



Blue-Cloud2026

Blue-Cloud VRE

customizable and collaborative
interoperable research environment

Blue-Cloud Federation Workshop,
6 November 2024

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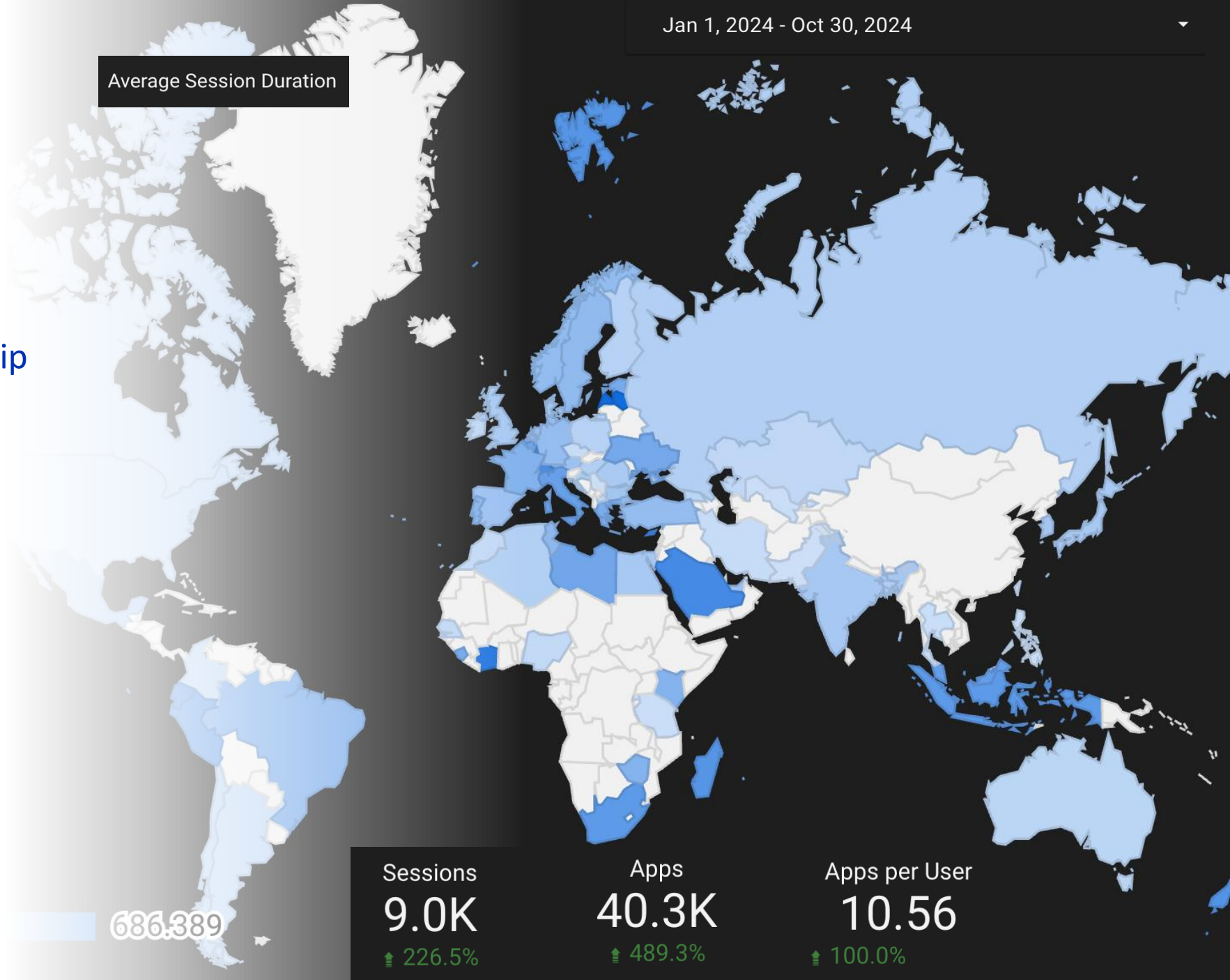
Funded by
the European Union

Average Session Duration

Blue-Cloud VRE

The Blue-Cloud VRE is our flagship asset that offers a customisable and collaborative interoperable research environment.

It allows the global scientific community to engage in transparent and reproducible science, facilitating data sharing across disciplines.



Easy to access

- Federated Identity and Access Management (IAM) provides a **secure and scalable solution for granting access to resources**. It integrates with various authentication providers, enabling seamless access across multiple systems.
- IAM supports OpenID Connect (OIDC) for authentication and User Managed Authorization (UMA 2) for authorization flows.
- It ensures **secure access control, allowing administrators to define and enforce access policies based on user roles and permissions**.

Sign in to your account

Username or email

Password

Remember me

[Forgot Password?](#)

Sign In

Or sign in with

 Academic / other

 LinkedIn

 Google

 Twitter

 GitHub

 CNR-ISTI

New user? [Register](#)

Open Access

Blue Cloud offers a comprehensive suite of open-access services designed to support collaborative marine research.

- Through its web-based platform, Blue-Cloud provides simplified access to analytical services and computing facilities that **facilitate collaborative research** using a variety of datasets and analytical.
- Blue-Cloud also features thematic Virtual Labs, where researchers can work closely with technical teams to develop specific workflows and requirements.

