eosc | Blue-Cloud2026

Blue-Cloud VRE platform evolution and integration with EOSC resources and services - WP5 Overview

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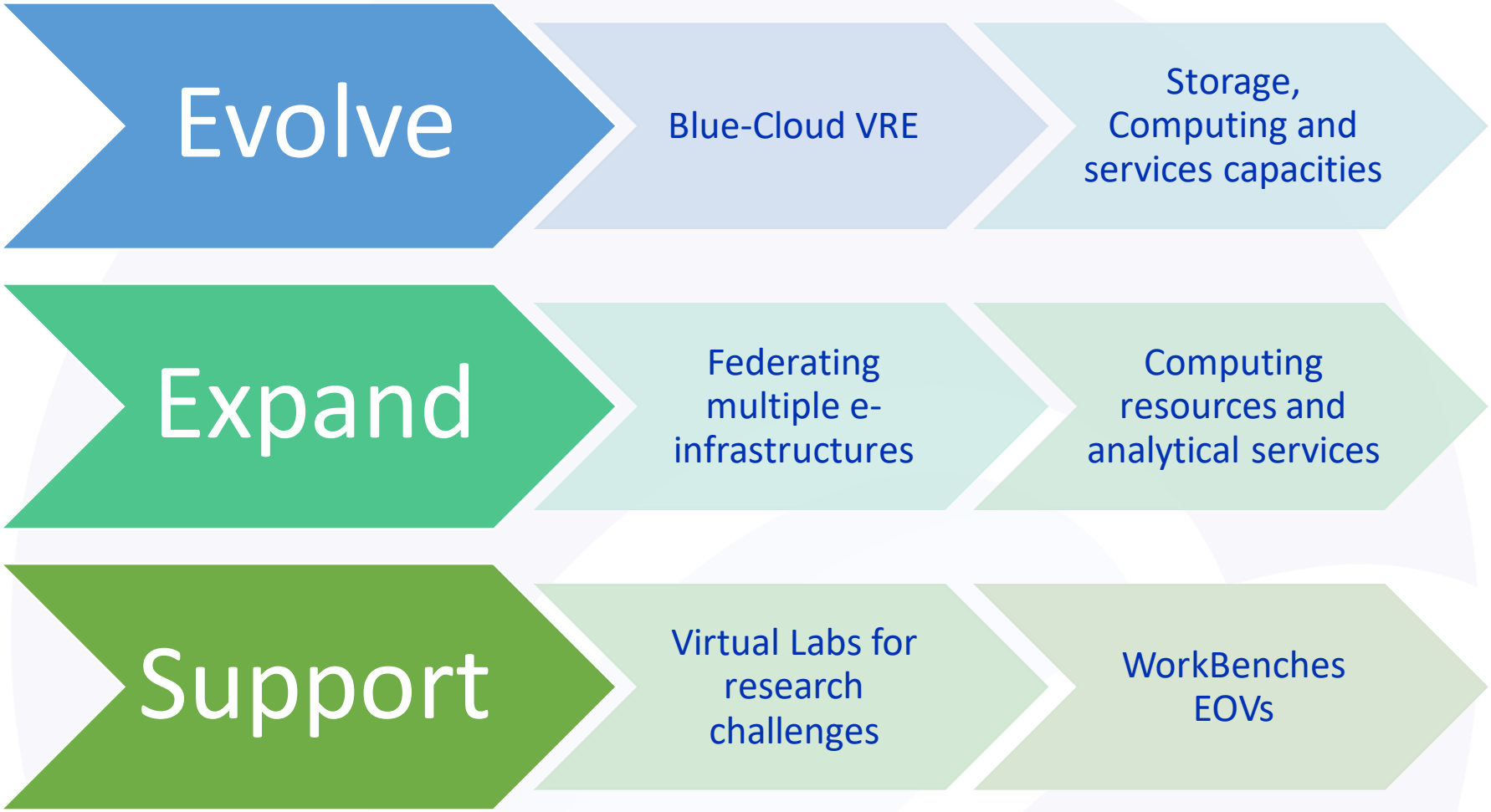
Funded by the European Union

WP5 Objectives



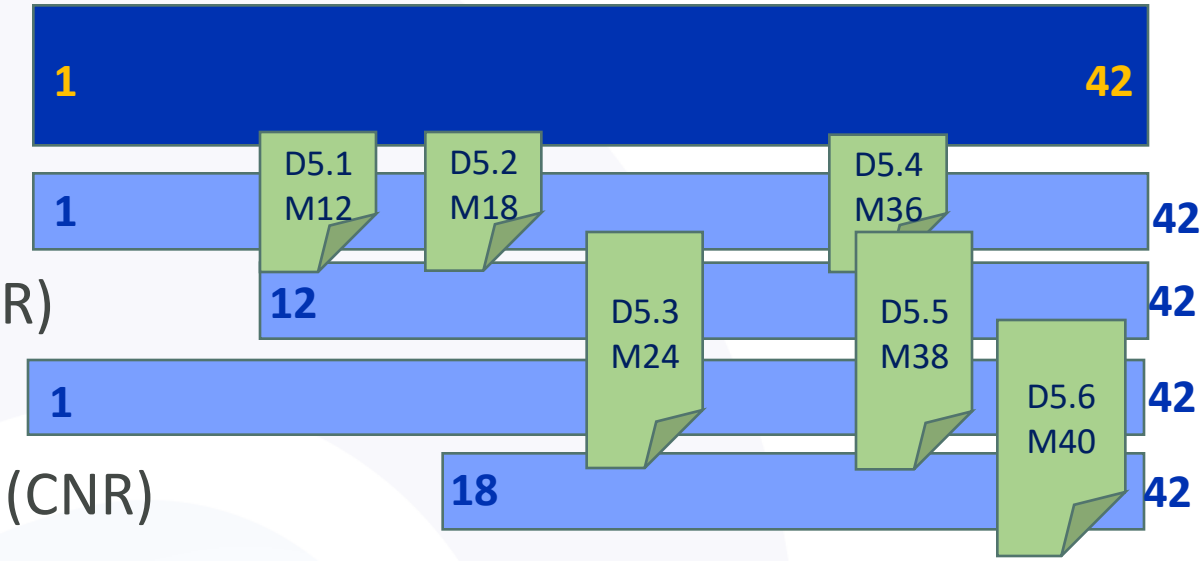
WP5 Overview- Task and responsibilities

WP5 Task and responsibilities

"VRE Platform Evolution and integration with EOSC resources and services" (CNR, 139 PM)

- T5.1: VRE common services (CNR)
- T5.2: VRE exp. by federating multiple e-infras (CNR)
- T5.3: VRE interaction with EOSC projects (EGI)
- T5.4: VRE interoperation with EOSC core services (CNR)

