Session 3: Compute

EOSC Marketplace ask me anything webinar

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.

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Join us on Slido

During this webinar we will be collecting questions and feedback via Slido. Join us there via a mobile device to post your own comments or upvote those of others.

Or

Go to **sli.do**
Enter event code **#682308**
and password **EOSC-AMA**

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

Your content

14.00 – 14.05: Welcome & Introduction

14:05 – 14:15: Overview of compute services in EOSC, Gergely Sipos, EGI Foundation

14:15 – 14:30: How to access and use, How to onboard Compute services, Eleonora Testa, EGI Foundation, EOSC Future Project

14:30 – 14:40: An example user case: OpenBioMaps, Miklos Bán, University of Debrecen

14:40 - 15:00 Q & A

https://eosc-portal.eu/

ROUTE 1

Contact us | Portal Home | Catalogue & Marketplace | Providers Dashboard | Providers Documentation | Login

EUROPEAN OPEN SCIENCE CLOUD

About | Services & Resources | Help Desk | Policy | Use Cases | Media | For providers | Using the Portal

- Access physical & eInfrastructures
- Aggregators & Integrators
- Processing & Analysis
- Security & Operations
- Sharing & Discovery
- Training & Support
- Help Desk

EOSC Portal - A gateway to information and resources

ROUTE 2

Access the EOSC Portal Catalogue & Marketplace

Scientific Domains | Categories

- Access physical & eInfrastructures
- Aggregators & Integrators
- Process & Analysis
- Security & Operations
- Sharing & Discovery
- Training & Support

https://marketplace.eosc-portal.eu/categories/access-physical-einfrastructures

→ https://marketplace.eosc-portal.eu/

All Resources 299

CATEGORIES

Access physical & eInfrastructures 72
- Compute 49
- Data Storage 20
- Instrument & Equipment 0
- Material Storage 0
- Network 8

Aggregators & Integrators 24
Processing & Analysis 124
Security & Operations 23
Sharing & Discovery 78
Training & Support 30
Other 10

FILTERS

Scientific Domains

Find or choose from the list below

- Generic 48
  - Generic 48
- Natural Sciences 14
  - Biological Sciences 7
  - Earth & Related Environmental Sciences 6
  - Chemical Sciences 2

Access physical & eInfrastructures

Ultra-fast connectivity and ubiquitous access, high performance computing, cloud capacity and storage.

SUGGESTED

PaaS Orchestrator

TOSCA-based deployment orchestration service on multiple IaaS.

Organisation: Italian National Inst...

CESNET DataCare - Object Based Storage

Ceph Object Storage - fast and reliable data storage

Organisation: CESNET

DEEP training facility

Distributed training facility for Machine Learning, Artificial Intelligence and Deep Learning models.

Organisation: Institute of Physics ...

1-10 of 72 results | Sort by: by name A-Z | 10 | 20 | 30 | Items on page

ORDER REQUIRED

100 Percent IT Trusted Cloud

Infrastructure as a Service (IaaS), secured by cutting edge cybersecurity software co-developed by the University of Oxford

Organisation: 100 Percent IT
Scientific domain: Generic

Add to comparison | Add to favourites

100%IT

OPEN ACCESS

Provide feedback

Report a technical problem

Compute

High-performance computing resources and scalable cloud compute capacity for demanding job processes.

All Resources 300

CATEGORIES

- Compute 49
  - Container Management 4
  - Job Execution 8
  - Orchestration 3
  - Serverless Applications Repository 0
  - Virtual Machine Management 8
  - Workload Management 2
  - Other 31
- Data Storage 20
- Instrument & Equipment 0
- Material Storage 0
- Network 8

FILTERS

Scientific Domains

Find or choose from the list below

- Generic 34
  - Generic 34
- Natural Sciences 10
  - Biological Sciences 5
  - Earth & Related Environmental Sciences 3
  - Chemical Sciences 2

SUGGESTED

MetaCentrum Cloud

Czech national scientific cloud

Organisation: CESNET

SCIGNE Cloud Compute

Deploy your on-demand IT infrastructure with complete control over computing resources

Organisation: The SCIGNE Platform

STFC Rucio Data Management Service

Scientific Data Management

Organisation: UK Research and Innov...

