

Blue-Cloud 2026 core & generic services

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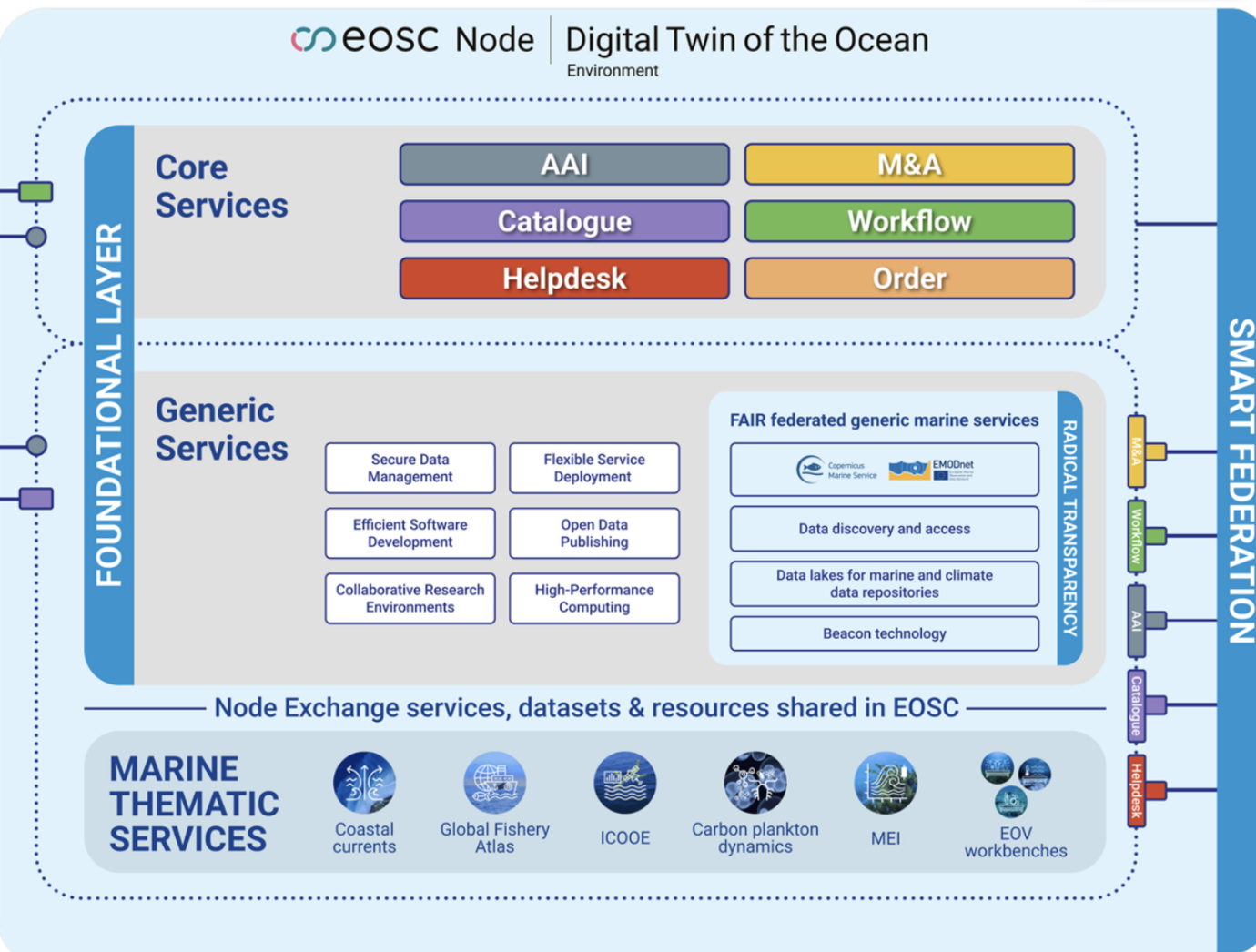
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<https://www.nubisware.com>



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the European Union¹



The Node integrates **Core Services** and **Generic Services** within a federated environment

Smart Federation with EOSC Core and other thematic nodes, adopting EOSC interoperability and federation practices.

Marine **Thematic Services** and **EOJ Workbenches** exchange data and resources through this shared infrastructure.

The Foundational Backbone of the Node

These services ensure trust, transparency and operational excellence across the EOSC federation.