Timeline



M2 MS 5.1 BC VRE Gateway

M4 MS 5.2 BC VRE Monitoring Dashboard

M6 MS 5.3 BC VRE Service Mgmt. Processes

M40 MS 5.4 BC Services in EOSC

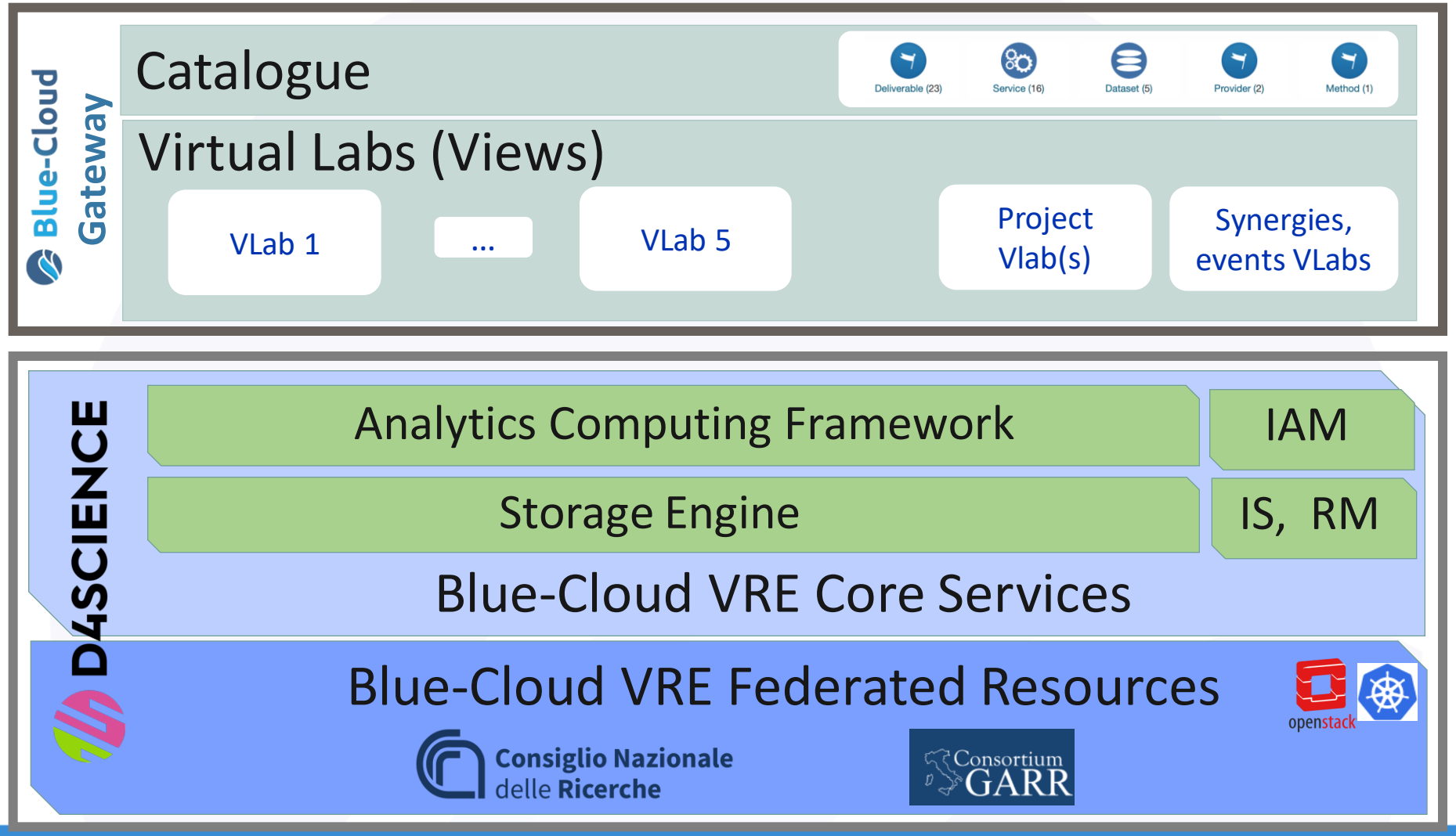
WP5 Deliverables

- D5.1: Blue-Cloud VRE Common Services (CNR-ISTI, M12)
- D5.2: Blue-Cloud VRE Operation Report (CNR-ISTI, M18)
- D5.3: Blue-Cloud VRE Federated Infrastructures (EGI, M24)
- D5.4: Blue-Cloud VRE Common Services Release 2 (CNR-ISTI, M36)
- D5.5: Blue-Cloud VRE Operation Report Release 2(EGI, M38)
- D5.6: Blue-Cloud VRE Interaction with EOSC Projects (EGI, M40)

Task 5.1 - Evolution

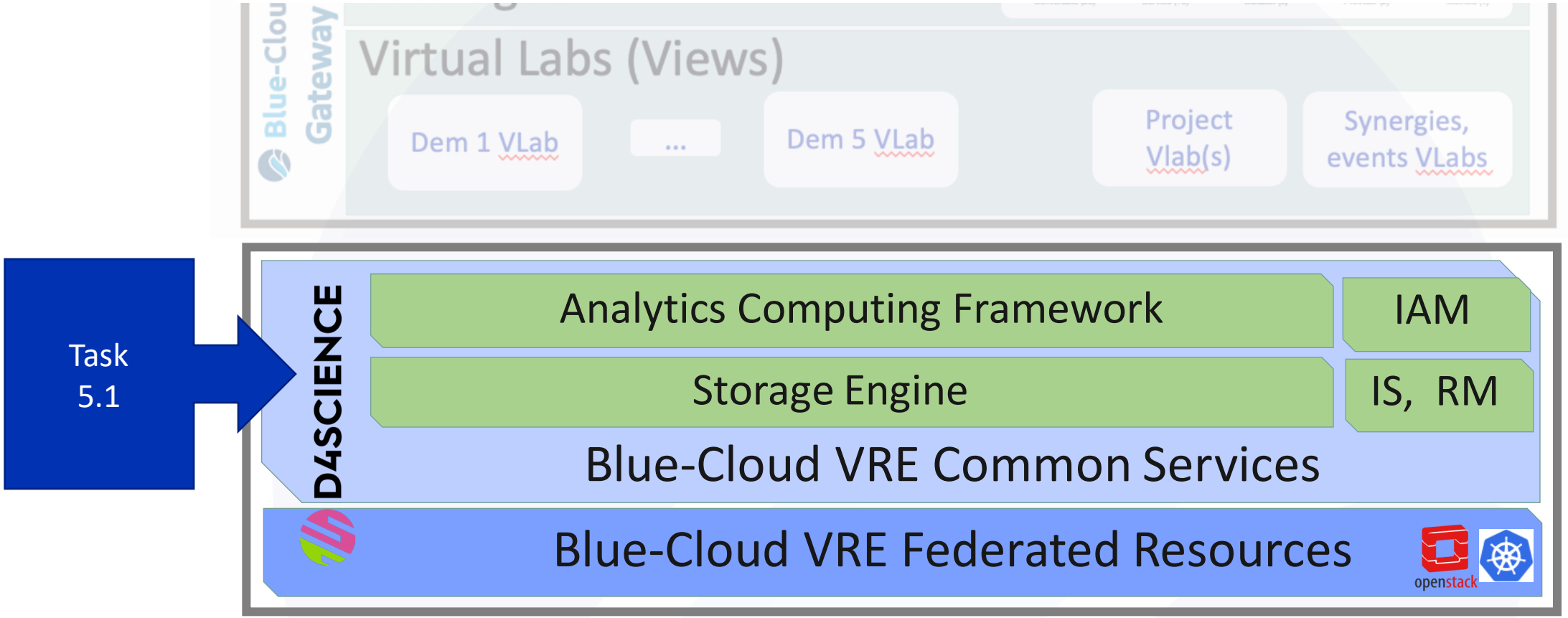
Blue-Cloud VRE – Logical View Today

https://blue-cloud.d4science.org



TASK 5.1 Evolution of common services

Lead: CNR; Partners: EGI, Nubis, GRNET



Blue-Cloud VRE – TASK 5.1 evolution of common services

Identity and Access Management (IAM) Service, Information System (IS), Resource Manager (RM), Storage Manager (SM), Analytics Computing Framework (ACF)

Storage Manager

strict consistency within the data center

eventual consistency across data centers to protect the data

Analytics Framework

support HTC on (Docker) containerised applications

support deployment over multiple Kubernetes clusters (Jupyter notebooks)