Common Services



Blue-Cloud Lab

open

Where scientists can contribute, find, try, and use Blue-Cloud methods, execute them on high-performance backends, and implement scientific workflows satisfying their needs. Enter [Blue-Cloud Lab](#)



Data Discovery and Access service

open

Facilitates discovery and retrieval of data sets and computational services. Data sets are managed in blue data infrastructures that are accessible through the service. [Browse and search data](#)

Domain-oriented Virtual Labs & Services



Zoo-Phytoplankton EOVI

open

The Zoo-Phytoplankton EOVI Vlab is the implementation of the Blue-Cloud Zoo-Phytoplankton EOVI products demonstrator. It provides its users with access to blue multidisciplinary data for exploring the methodology and data use ...
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Plankton Genomics

open

The demonstrator 'Plankton Genomics' is led by the European Bioinformatics Institute (EMBL-EBI), in collaboration with the Flanders Marine Institute (VLIZ) and the Faculty of Sciences at Sorbonne University.
[Read More »](#)



Marine Env. Indicators

open

The Marine Environmental Indicators VLab implements the Demonstrator 3. It will provide a web service for Environmental Agencies and research users. Only selected members have access.
[Read More »](#)



Fish, a matter of scale

open

Browse the globe and learn about fisheries! Search reliable and fact-checked content through the interactive Fisheries Atlas powered by Blue Cloud. Explore all oceans and regions of the world with this in-depth resource, with ...
[Read More »](#)



Stock & Fisheries

restricted

The GRSF PRE is a dedicated VLab to validate the submission of new content in the GRSF Knowledge Base. The GRSF team uses this environment to validate new data harvests from the GRSF sources before these are published into ...

- By combining services from the five frameworks provided by Blue-Cloud VRE, researchers can efficiently manage their data storage, perform advanced data analytics, engage in community management, share resources, deploy and operate services, and manage software builds.
- The five service frameworks work seamlessly together to support various scientific endeavours.
- Researchers can leverage these integrated services to enhance collaboration, streamline workflows, and accelerate new discoveries.



DATA STORAGE



DATA
ANALYTICS



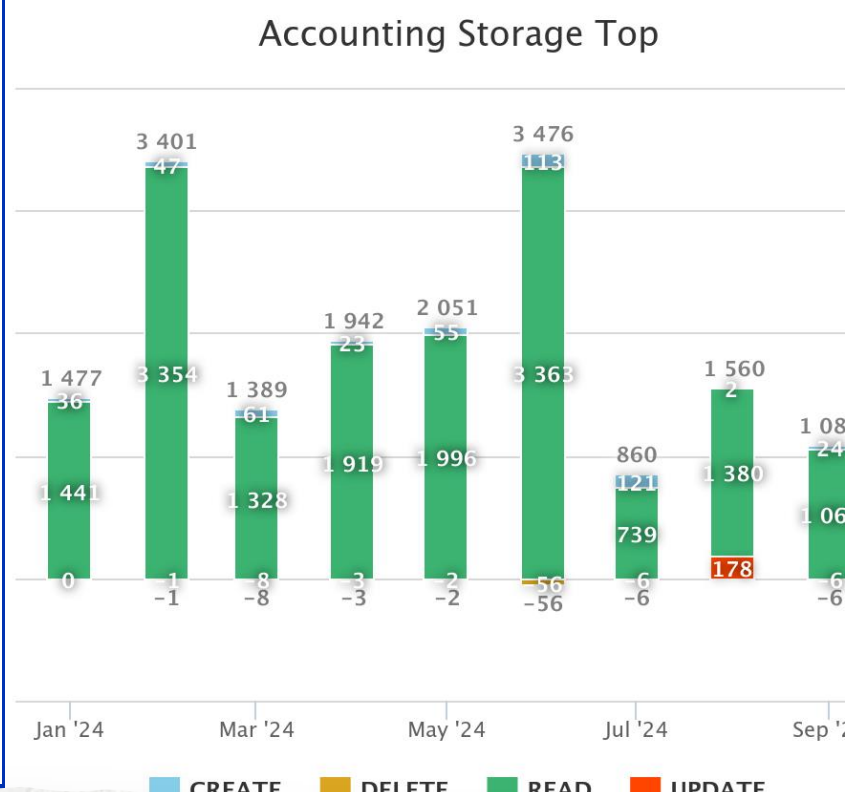
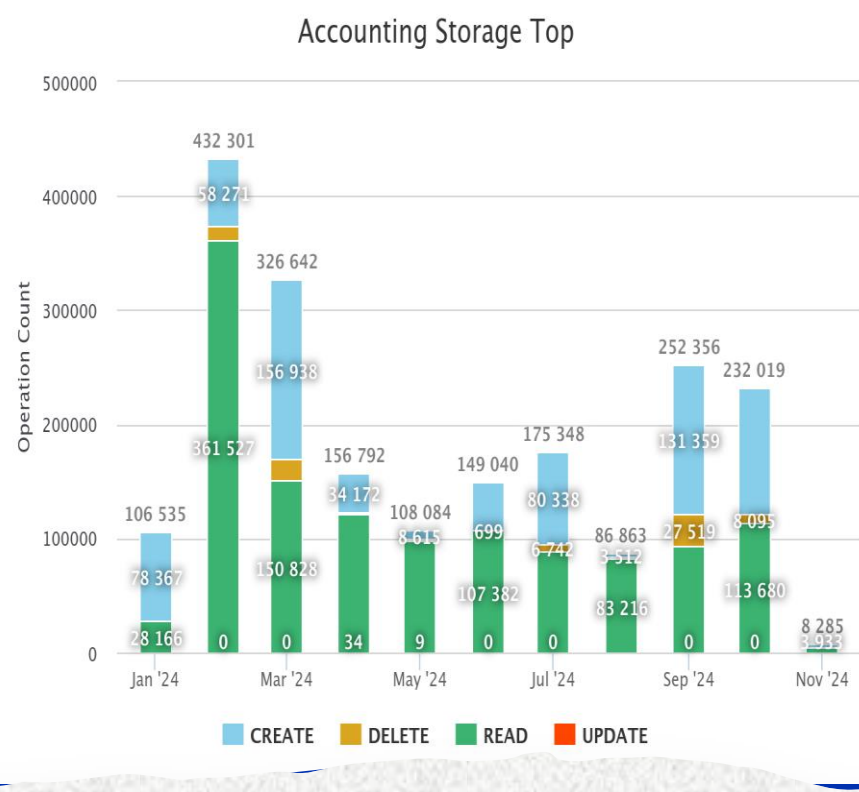
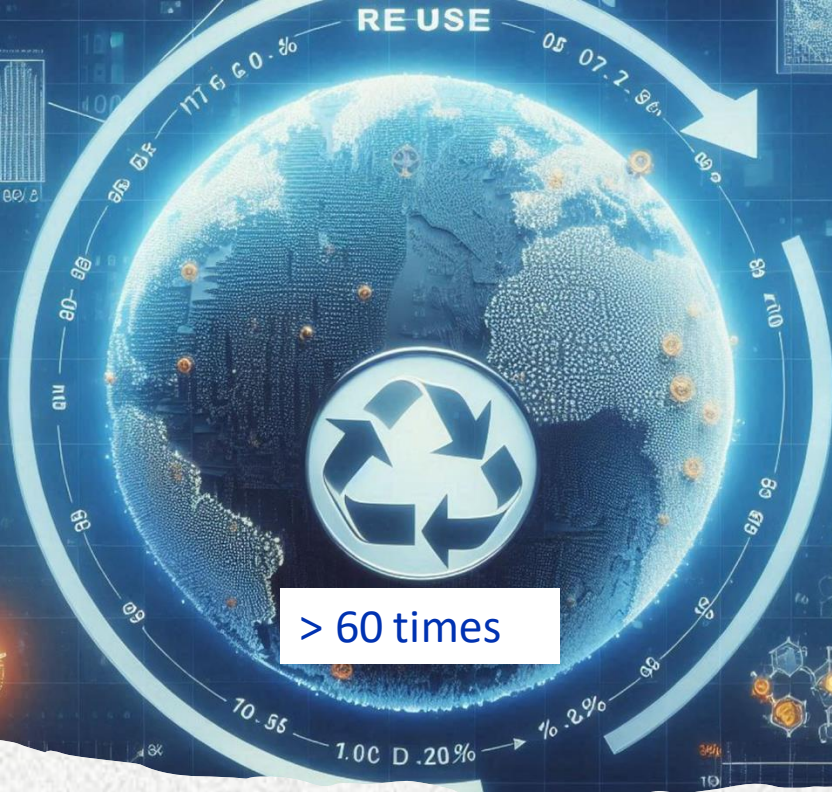
COMMUNITY