- **AAI (Authentication and Authorisation Infrastructure):** unified and secure access to federated resources.
- **Monitoring and Accounting:** continuous tracking of usage, performance and reliability.
- **Catalogue:** discovery and access to datasets, tools and applications through the EOSC federation.
- **Workflow Management:** orchestration of complex analytical processes and reproducible pipelines.
- **Helpdesk and Support:** single entry point for user requests, onboarding and operational assistance.
- **Order Management:** coordination and delivery of services across the federated env. (through the on-demand creation of Virtual Labs)

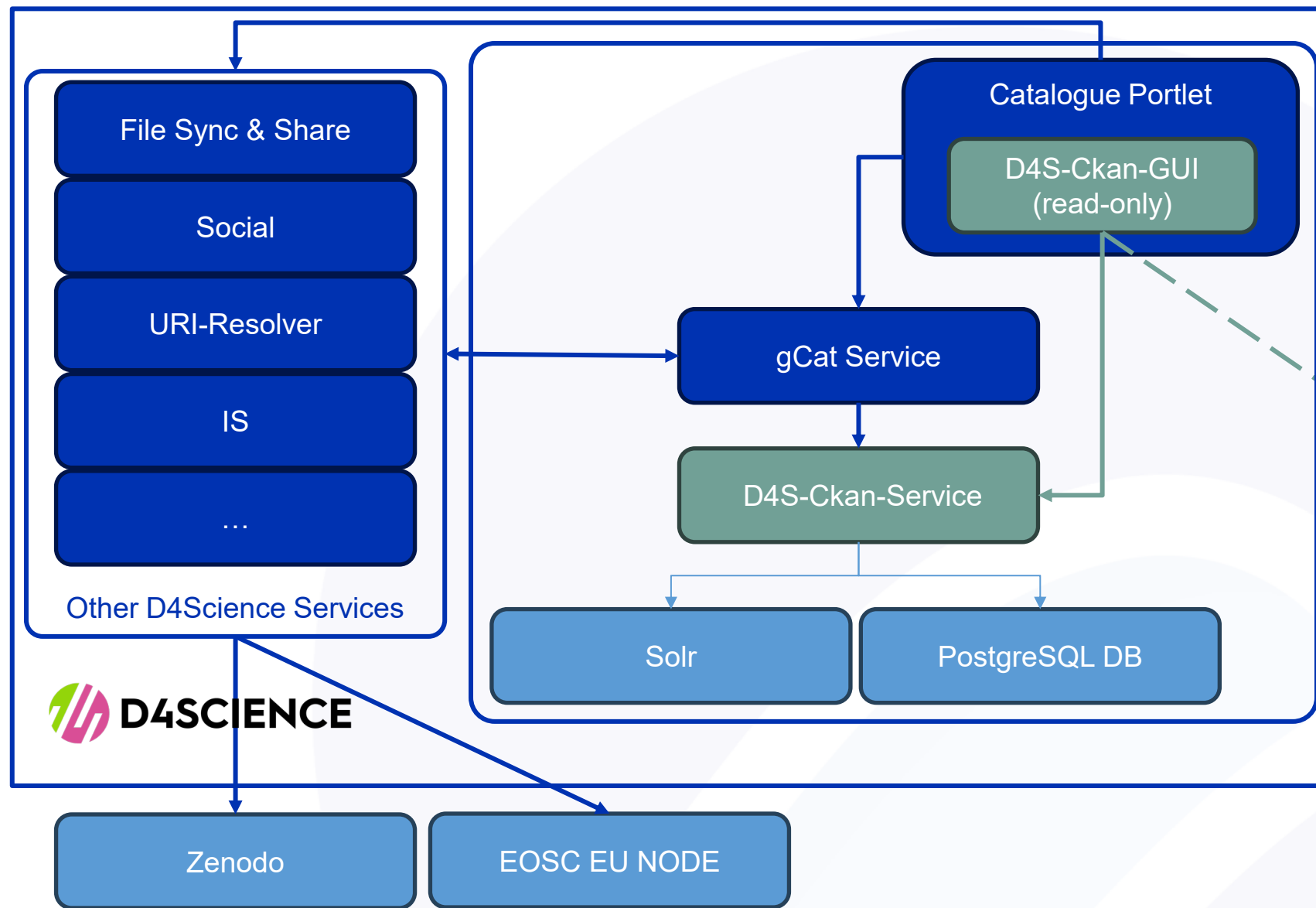
Generic services provide:

- **Integrated FAIR Federated Marine Capabilities:**
 - **Data Discovery and Access** through harmonised catalogues
 - **Data Lakes** enabling high-performance subsetting of marine and climate datasets
 - Integration of **CMEMS**, **EMODnet** and **EDITO** resources for predictive analytics
- **Open Data Publishing** connected to the EOSC Knowledge Graph
- **Collaborative Research Environments** including **File Sync and Share**, **Interactive Notebooks** and data analytics tools
- **Cloud and High Performance Computing** for model training and simulation

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Part of next presentation



eOSC Node | Digital Twin of the Ocean Environment

Welcome to the Blue-Cloud Catalogue!

Here you will find data, products, and resources of interest for the Blue-Cloud community. In particular, the Catalogue features datasets and products resulting from the Blue-Cloud Virtual Laboratories and the methods used to generate them.