Task 5.2 - Expansion

1 6 12 18 24 30 36 42

T5.2

expansion by federating multiple e-infrastructures

Lead CNR; Partners: EGI, Nubis, IFREMER, MARIS, MOI, CMCC, CINECA, SOCIB, UvA

Expand

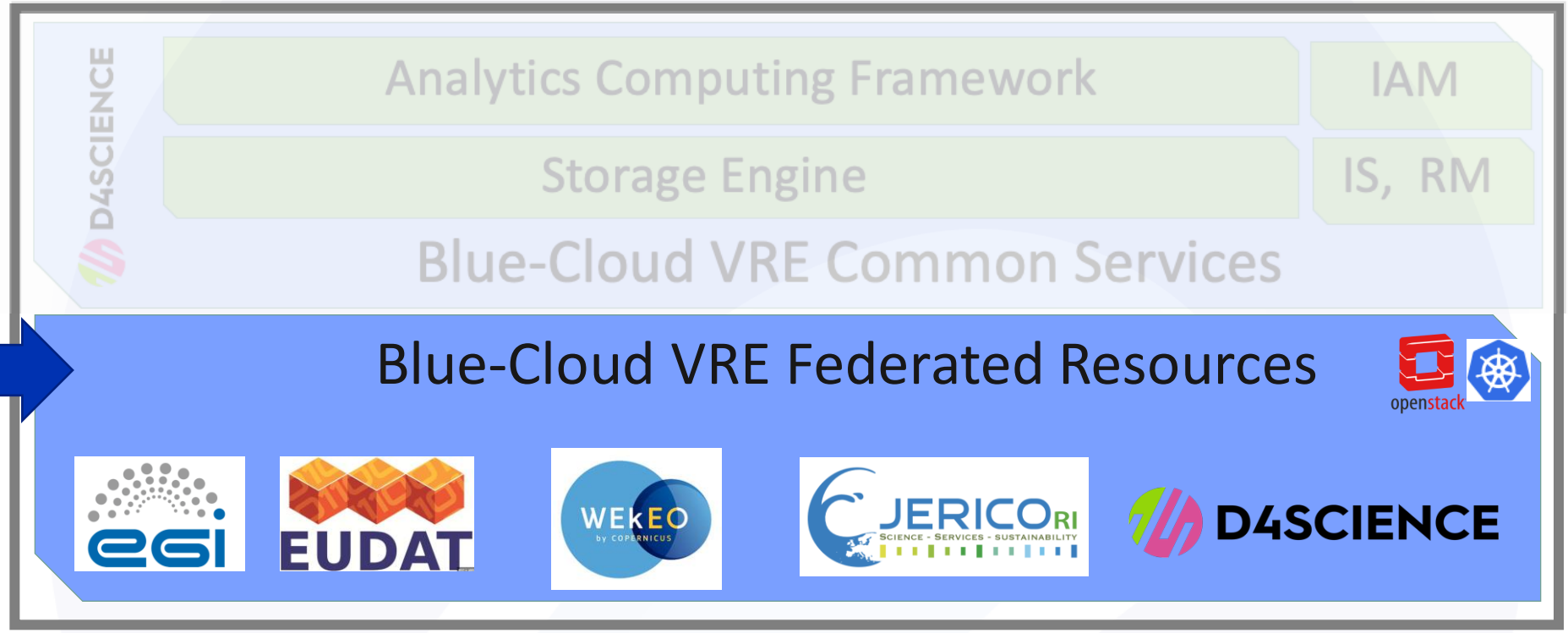
Federating multiple e-infrastructures

Computing resources and analytical services

TASK 5.2 Expansion by federating multiple e-infrastructures

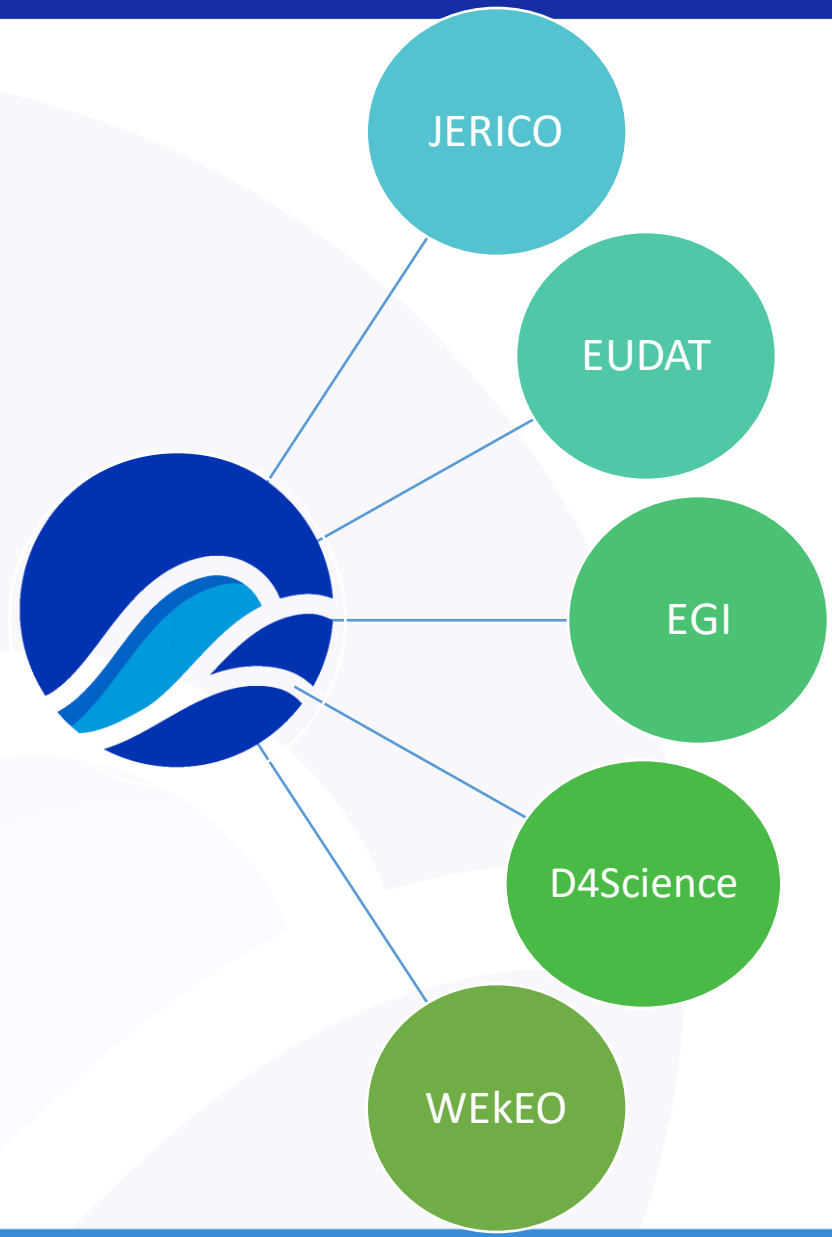
Lead CNR; Partners: EGI, Nubis, IFREMER, MARIS, MOI, CMCC, CINECA, SOCIB, UvA

Task 5.2



Blue-Cloud VRE – T5.2 expansion by federating multiple e-infrastructures

Each site providing computing resources will be federated either by an OpenStack region or a Kubernetes cluster