SERVICE



SOFTWARE



Data Storage

Data Storage framework offers a range of features that enhance data storage and management

- data sovereignty to ensure compliance with data protection regulations
- workspace for collaborative data storage and sharing
- centralised storage hub for efficient data management, versioning, and encryption
- accounting services for tracking data usage and provenance.

These features collectively ensure that data is stored securely, managed efficiently, and accessible to authorised users.

The Data Analytics Framework combines multiple analytical tools into a cohesive environment, allowing users to perform a wide range of data analyses, from basic statistical computations to advanced machine learning and computational workflows.

It fosters collaboration among researchers by providing shared workspaces and tools for data sharing and joint analysis, enhancing the collective knowledge and efforts of the research community.

JupyterLab

RStudio

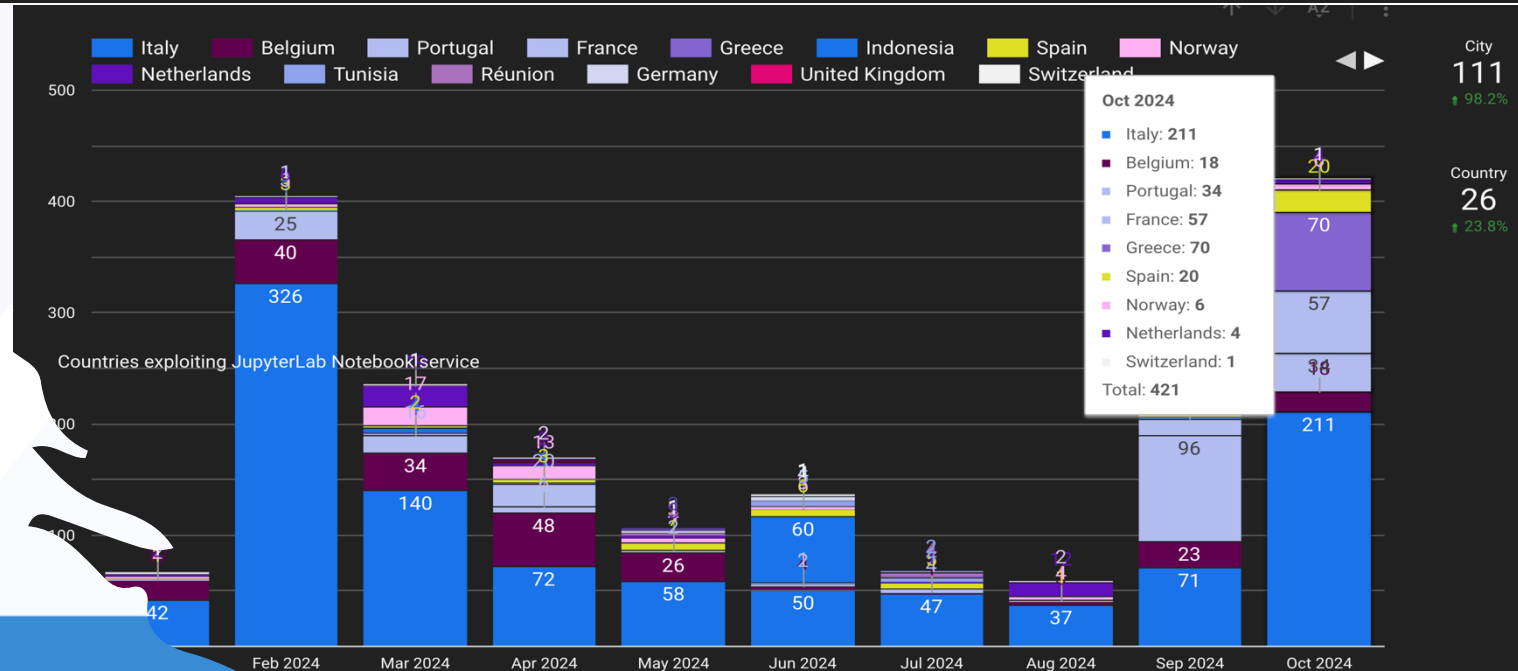
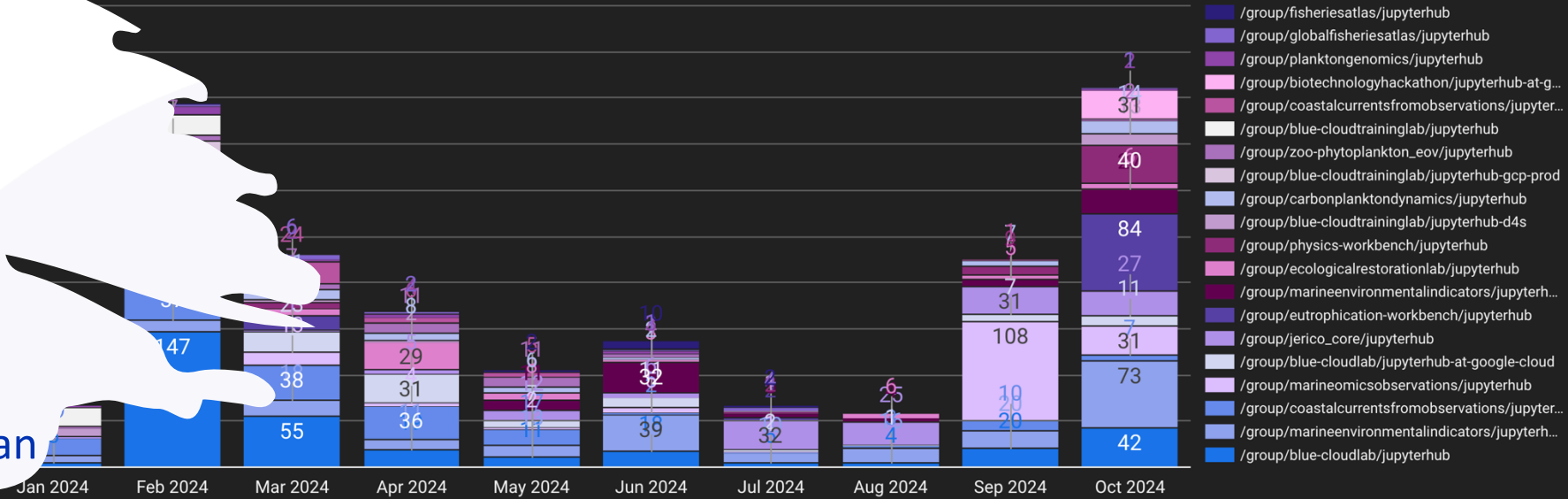
Cloud Computing