1-10 of 49 results | Sort by: by name A-Z | 10 | 20 | 30 | Items on page

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OPEN ACCESS

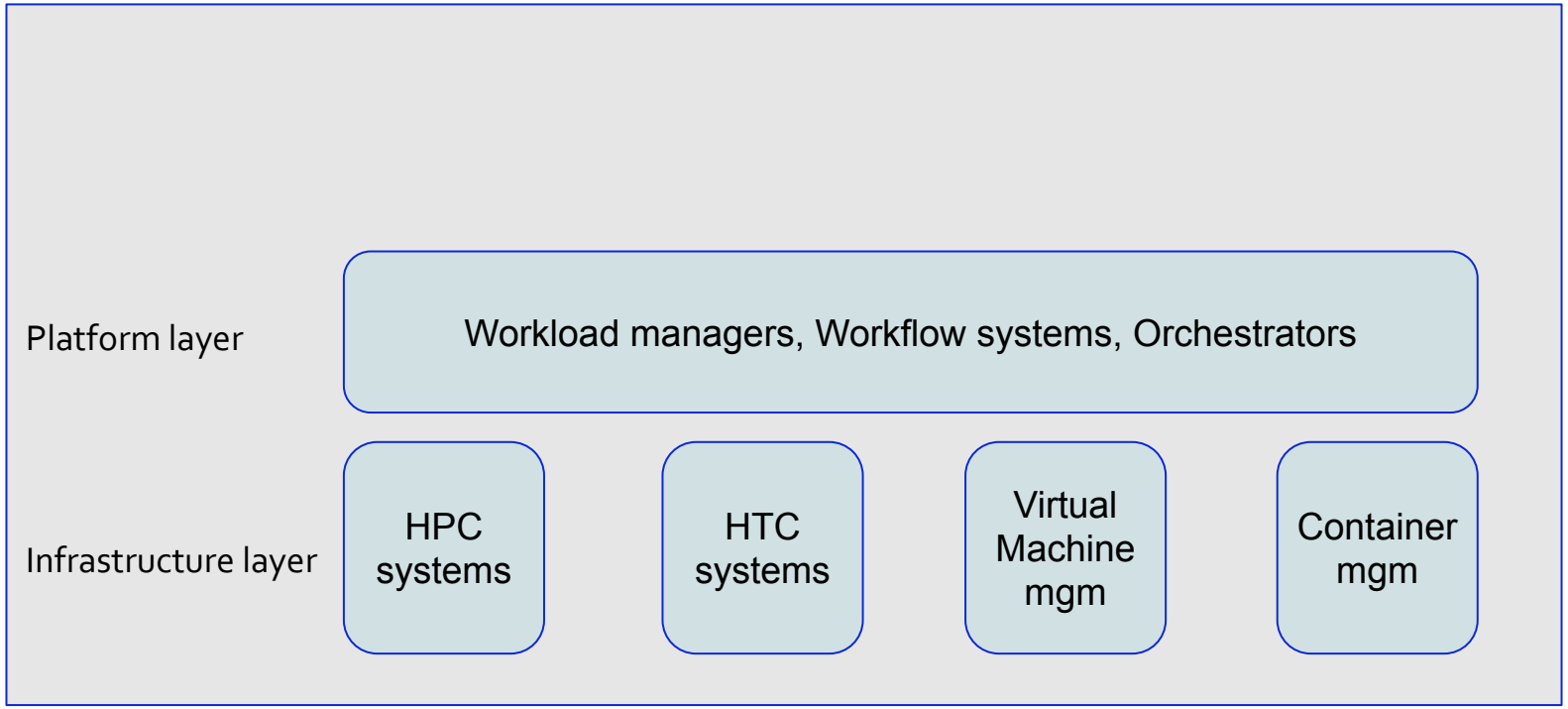
Provide feedback

Report a technical problem

Situation in the Compute Category

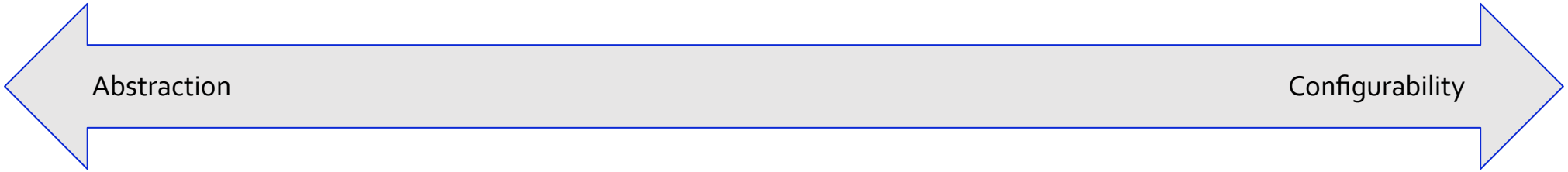
Resources › Access physical & eInfrastructures › Compute → 49 entries

Container Management	4
Job Execution	8
Orchestration	3
Serverless Applications Repository	0
Virtual Machine Management	8
Workload Management	2
Other	31



Difference between compute services

	HPC systems	HTC systems	Virtual Machine mgm	Container mgm
Typical workloads	Strongly interconnected processes with cross-process communication. (e.g. fluid dynamics, finite element methods)	Large number of independent calculations. (e.g. parameter sweeping)	Lift and shift existing applications Specific OS (kernel) requirements Long running servers	Cloud-native containerised applications
Pros and cons	[+] No management of resources, just submit jobs [-] Legacy interfaces [-] May be a scarce resource		[+] Complete control on resources, run (almost) anything you'd like [-] Complex operation	[+] Industry standard [+] Hides complexity of cluster setup [-] Can be steep learning curve



Access (as user)

After the **log in** you can search in the Marketplace the service you need, by name, category, project or provider.

The main access point is the resource/service presentation page:

For example:

https://marketplace.eosc-portal.eu/services/egi-cloud-compute

It will offer more flexibility to providers according to their organization and tools they use to manage the requests and the access.