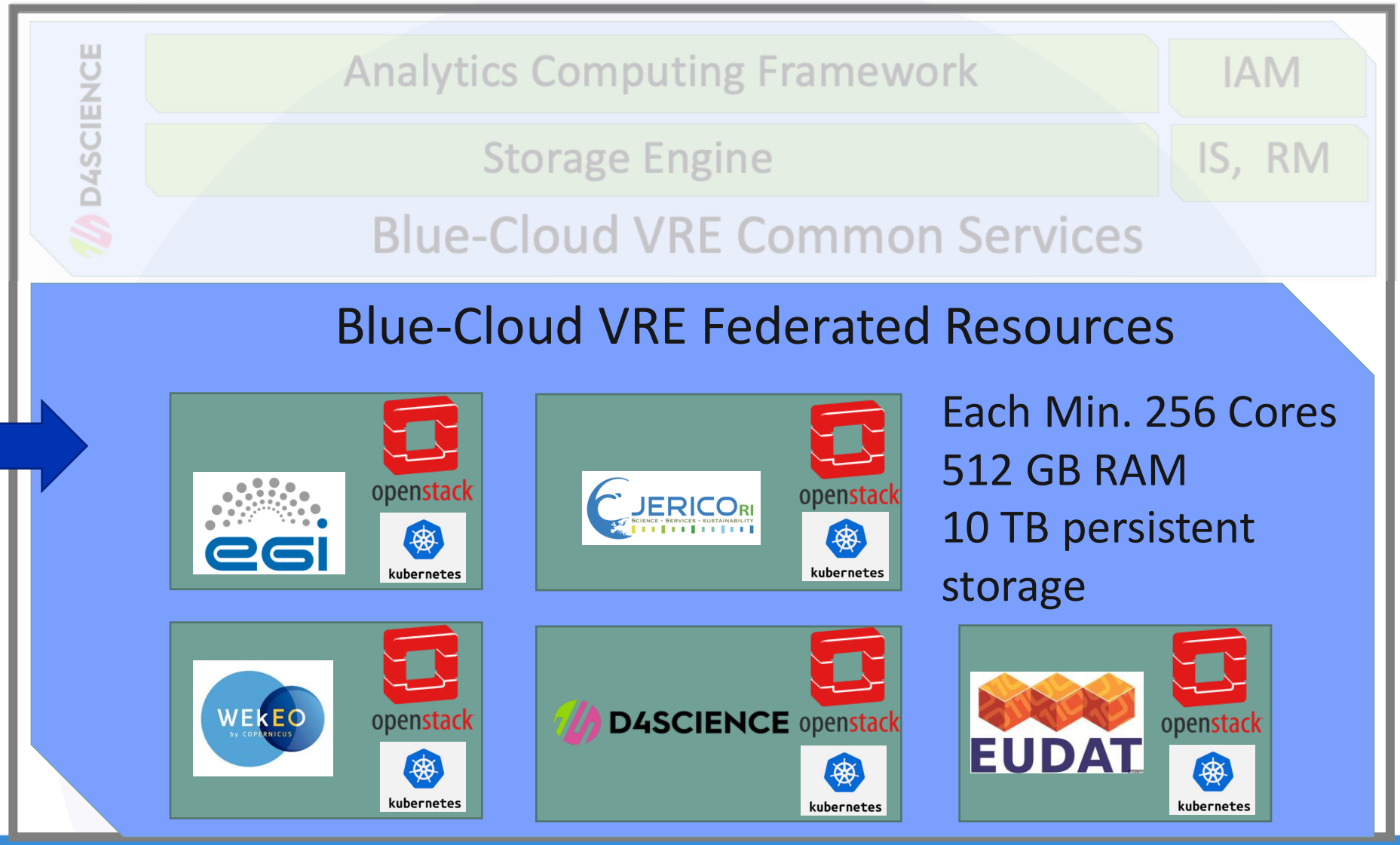


openstack

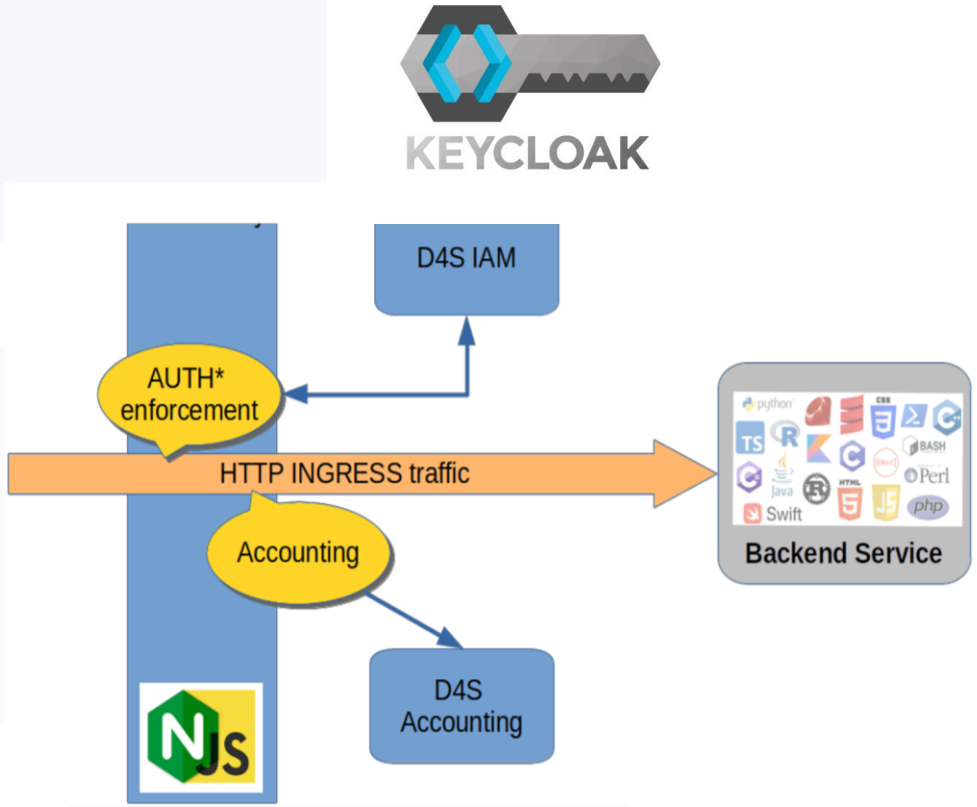
kubernetes

Blue-Cloud VRE – T5.2 expansion by federating multiple e-infrastructures

Task 5.2



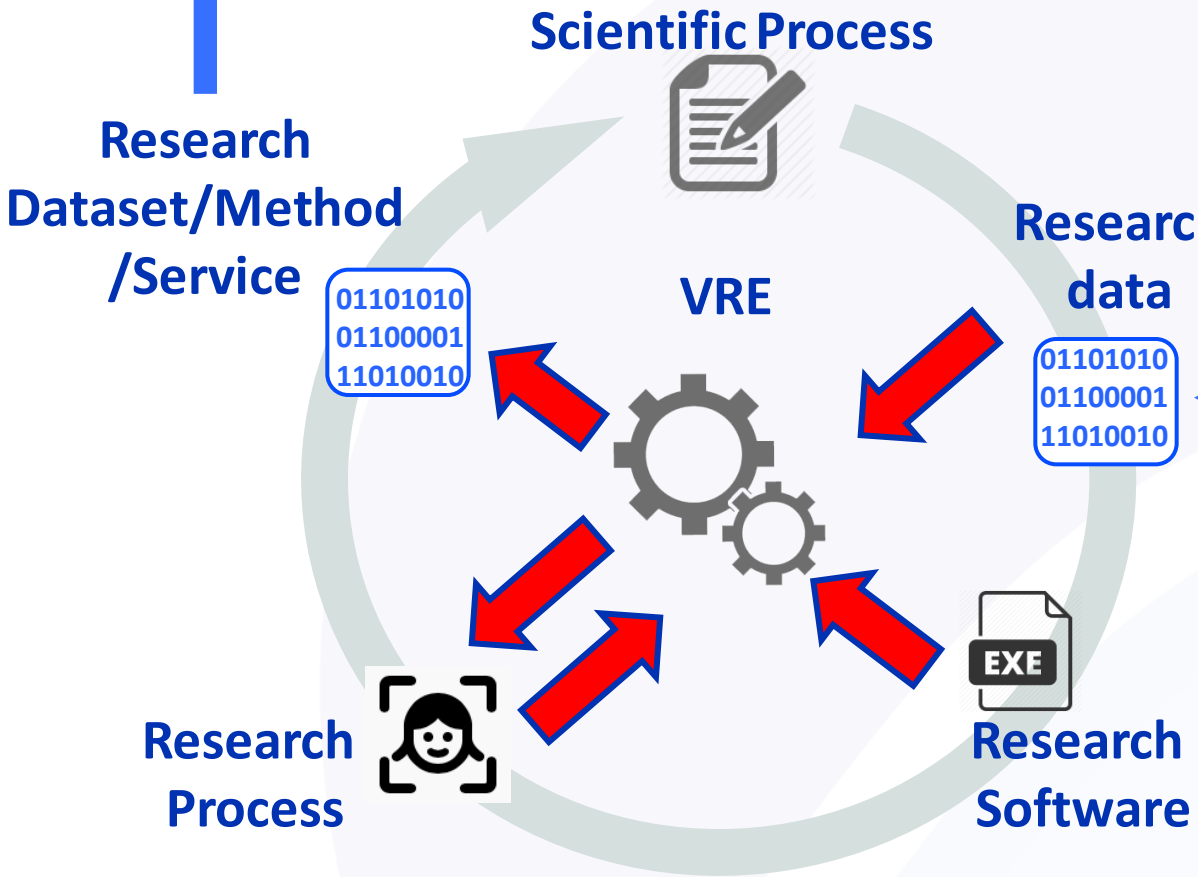
Third-party services operated in independent administrative OpenStack Regions will be linked and authorized through policy enforcement points (PEP) .