Every Catalogue item is accompanied by rich descriptions capturing general attributes to enhance FAIRness:

- title and creator(s)
- accessibility properties
- technical properties, e.g. size and format
- legal and ethical attributes, e.g. whether containing personal data
- intellectual properties, e.g. licences

Browse the Blue-Cloud Catalogue now!

Items Search

[See All Items](#)
[See All Tags](#)

Blue-Cloud Catalogue statistics

56	11	11	5
items	virtual labs	groups	types

Browse by Virtual Labs

Blue-Cloud Project
Blue-Cloud (35)

Zoo-Phytoplankton EOVI (7)

Marine Environmental Indicators (7)

PlanktonGenomics (3)

Blue-Cloud Lab (3)

Fisheries Atlas (1)

[See All Virtual Labs](#)

Browse by Types

Deliverable (32)

Service (16)

Dataset (5)

Provider (2)

Method (1)

[See All Types](#)

The Catalogue has been designed to publish Items, i.e., a digital objects.

Every **item** published in the catalogue:

- has a **Type**, which highlights its features:
 - each type is associated to a specific **Metadata** Profile (or schema).
- belongs to one (an only one) **Virtual Lab** (aka Ckan Organization);
- is associated with one or more **Groups** which is used to collect items by certain characteristics, e.g., subject, theme;

Items Search


[See All Items](#)
[See All Tags](#)

Blue-Cloud Catalogue statistics

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Browse by Types



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Fisheries Atlas (1)

Virtual Labs

[See All Virtual Labs](#)

Browse by Groups



Researchers (14)



research-groups (10)


Research
communities (10)

Researcher
groups (9)

Research
projects (9)

research-
organisations (7)

research-
networks (6)


policy-makers (5)



Students (3)


research-
managers (3)