There will be always the chance to discuss the offer with the users and to tailor the solution to requirements: not only ordering but contact and public contacts are fundamental.

How to request a service

We have 4 possible order categories.

Fully Open Access	Open no limits
Open Access	Require Authentication
Order Required	Order and negotiation according to the Provider
Other order Type	Other flexible way of ordering

Joining (as provider)

Options:

1. Provider part of an organization or Multiprovider (e.g. EGI Cloud Compute from EGI Foundation)
2. Single provider (E.g. Metacentrum Cloud from CESNET)
3. The categories are not mutually exclusive: example Metacentrum Cloud - CESNET

   https://marketplace.eosc-portal.eu/services/metacentrum-cloud?q=MetaCentrum+Cloud

- Organization can support the provider and services in:
  - Interoperability, technical integration, standardization, etc.
  - Trainings, website, documentation and policies

- Single provider
  a. More flexibility
  b. Focus on location at country level and national funding opportunities

EOSC onboarding process: continual improvements in EOSC Future T6.1

Example from EGI Cloud Compute

https://providers.eosc-portal.eu/provider/egi-fed/resource/update/egi-fed.cloud_compute

OpenBioMaps example

History

Nature Conservation ⟹ Biodiversity research

Nature Conservation ⟸ Biodiversity research

Nature Conservation ⟺ Biodiversity research

Collecting data ⟶ Data curation ⟶ Data analysis

OpenBioMaps example

EGI / EOSC contact

- Use of computing service capacity

1. plan)