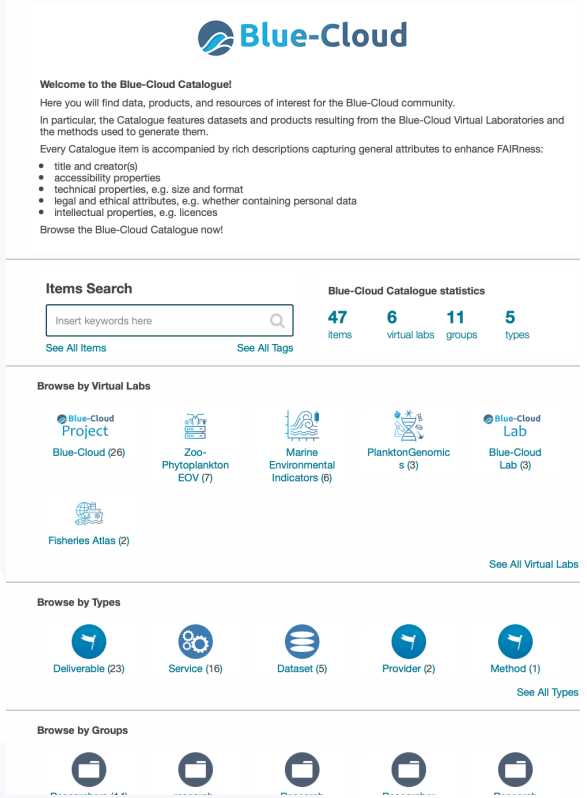


Task 5.4 - Interoperation

Prerequisite: Publishing in the Blue-Cloud Catalogue

Blue-Cloud Catalogue





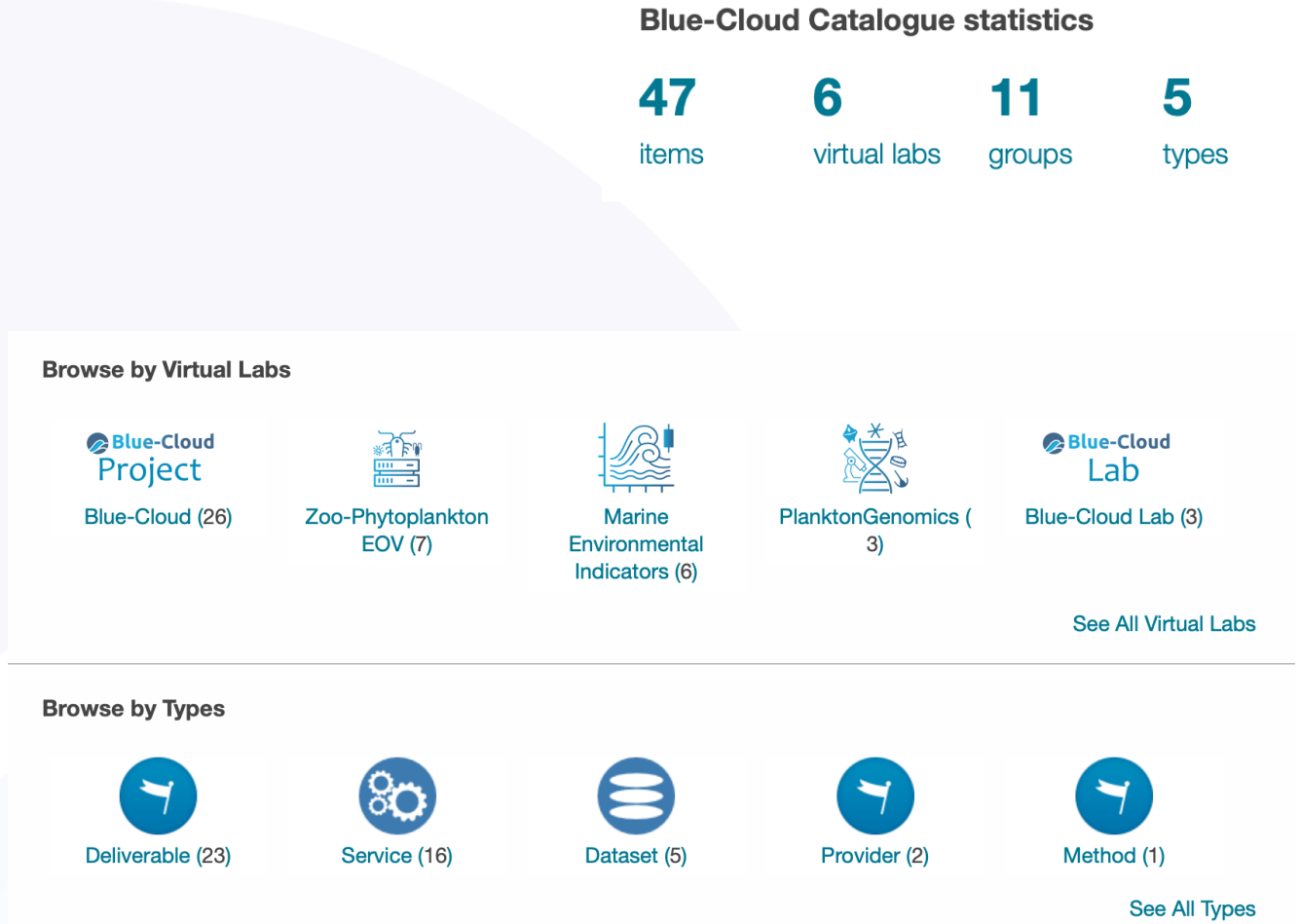
Resembles a catalogue of artefacts with **search and browse**

Every published item in the catalogue is characterised by:

a **type**, which highlights its features

an **open ended set of metadata**

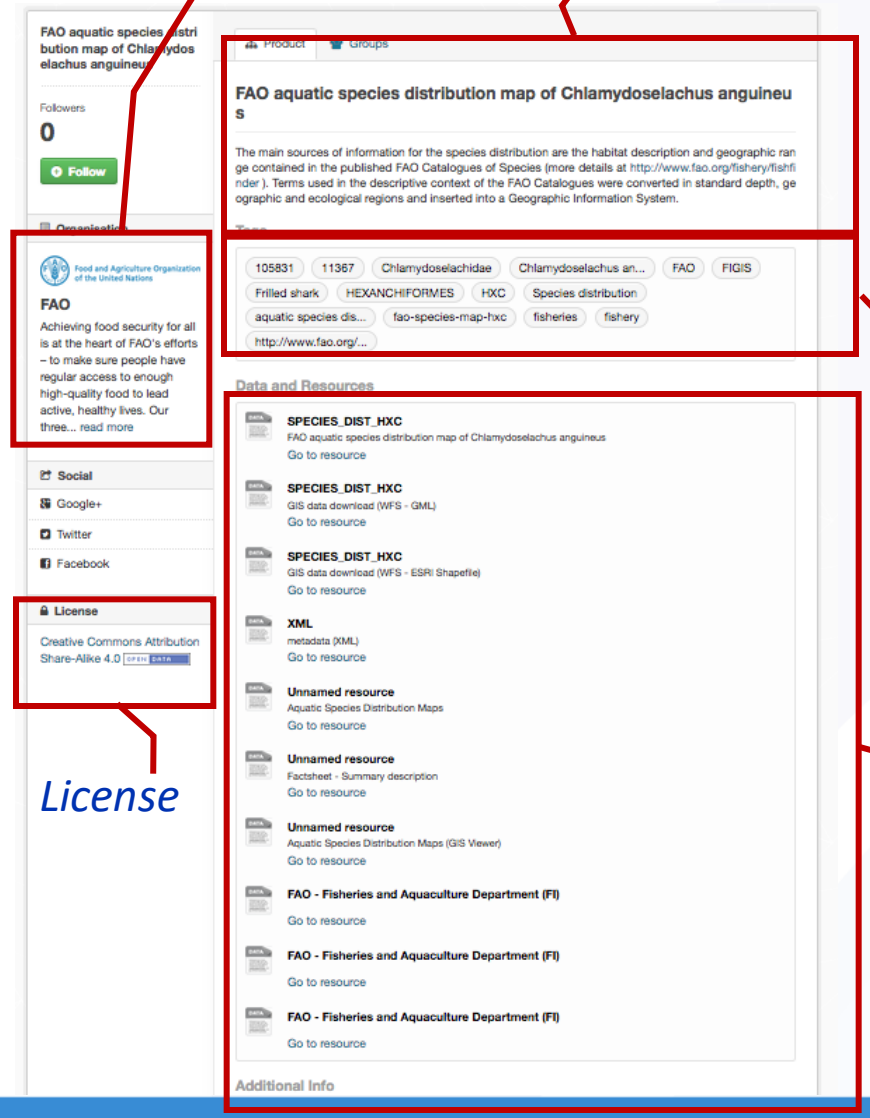
optional **resource**(s) representing the actual payload of the item.



An item example

Organization

Title & Description



PURL
QR-Code

Tags

License

Resources (item payloads)

Metadata

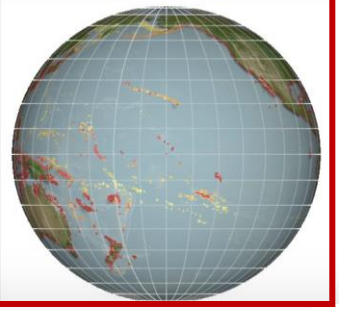
Item URL

http://data.d4science.org/ctlg/d4science.research-infrastructures.eu/sarda-sarda3