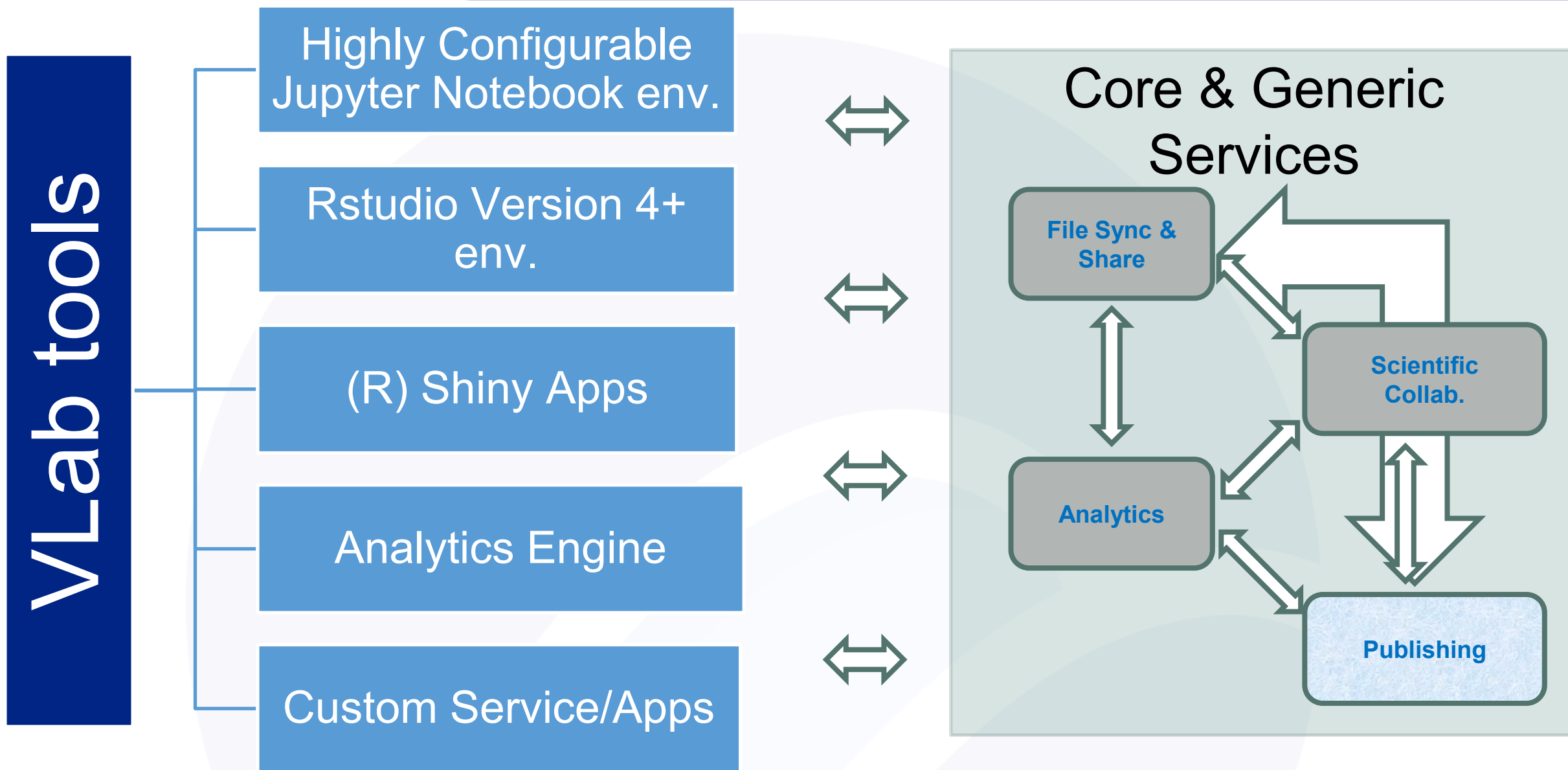
Groups

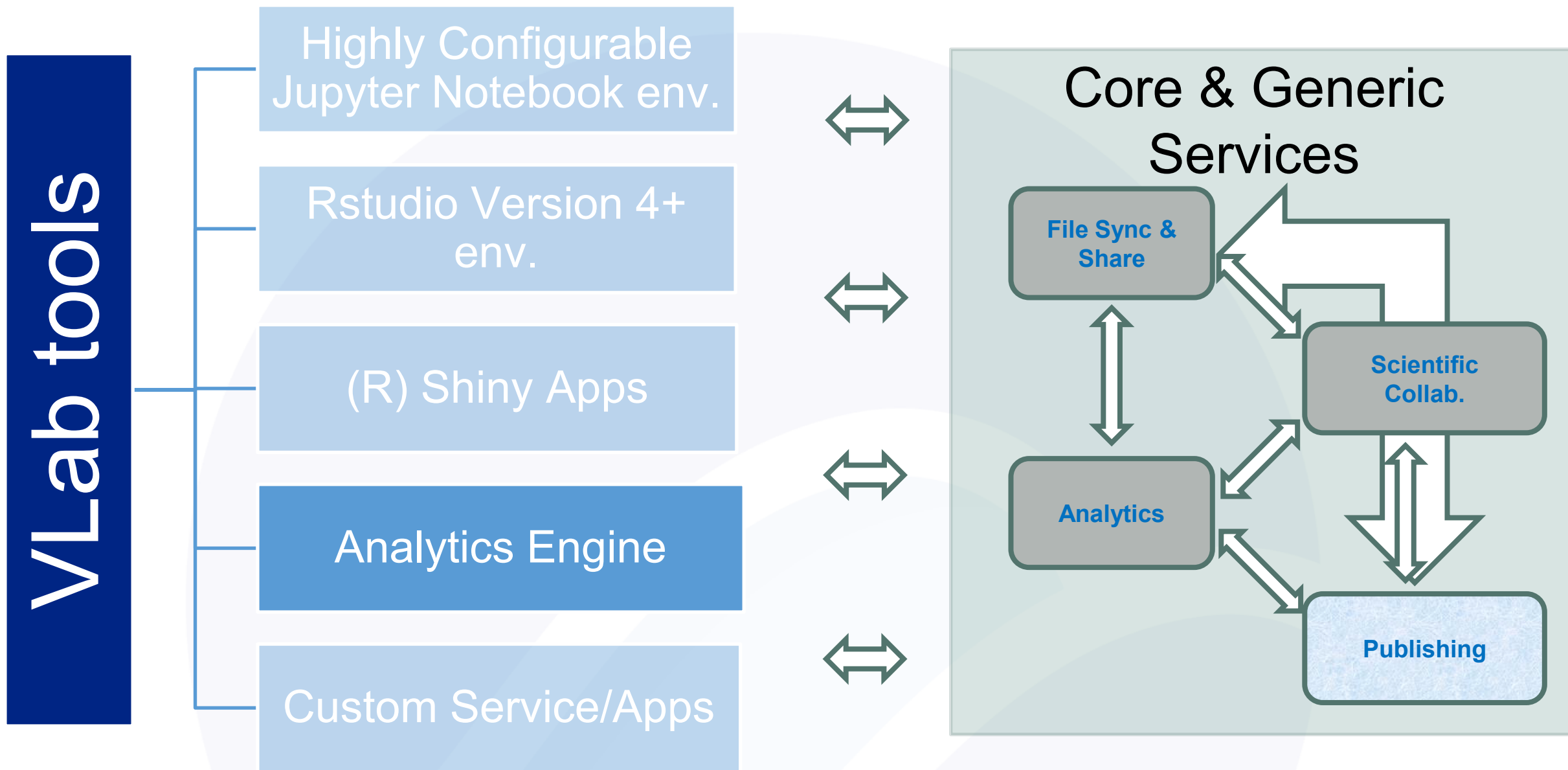
[See All Groups](#)

Virtual Labs at-a-glance

The collage displays several virtual lab interfaces:

- AquacultureAtlas**: A web application for managing aquaculture data, showing a map of South Sulawesi with various regions highlighted.
- FisheriesAtlas**: A web application for managing fisheries data, showing a map of the Mediterranean Sea with various regions highlighted.
- ESA CCI Ocean Colour**: A web application for ocean color data, showing a map of the Mediterranean Sea with various regions highlighted.
- Jupyter Notebook**: A web application for running code, showing a notebook titled "Demonstrator 2 - Notebook 1.2. - Creating protein functional clusters for Notebook 2".
- GlobalFisheriesAtlas**: A web application for managing fisheries data, showing a map of the world with various regions highlighted.
- Blue-Cloud Lab**: A web application for managing data, showing a map of the world with various regions highlighted.
- Marine Environmental Indicators**: A web application for managing marine environmental indicators, showing a map of the Mediterranean Sea with various regions highlighted.





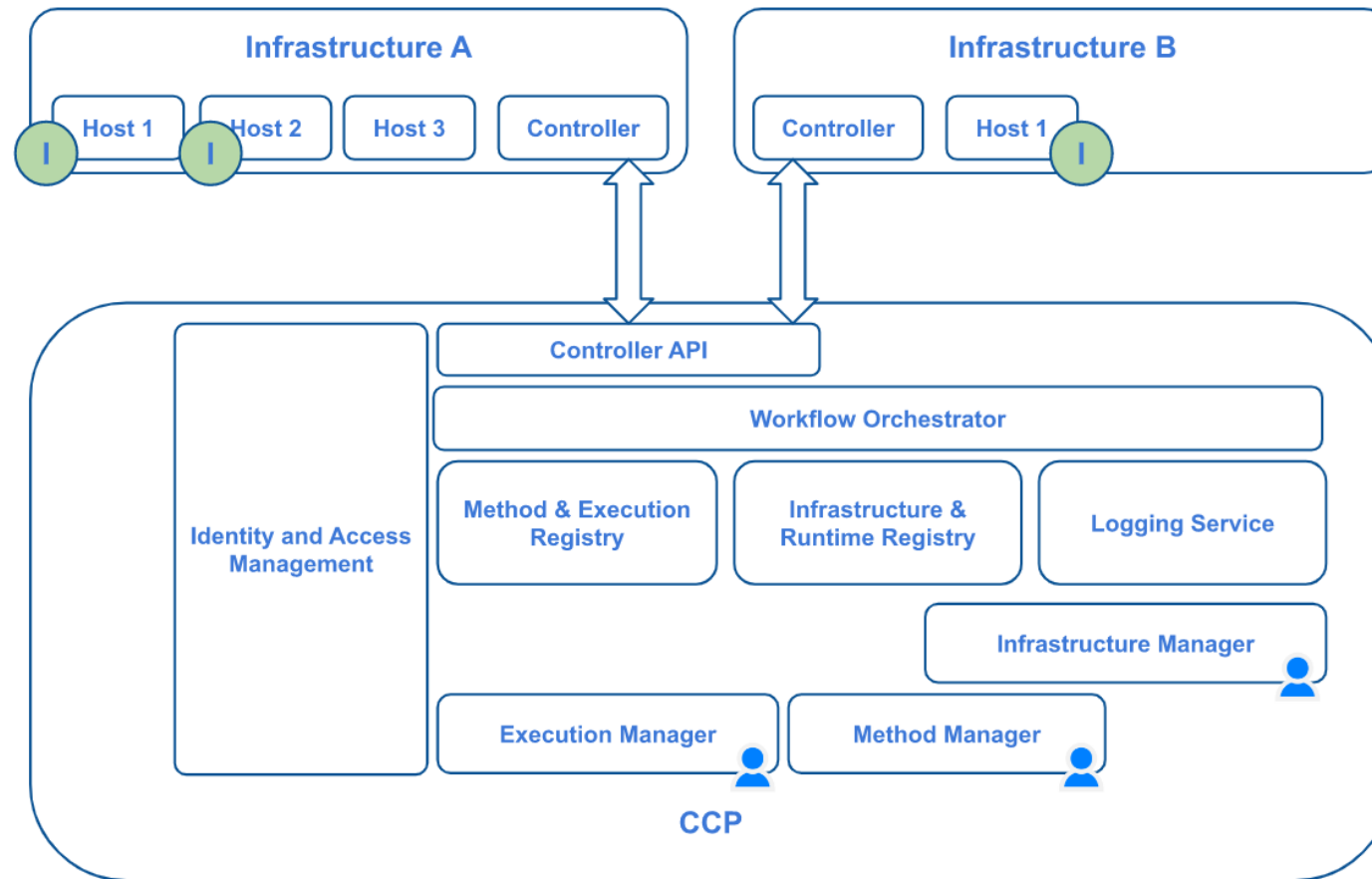
Analytics Engine - CCP in a nutshell

- **User-friendly data analytics platform** offering on-demand, scalable computing resources on the Cloud.
- **Supports method import and execution**, allowing collaboration through the sharing of methods, inputs, executions, and results with colleagues.
- **Facilitates seamless team collaboration** by enabling users to work together, sharing the same data and applications.
- **Built on modern technologies** such as containerization, REST APIs, and JSON, ensuring flexibility, scalability, and interoperability.