Create a persistent (compute) server/service on EOSC-based virtual servers

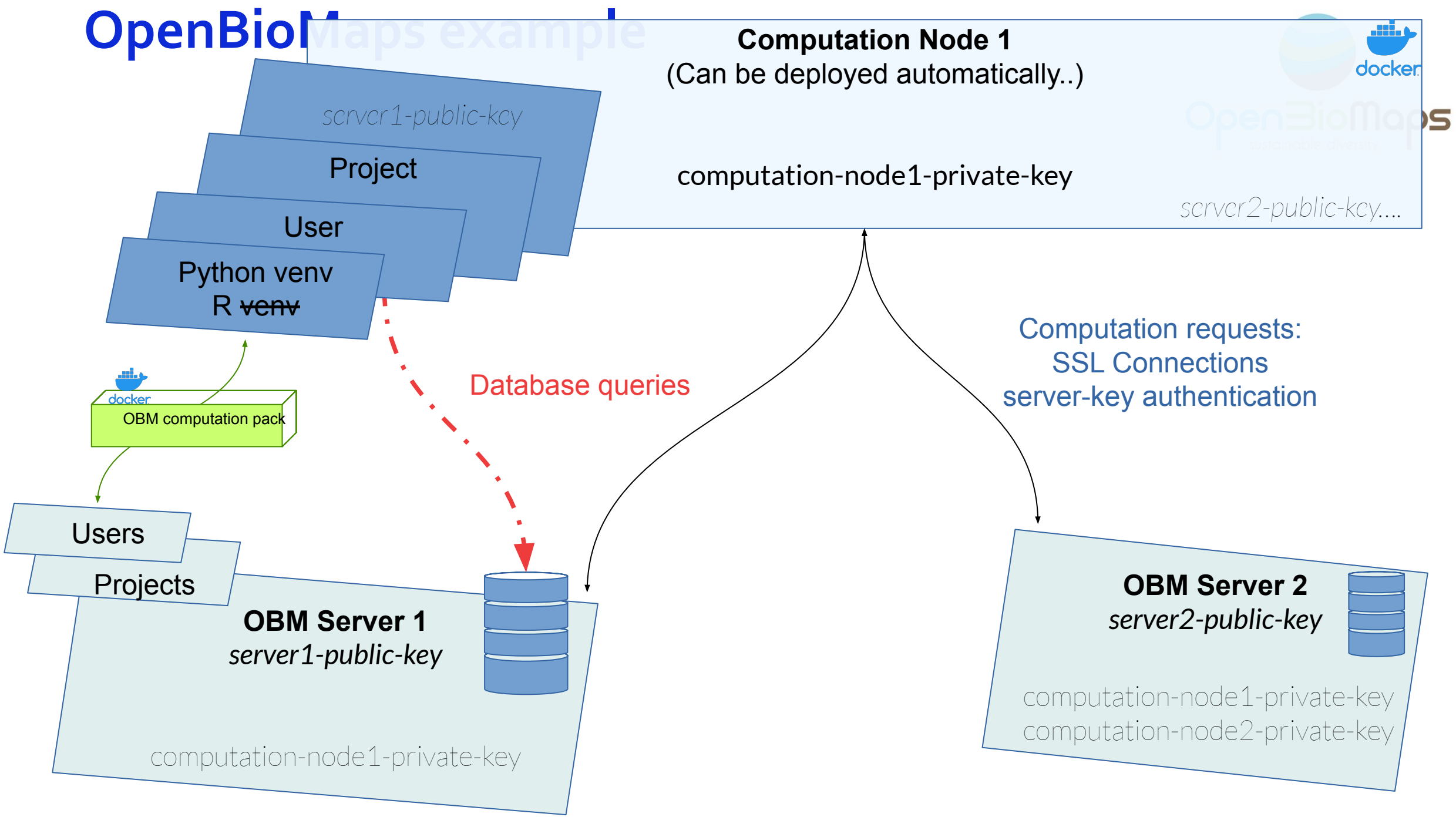
OpenBioMaps example

EGI / EOSC contact

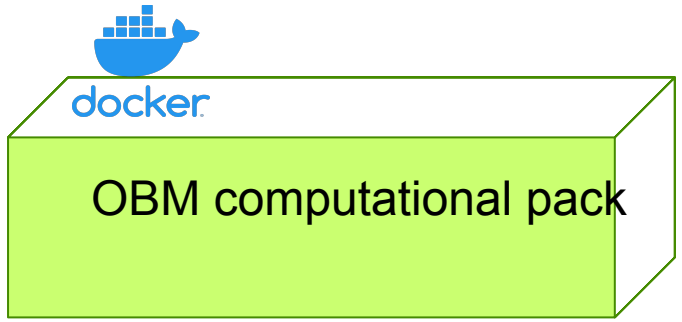
- Use of computing service capacity

2. plan)

Create a dynamic computation service on any available server using the new OpenBioMaps Computational Layer