Geonetwork Links

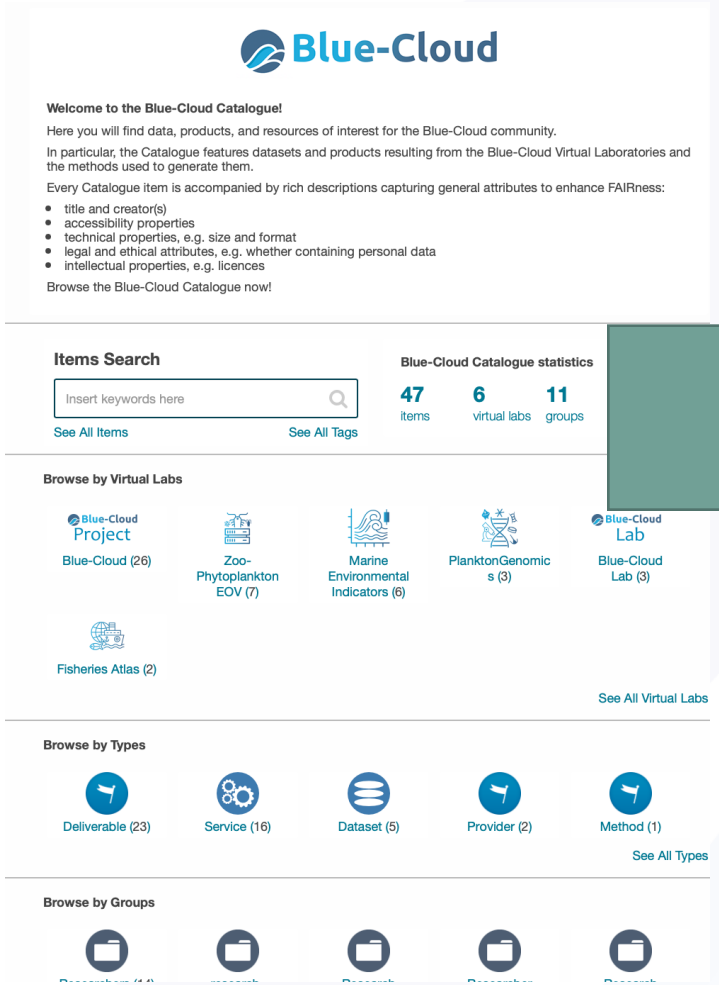
Field	Value
GN_Metadata_Show	http://geonetwork.d4science.org/geonetwork/srv/en/metadata.show?uuid=b9bd0ef9-76f9-4fb9-8f98-1c36557bc5f8
GN_Metadata_Source	http://geonetwork.d4science.org/geonetwork/srv/en/xml.metadata.get?uuid=b9bd0ef9-76f9-4fb9-8f98-1c36557bc5f8
GN_URL	http://geonetwork.d4science.org/geonetwork

Additional Info

Field	Value
access_constraints	[]
bbox-east-long	180.0
bbox-north-lat	90.0
bbox-south-lat	-90.0
bbox-west-long	-180.0
contact-email	info@i-marine.eu
coupled-resource	
dataset-reference-date	type: creation value: 2013-04-12T01:13:51.731+02:00
frequency-of-update	asNeeded
graphic-preview-file	

Blue-Cloud Catalogue to EOSC Market place

Blue-Cloud services, regularly registered in the Blue-Cloud Catalogue, will also be made accessible through the EOSC marketplace.



Blue Task Force Duties

EOSC Blue Task Force (CNR, EGI, GRNET)
Blue-Cloud integration with EOSC core services

Ensure the compliance of the Blue-Cloud technical framework with the EOSC principles for service mgmt.

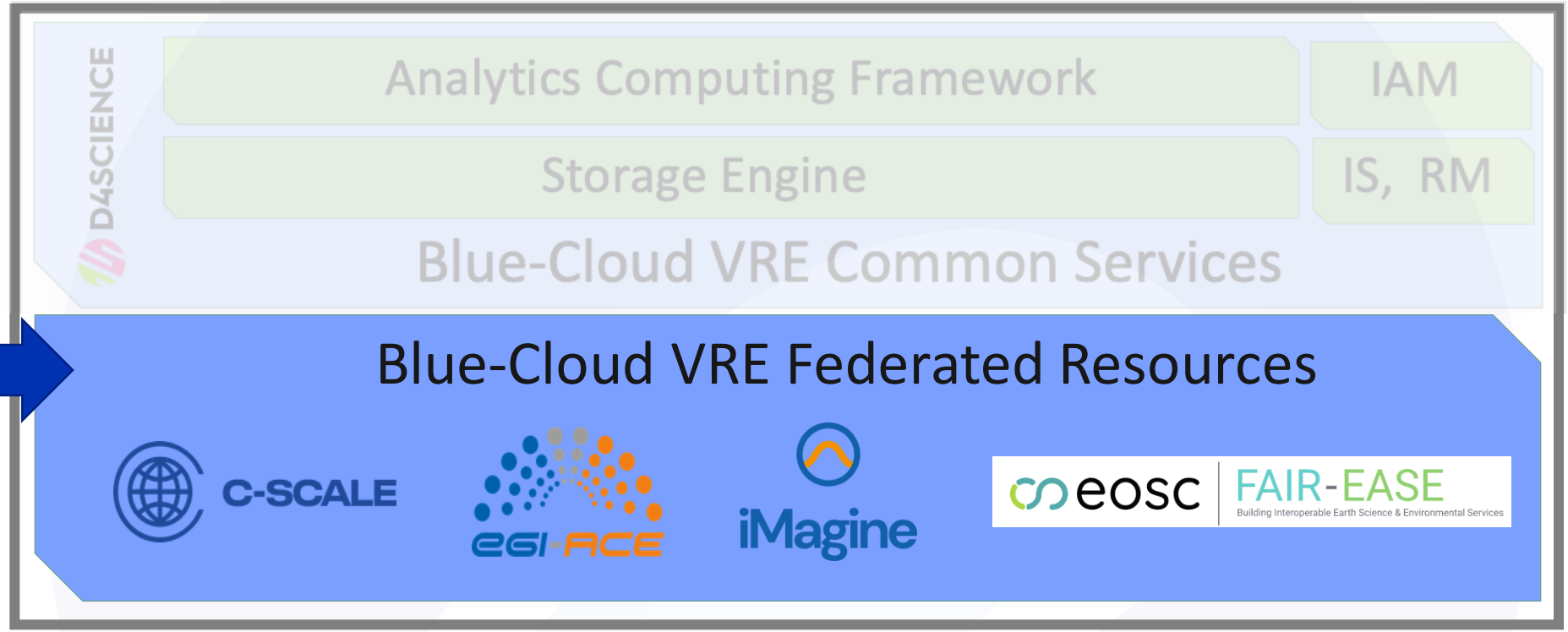
- Service Level Agreement (SLA)
- Operation Level Agreement (OLA)
- Incident and service request management
- service availability and continuity management.

Task 5.3 - Interaction with EOSC Projects

TASK 5.2 Interaction with EOSC projects

Lead EGI; Partners: MARIS, CNR, CMCC

Task 5.3



Blue-Cloud VRE – T5.3 interaction with EOSC projects

T5.3 will engage with funded H2020 and HE projects to perform technical integration and setup of SLAs

EGI-ACE & C-SCALE

- Federated Compute platform (HTC, HPC, Cloud) with computing orchestrators and data management services
- C-SCALE focused on Earth Observation
- **Both projects end in June 2023!**

iMAGINE

- Portfolio of ‘free at the point of use’ image datasets and AI-based high-performance image analysis tools