Galaxy

JupyterLab

Blue-Cloud JupyterLab provides an interactive development environment for notebooks, code, and data.

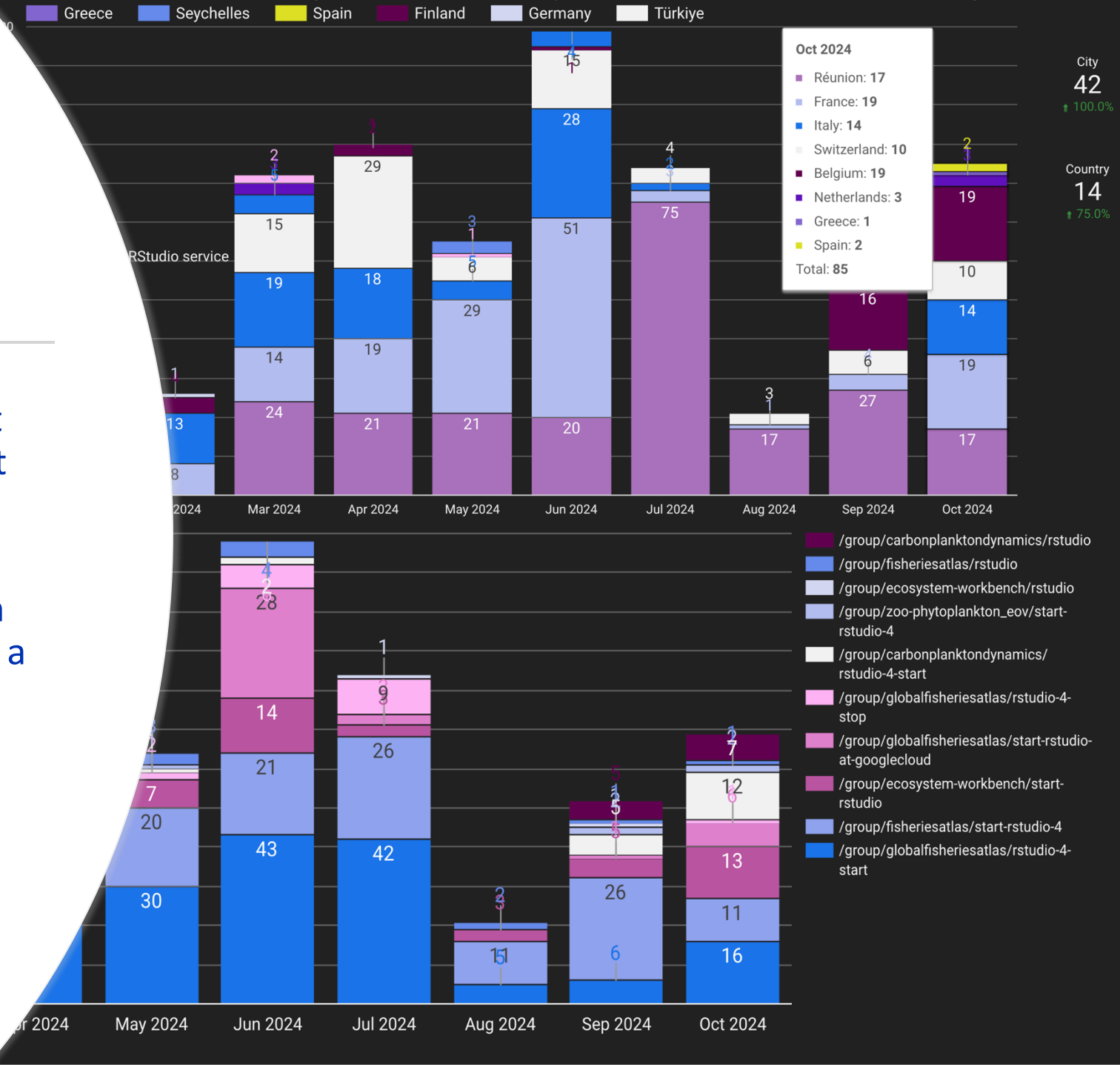
- It enables communities to customize the environment concerning capacity (available CPUs and RAM), capabilities (available software libraries), and available data spaces.