OpenBioMaps example
Computation Node 1
(Can be deployed automatically..)
docker
computation-node1-private-key
scrvcr2-public-kcy....
scrvcr1-public-kcy
Project
User
Python venv
R venv
docker
OBM computation pack
Database queries
Computation requests:
SSL Connections
server-key authentication
Users
Projects
OBM Server 1
server1-public-key
computation-node1-private-key
OBM Server 2
server2-public-key
computation-node1-private-key
computation-node2-private-key

OpenBioMaps example



Resources: Docker files, git files

Data: CSV/JSON files fetched from OBM database

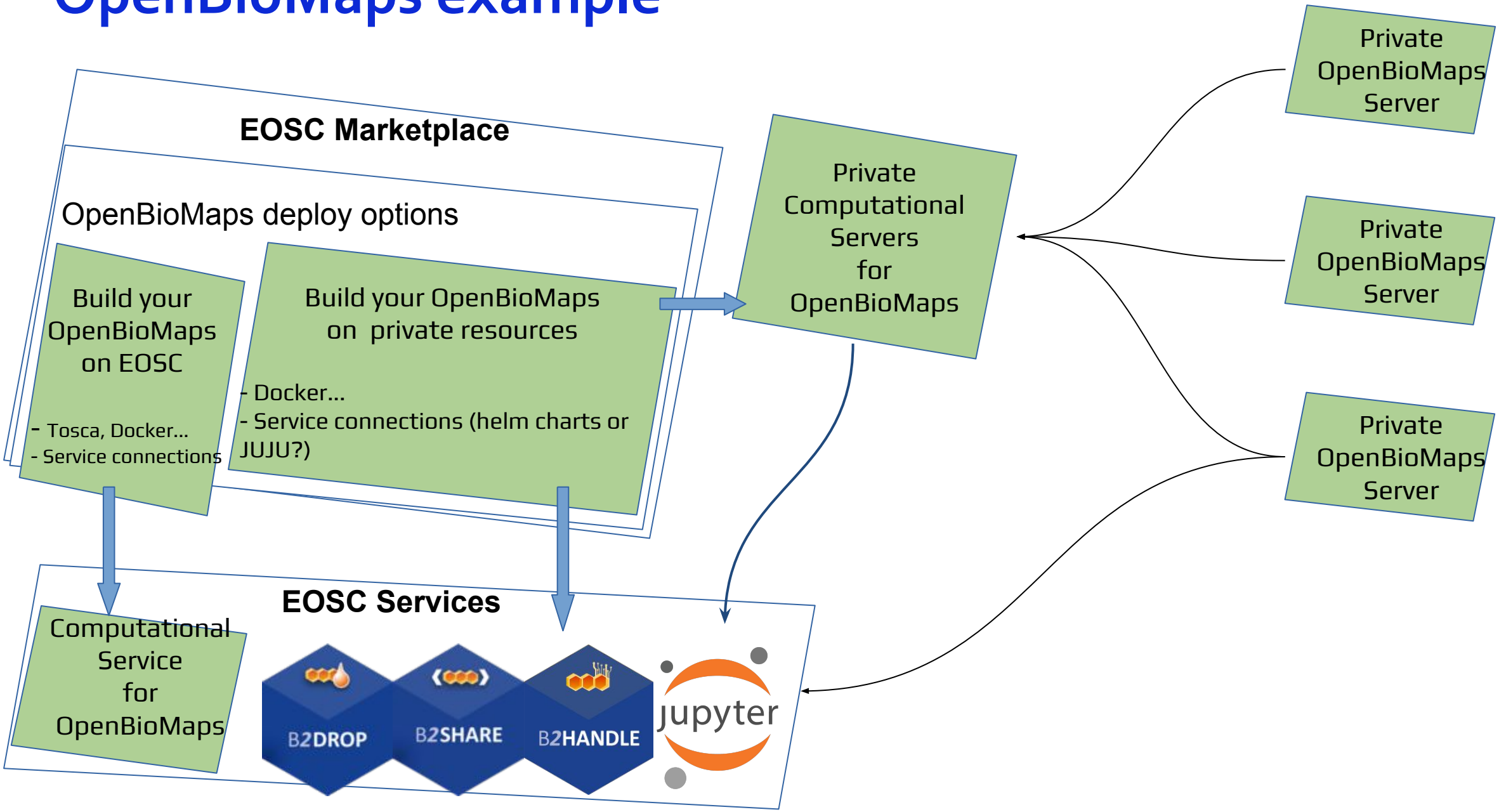
Scripts: Analyses files (R, Python, ...)

