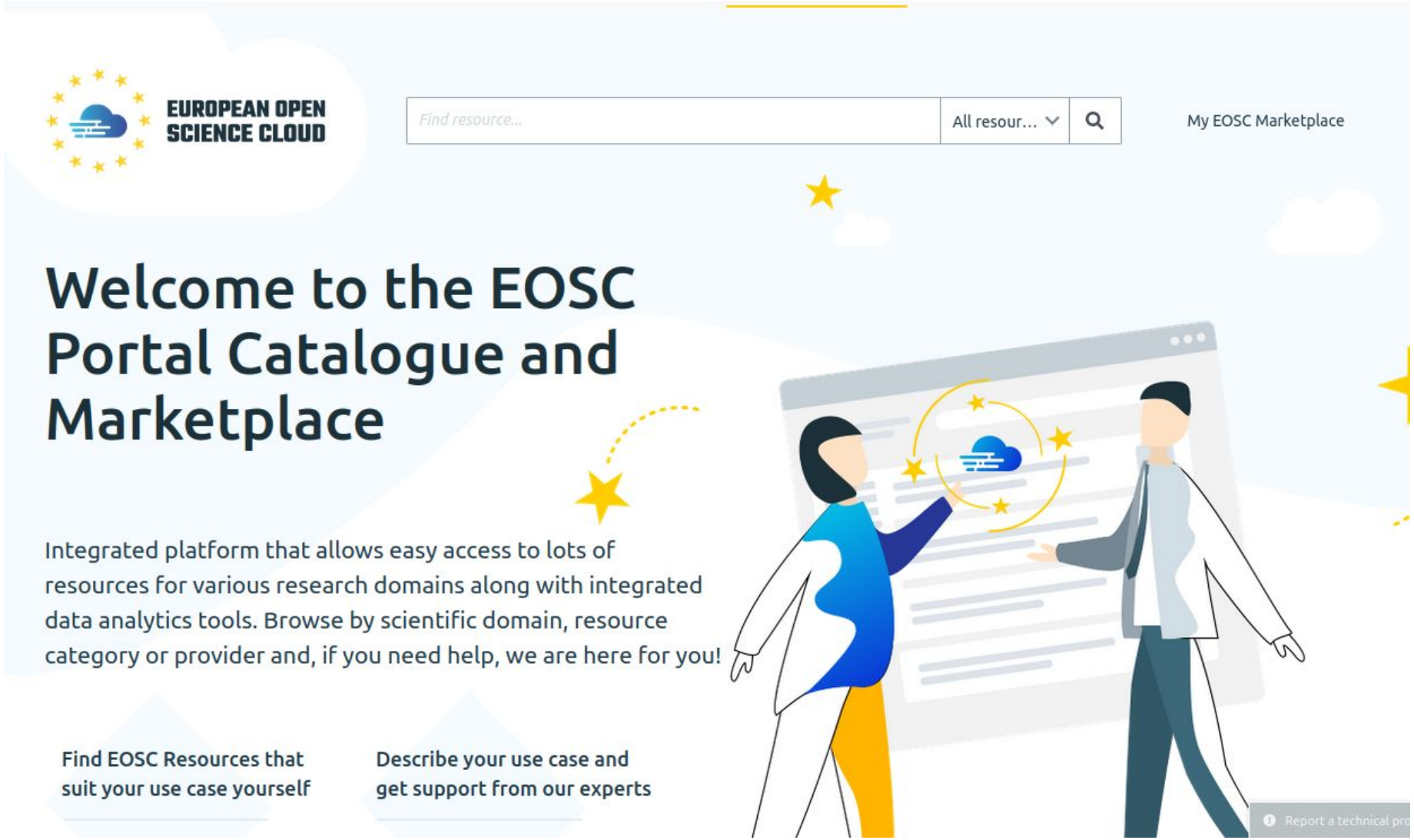
EOSC Marketplace - https://marketplace.eosc-portal.eu