RStudio

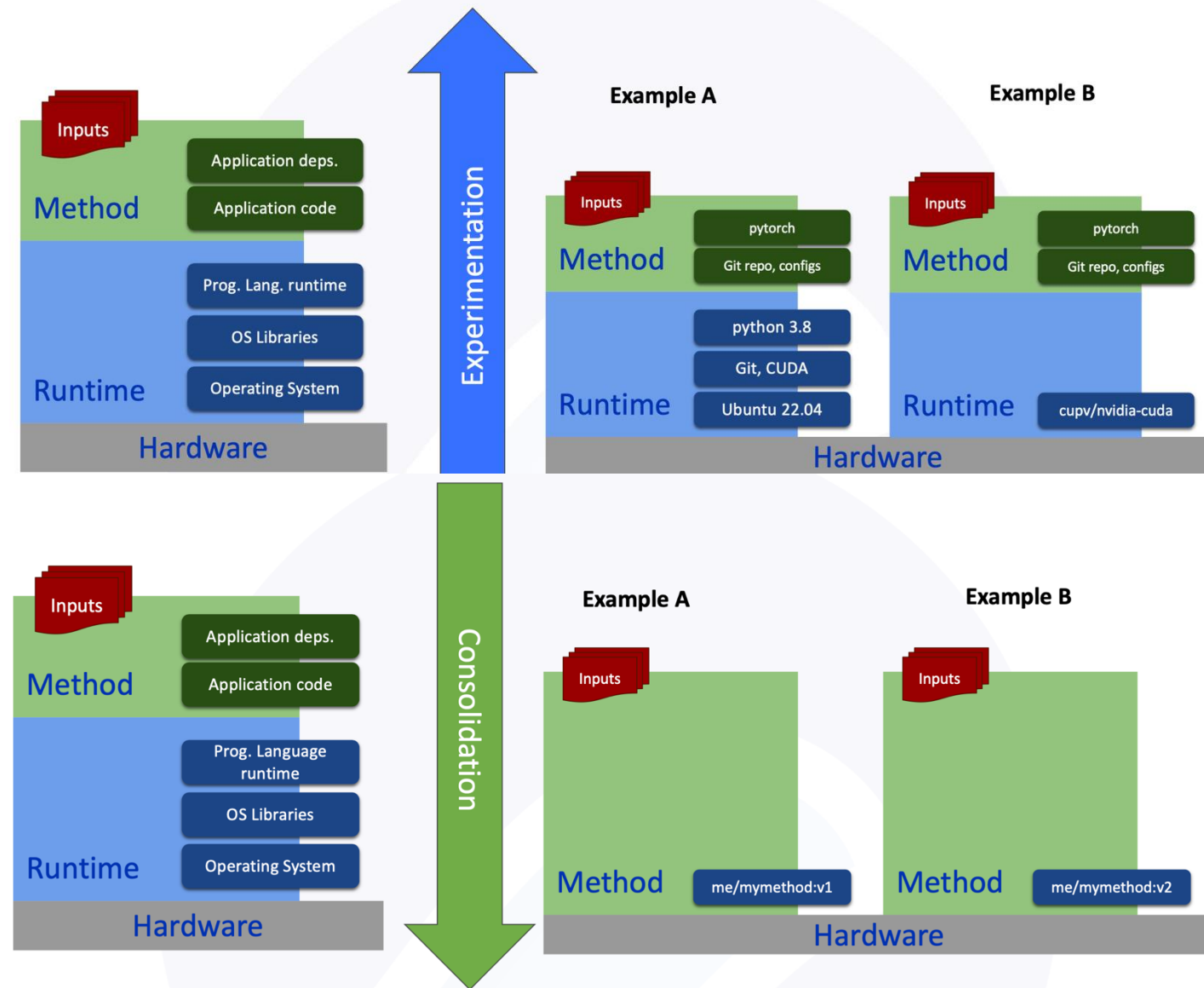
RStudio is a robust integrated development environment (IDE) for R, tailored to support researchers' extensive data analysis needs.

- By integrating RStudio with shared resources and storage, users can perform statistical computing and graphics within a collaborative environment