Results: Analyses output: figures, markdown files, text output e.g. log files...

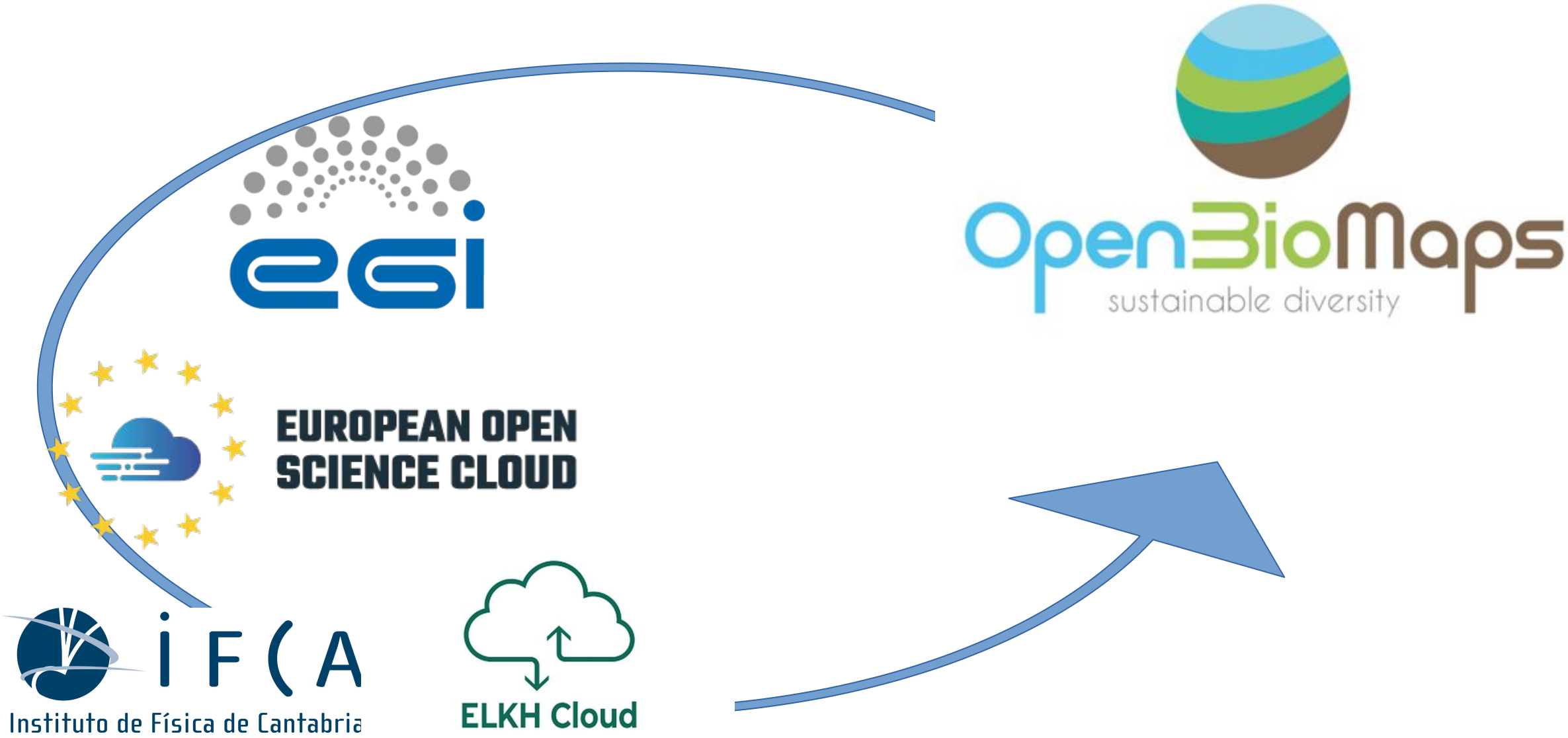
Remote execution:

Analyses are performed somewhere….

OpenBioMaps example



OpenBioMaps example



Thank you!

Ask us anything!