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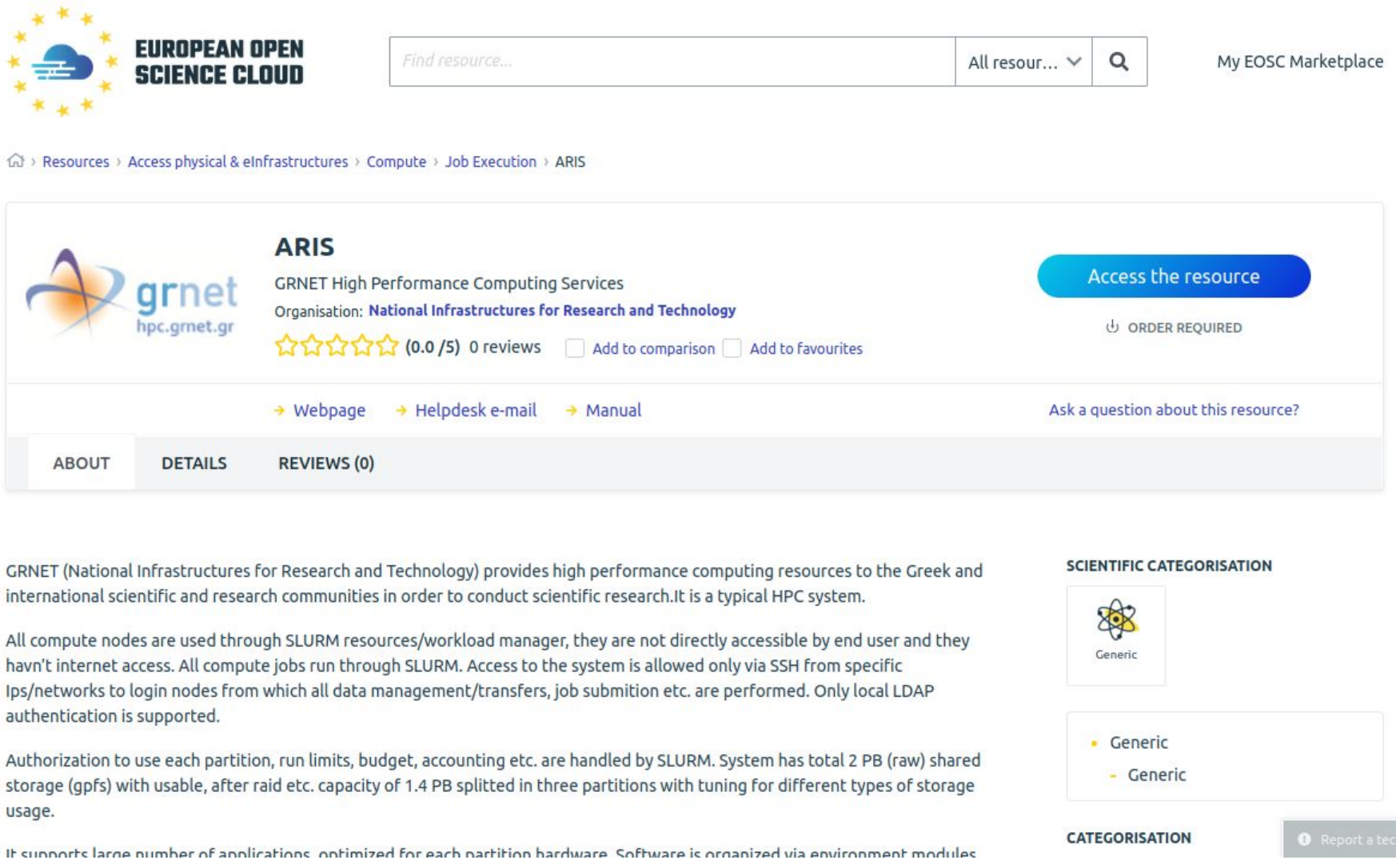
EOSC Marketplace - GRNET HPC Resource



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See you next time!

Thank you :)

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