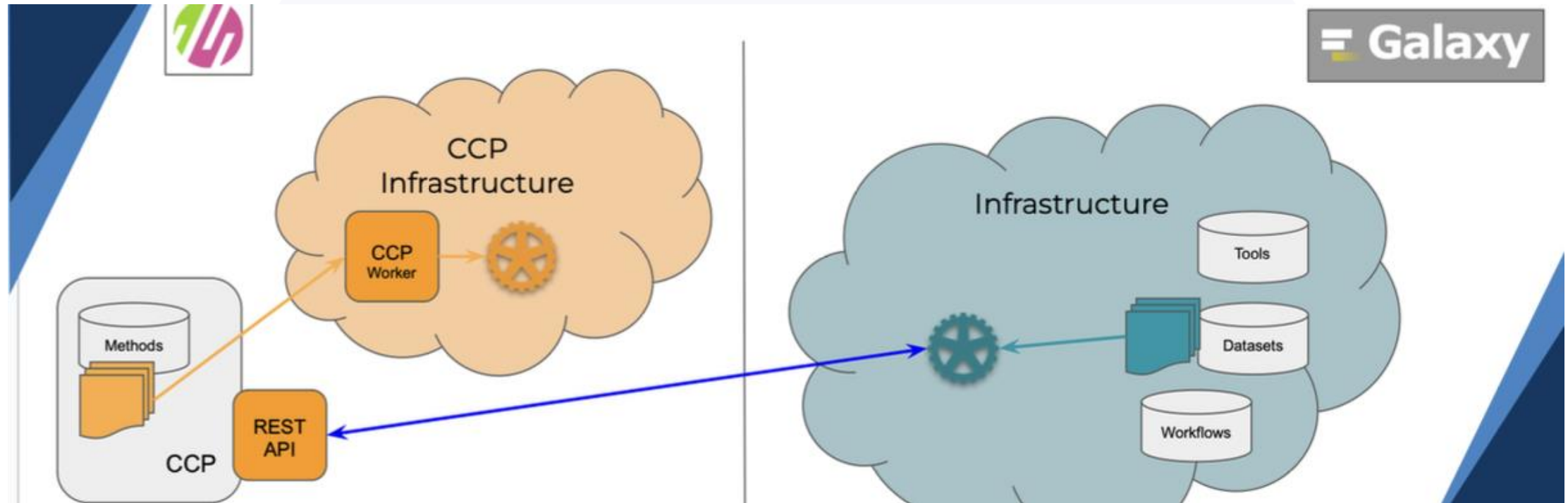
The Cloud Computing Platform (CCP) offers scalable and flexible computing resources to support large-scale data processing and analysis.

- dynamic resource allocation,
- automatic generation of provenance enabling reuse and sharing,
- high-performance computing capabilities
- seamless integration with shared cloud storage for easy data access and sharing
- accounting and monitoring for efficient resource management



Galaxy provides a centralised platform where researchers can access various tools specific to their scientific domain.

- integrates multiple computational tools, allowing researchers to perform comprehensive analyses within a single platform.
- easy access to the resources they need, fostering collaboration and enhancing the overall research experience



Community Framework

The Community Framework enhances collaboration and knowledge sharing.

- social networking tools for community building,
- messaging services for communication,
- a wiki for collaborative documentation,
- a workspace for data storage and sharing,
- VLabs tailored to specific research needs,
- consultancy and support services are also available to assist users in maximising the benefits.

These features collectively ensure that research communities can effectively collaborate, share knowledge, and achieve their research goals.



Service Framework

The Service Framework enhances the deployment and management of applications exploiting Docker Swarm, Kubernetes, and RShiny Apps

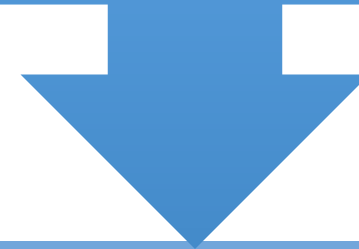
- container orchestration for efficient application deployment,
- API gateway for seamless integration,
- Storage Hub for data management,
- Vlabs tailored to manage specific access policies.
- issue tracking for effective problem resolution
- consultancy services to assist users in optimizing their use.

These features collectively ensure that applications are deployed and managed efficiently, with robust support and scalability.



Software Framework

The Software Framework supports software project development, deployment, and management.



It integrates Gitea, Jenkins, Maven, and Harbor and can be tailored to a VLab

version control
for managing
code
repositories,

continuous
integration and
delivery
pipelines,

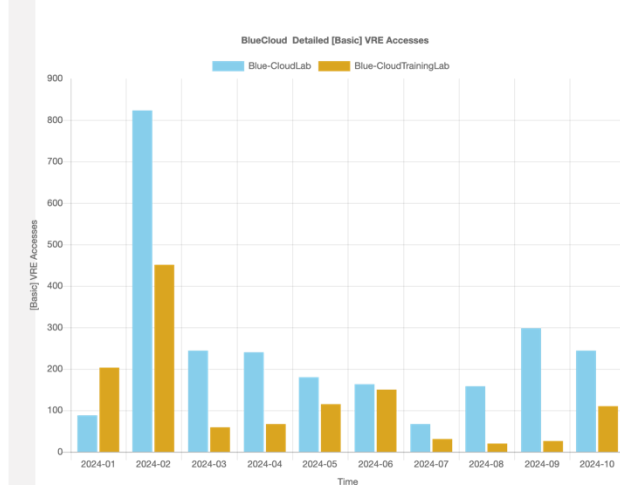
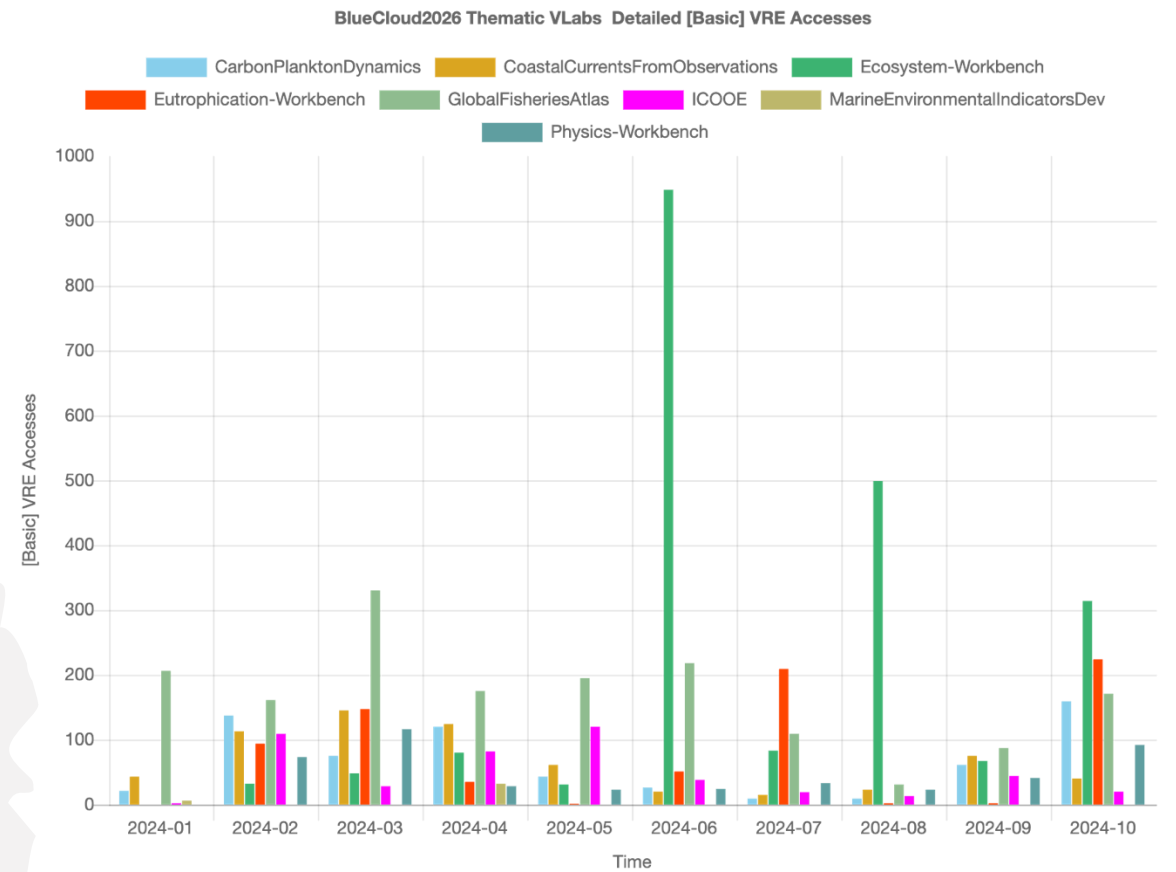
artifact
repository
management,