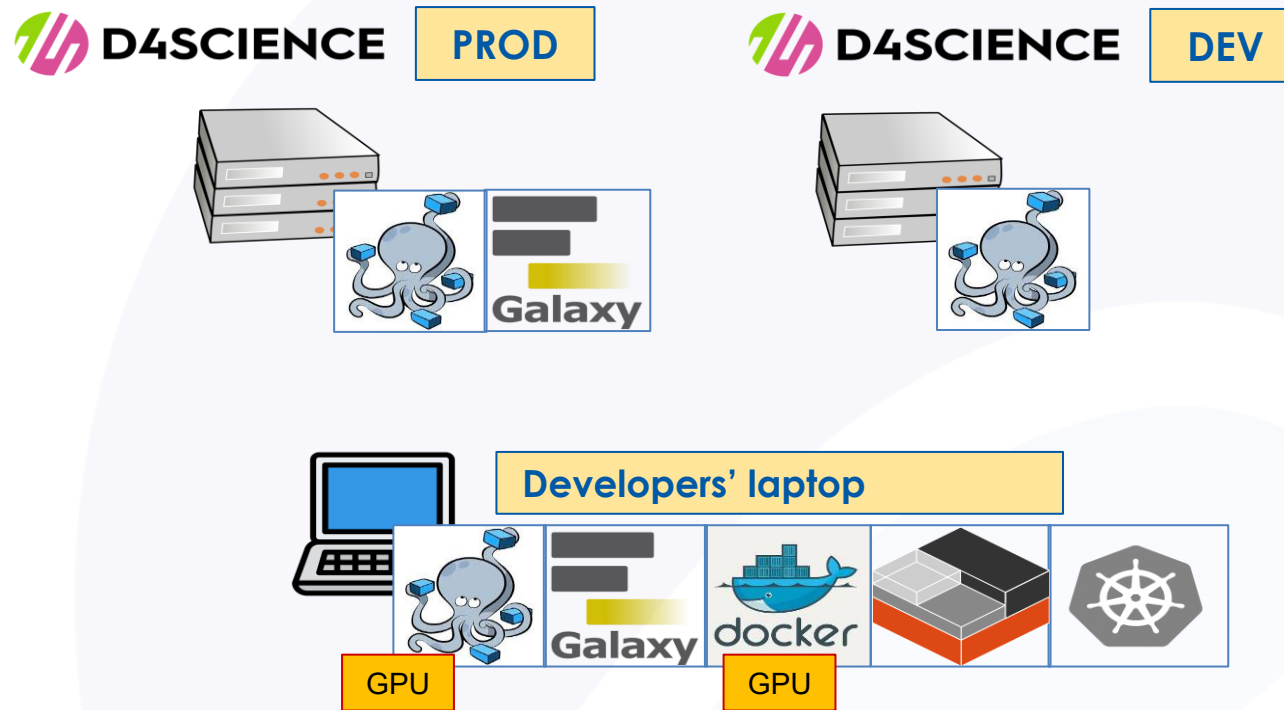
CCP main features

- Import and execute methods via WEB UI or standard APIs (REST – OGC processes, WPS2)
- Support multiple heterogeneous execution infrastructures
- In particular containerised infrastructures for complete isolation and polyglot capabilities
- Automatic generation of client adapter code supporting Python, R, Julia, Bash, Jupyter and more...
- Management of Provenance