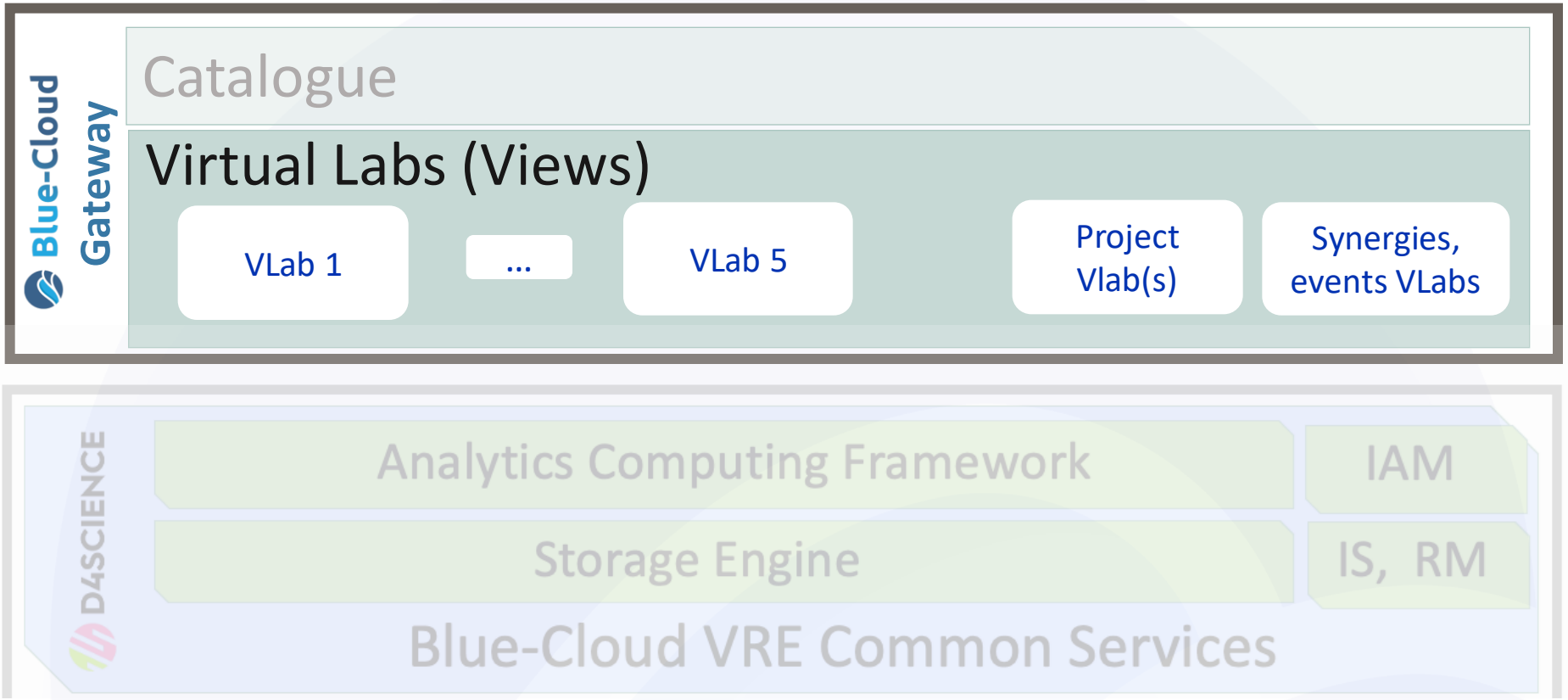
FAIR-EASE

- Distributed and integrated services for the observation and modelling of the Earth system, environment and biodiversity.
- Based on existing Blue-Cloud developments

Support Virtual Laboratories

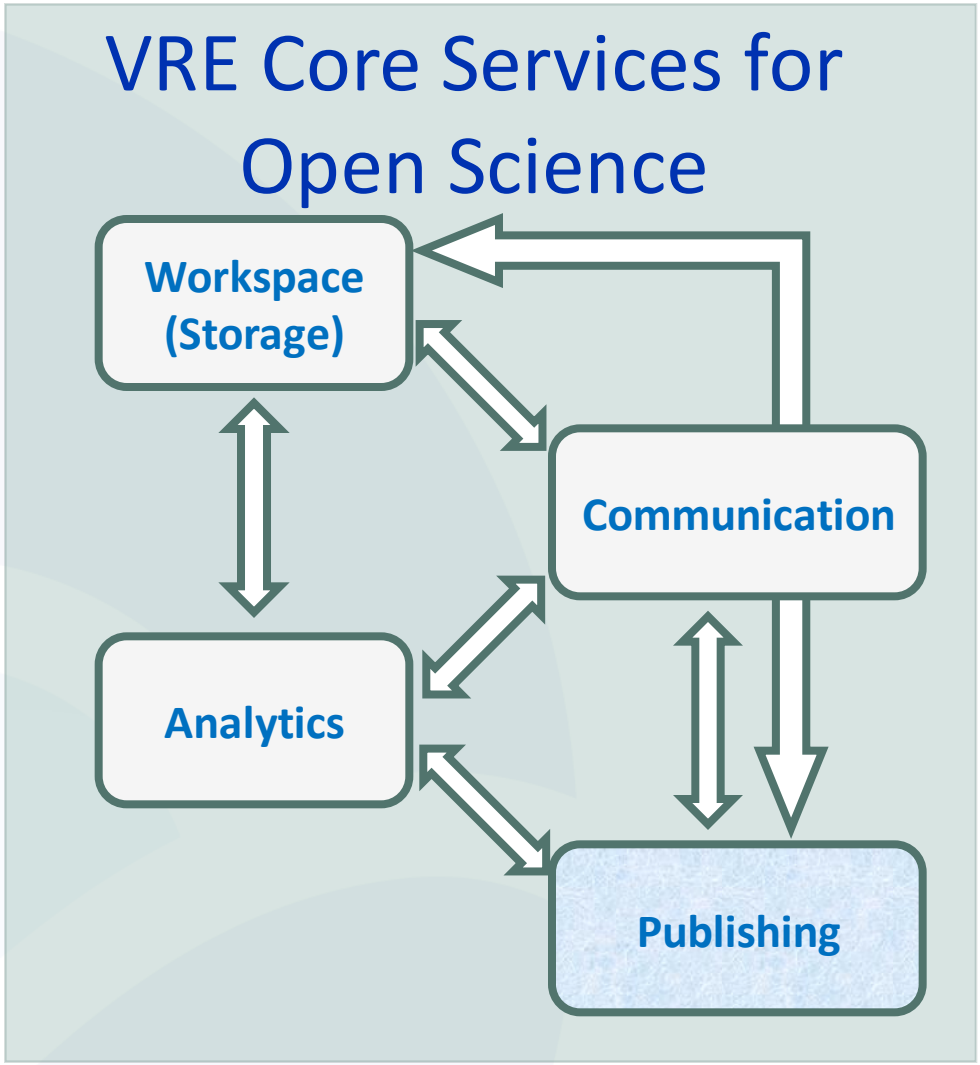
Close collaboration among the 4 WPs

Support for Vlabs - Possibilities



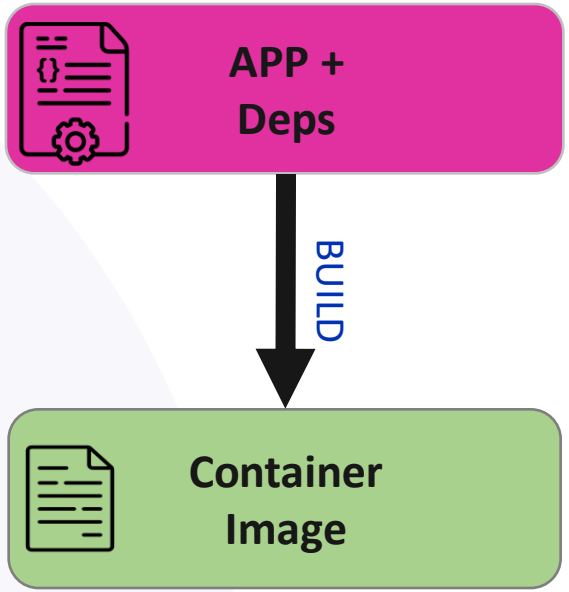
VLab tools

- Highly Configurable Jupyter Notebook env.
- Rstudio Version 4+ env.
- Shiny Apps (R and Python?)
- Custom Service/Apps



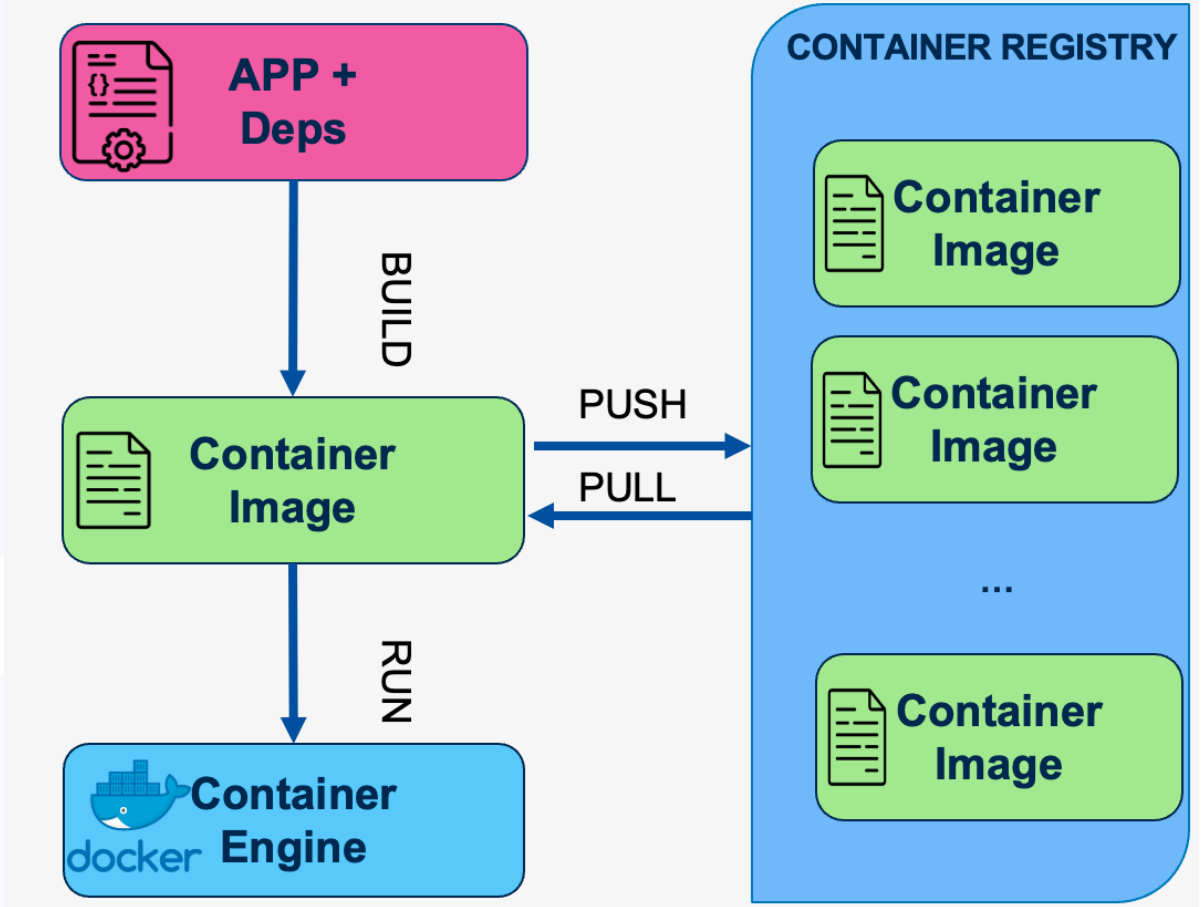
Custom Service as Containerized Application - Images