issue tracking
for effective
project
management

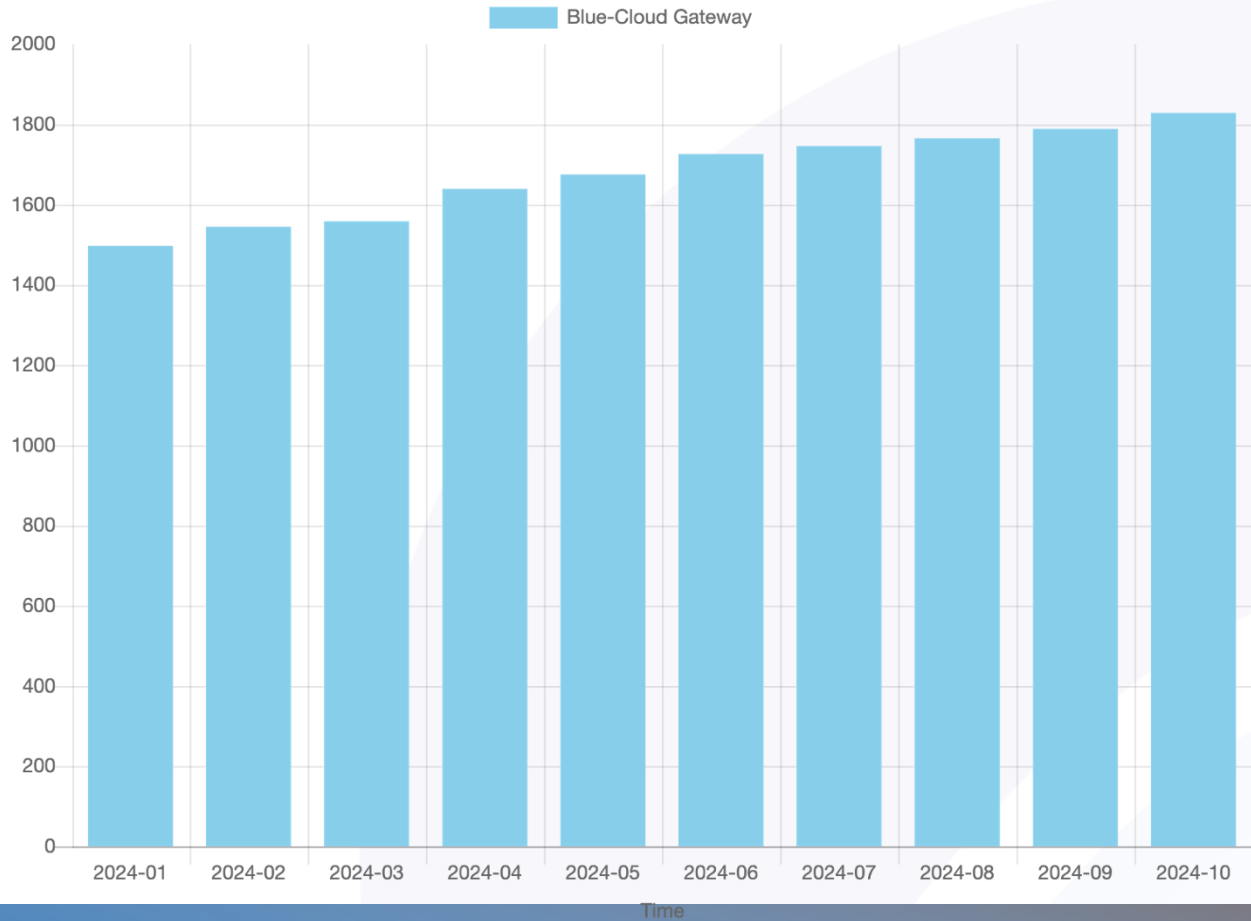
Blue-Cloud V Labs

V Labs offer dynamic data storage, integration with various research tools, and secure collaboration features.