CCP logical architecture

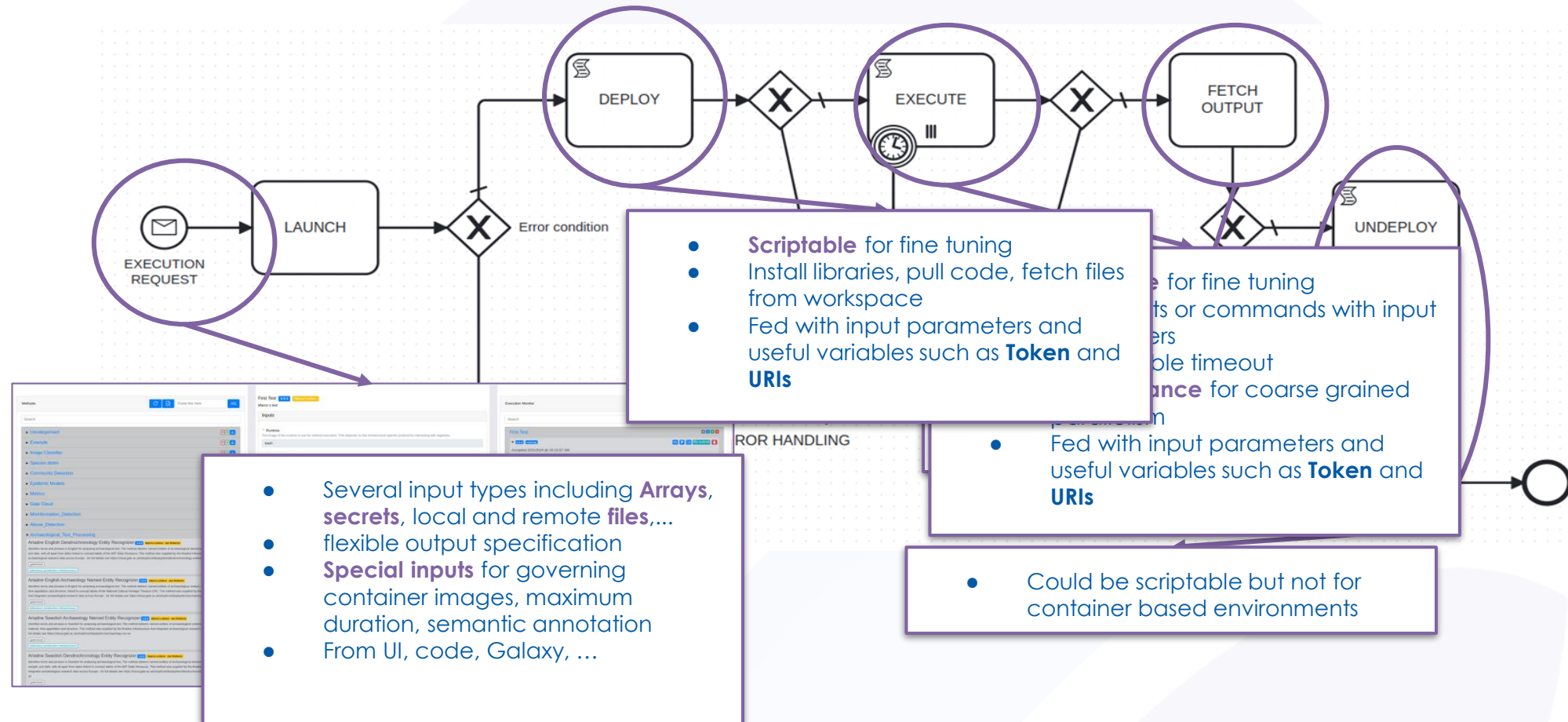


CCP execution infrastructures

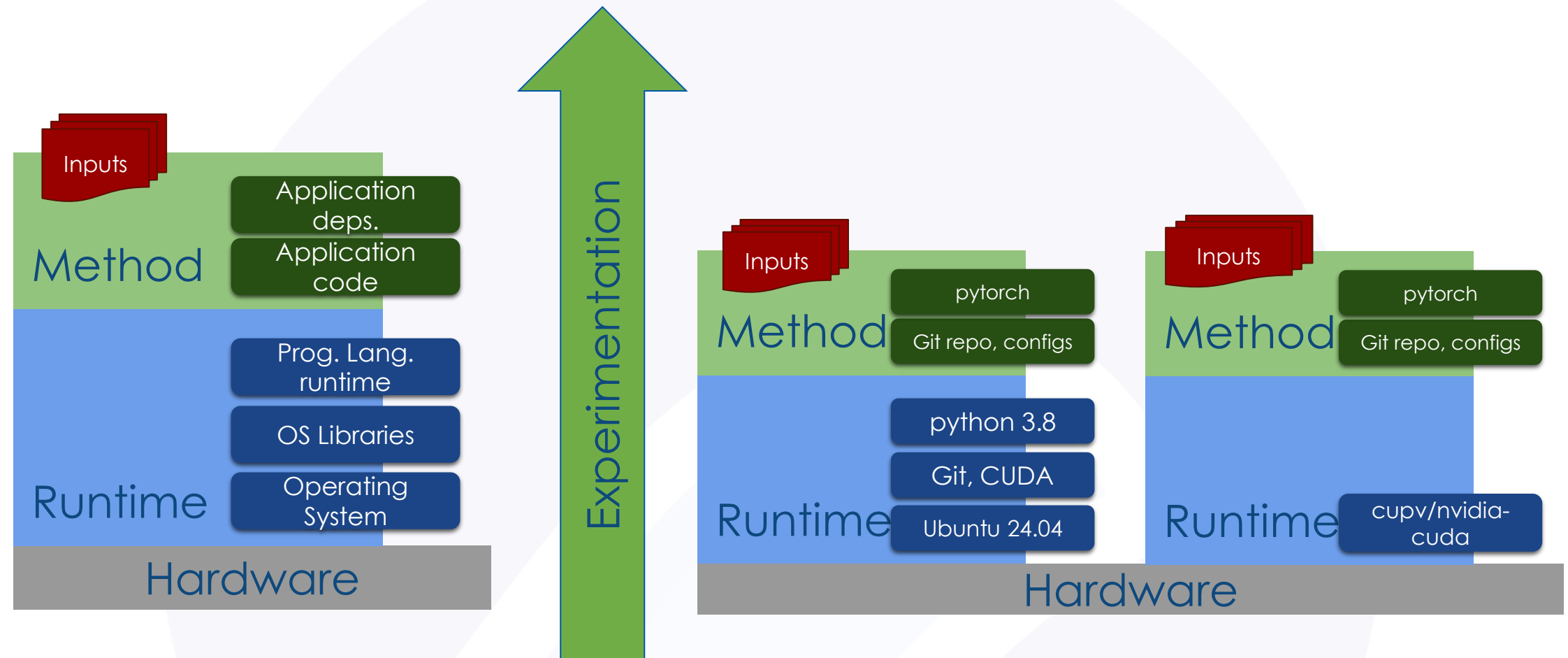




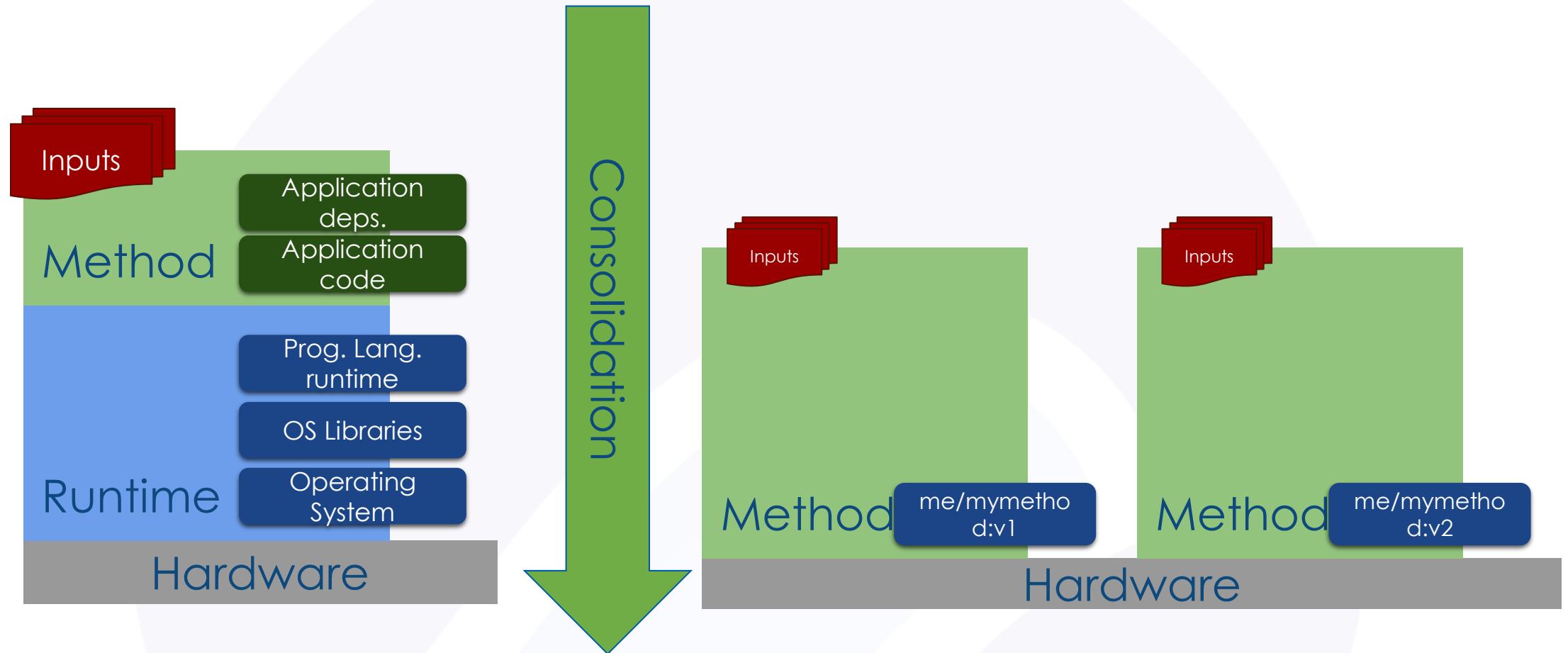
Method life-cycle (on Docker/Swarm infrastructure)



Power and flexibility of containers



Consolidation for reproducibility



What Core and Generic services enable to achieve:

Seamless integration of distributed data and services

Advanced computing and reproducible analytics

Interoperability within the EOSC Federation to connect Science and Policy for a sustainable ocean

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