- Containerized applications are applications that run in isolated runtime environments called *containers*
- *containers* encapsulate an application with all its dependencies, including system libraries, binaries, and configuration files.
- Container images include (in a file) everything a container needs to run—the container engine such as Docker



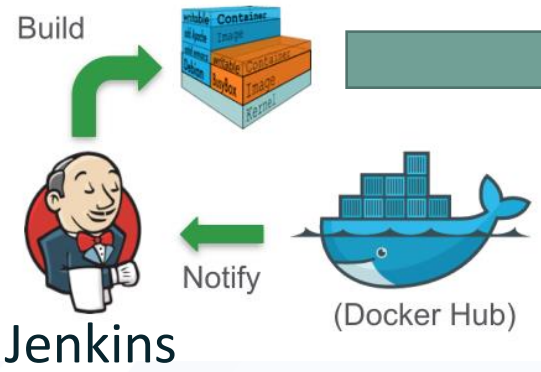
Containerized Application Context – Container Registry

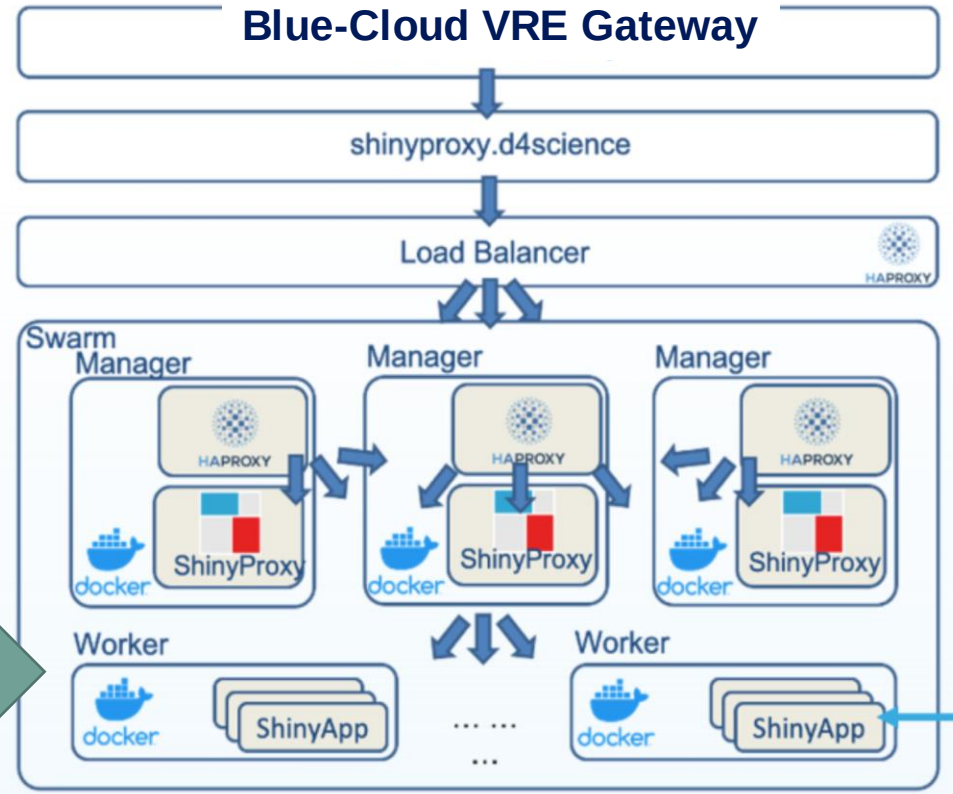
- Container images can be shared with others via a public or private container registry
- Blue-Cloud uses Docker hub* as Registry



Integrating Applications – CI/CD - the Shiny Apps Case

- **Automated Deployment processes**
  - It can be a public app available in Docker Hub or any other public container registry.
  - The image name and the run command are the only requirements.





Integrating Applications in the Blue-Cloud VRE - How

To delegate to Blue-Cloud VRE not only the hosting

- Authentication & Authorization
- User Roles Mgmt.
- Auditing / Accounting
- Metrics / Monitoring

KEYCLOAK

NGINX

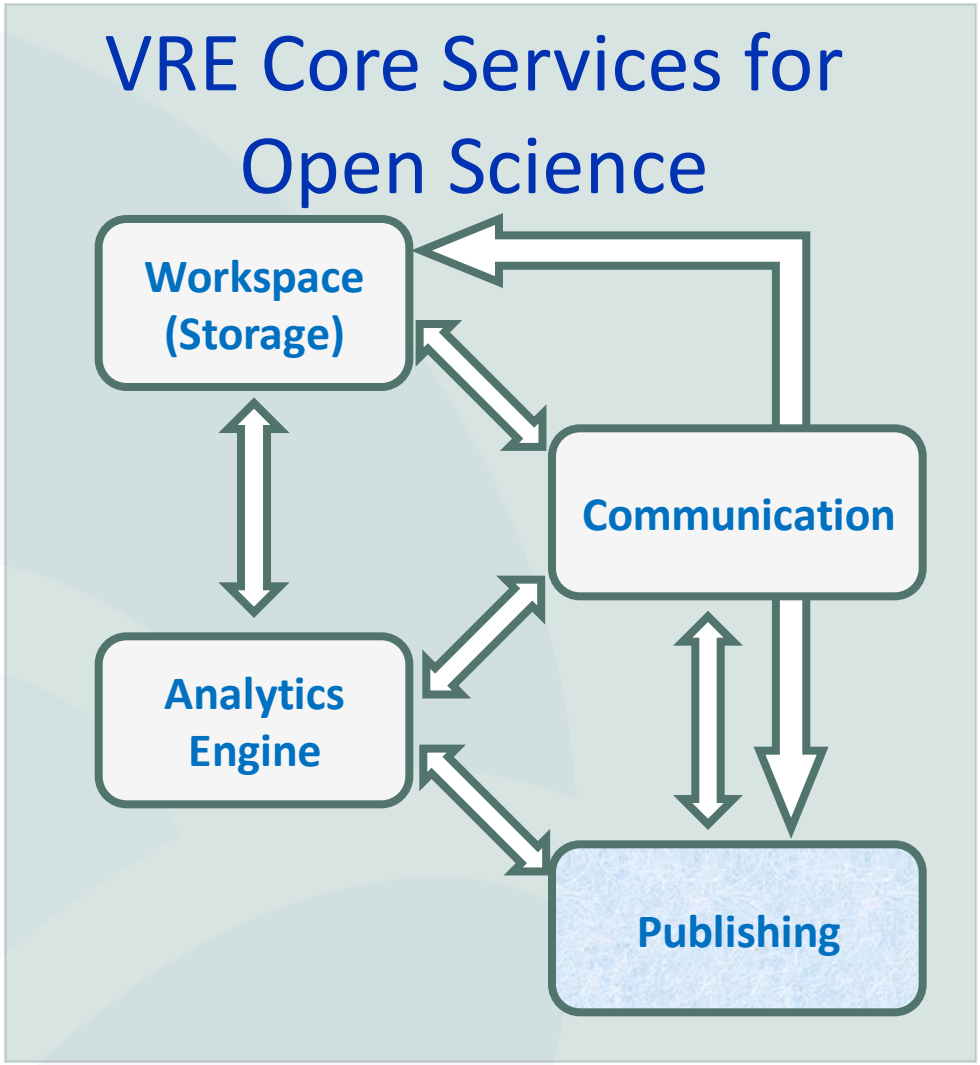
Grafana

Prometheus

gCUBE FRAMEWORK

Learning how to integrate your Service/App and exploit the VRE Core Services in VLabs

Dedicated Workshop / Training Academy course?



THANK YOU

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