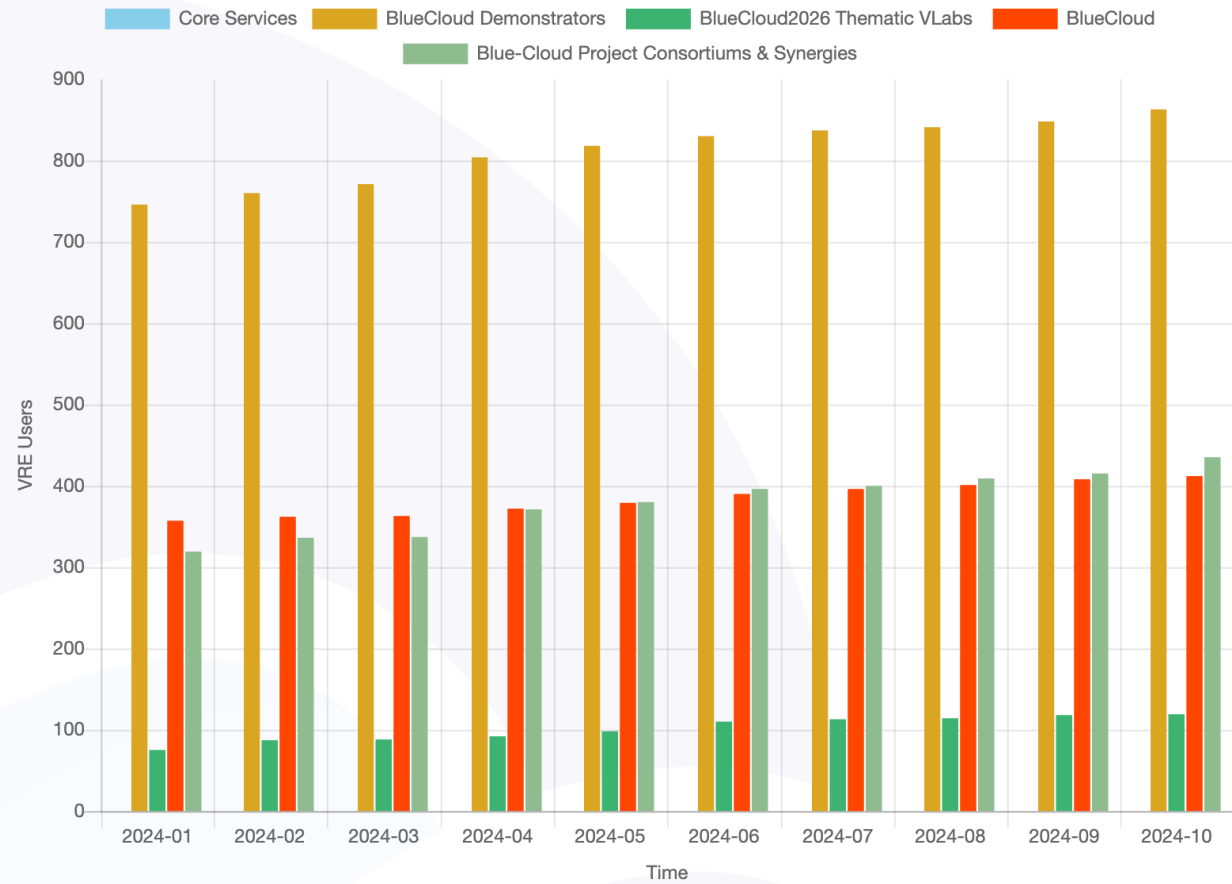
- They support the entire research lifecycle, from data preparation and analysis to publication and sharing.
- Blue-Cloud's common services and single sign-on facilitate seamless collaboration and data management.



Blue-Cloud Gateway Aggregated VRE Users



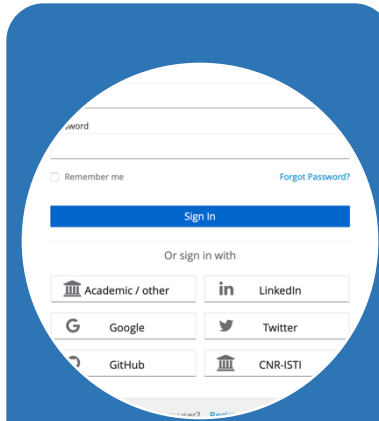
Blue-Cloud Gateway Detailed VRE Users



VRE Users



Visit
<https://blue-cloud.d4science.org>



Register
 with your identity



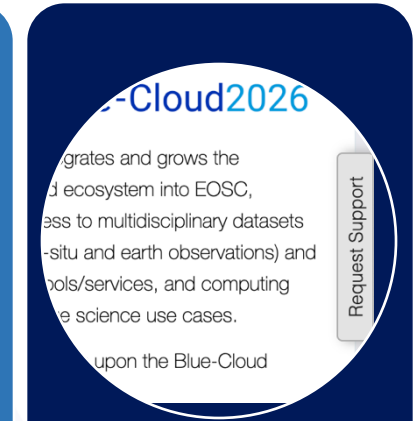
Access
[Blue-Cloud 2026](#)



Exploit
[Blue-Cloud Lab](#)



Explore
 Demonstrators



Your VLab
 Your needs

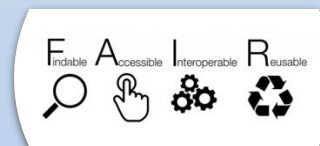




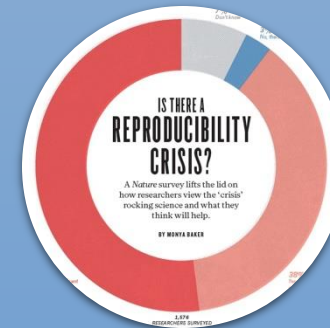
Collaboration



Sharing



Reuse



Reproducibility

Blue Cloud VRE promotes Open Science

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blue-cloud.org



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