The Science Mesh within the European Open Science Cloud

eosc

The European Open Science Cloud (EOSC) aims to be an environment for hosting and processing research data to support EU science. It envisages user communities from specific science domains that are organised and already have an e-infrastructure for their own community (incl. a portal and other services) at their disposal. **The Science Mesh, as an ecosystem for frictionless scientific collaboration, aims to contribute to EOSC.**

Why Science Mesh is relevant for EOSC?

A wider community joining EOSC
By integrating the Science Mesh within EOSC, the latter will expand its user-base with 600,000 new members coming in from the existing and growing CS3 community.

Gives an helpful hand for individual researchers
The Science Mesh can be used by individual researchers who are not connected to an organized RI, since the user keeps using his own home EFSS service. Having the Science Mesh within EOSC will connect these users to the FAIR data and other research products within EOSC.

Serving multiple communities at once
Thanks to its horizontal services, the Science Mesh represents high value of return of investments, a perfect fit to the EOSC Exchange, which will be composed of common and thematic services exploiting FAIR data and encouraging its reuse.

Integration with other services
Science Mesh data services can also be integrated with other science applications from other researchers that are involved in the "European Strategy Forum on Research Infrastructures" (ESFRIs).

Borderless research environment for Europe and beyond. Easily sync&share data, deploy applications and access software through an interoperable federation of services

Cloud Services for Synchronization and Sharing (CS3) are deployed in the research and educational space, mostly by e-infrastructure providers, NRENs (National Research & Education Networks) and major research institutions. However, these services usually remain **largely disconnected**, since they are developed and deployed in isolation from each other, compromising the efficiency of daily workflows for hundreds of thousands of users.

Combining these various systems and services into a joint, coordinated service, where users in research and academia can collaborate seamlessly, would boost open-science **at a pan-European level**.

CS3MESH4EOSC has developed the Science Mesh (sciencemesh.io), a data storage and sharing mesh that connects locally and individually data sharing and synchronization service providers, scaling them up at the European level and beyond. www.cs3community.org

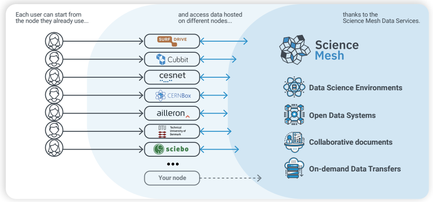
Learn how to join the Science Mesh! Watch the demo

Science Mesh

An Open Science Platform suitable for diverse research communities

The Science Mesh is field agnostic, meaning it is a horizontal service that serves multiple science communities at once. This is contrary to e-infrastructure services, which are focused on specific science fields).

Science Mesh data services can also be integrated with additional science applications from other researchers, rendering the overall Science Mesh service offering even more attractive to end-users. This is due to application plugins that ultimately allow for increased capacity for expansion.



Understand how the Science Mesh is unlocking scientific collaboration through technology in Europe. Watch the video!

CS³ MESH⁴ EOSC

Website

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Science Mesh

Website

Stay tuned with the latest CSMESH4EOSC & ScienceMesh news to follow how it is making friction-free data collaboration in Europe a reality.

CS3MESH4EOSC - Interactive and agile/responsive sharing mesh of storage, data and applications for EOSC, has received funding from the European Union's Horizon 2020 research and innovation programme under **Grant Agreement no. 863353**.

CS³ MESH⁴ EOSC

Connecting European Data

Interactive & agile/responsive sharing mesh of storage, data & applications for eosc

cs3mesh4eosc.eu

THE SCIENCE MESH DATA SERVICES & TECHNOLOGIES

Science Mesh

Who should use the Science Mesh?

The Science Mesh is a federation of EFSS (Enterprise File Sync and Share) storage services and interconnects existing data repositories in an interoperable way. It allows an easy, frictionless scientific collaboration between users from different institutions, while also providing access to research services where data, applications, and computation are brought together.

Researchers, educators, data curators, and analysts can retain control over their remote or domestic datasets, while easily sharing and working on data across services with peers from other institutions. The Science Mesh can be used by individual researchers who are not connected to an organized research infrastructure or have their own E-infrastructure.

See how you can benefit from the Science Mesh

Researchers | Become a user

Software Developers | Add your local Sync and Share system as a node

Service Providers | How to add your software tool within the services categories

SERVICE 1

Data Science Environments

Access remote execution environments to replay (and modify) analysis algorithms without a need to set upfront accounts in the remote system.

jupyterlab — Computational notebook to integrate scientific calculations, real-time code, equations and visualizations in a single document in the form of notebooks.

voilà, vois — Turns Jupyter notebooks into standalone deployable applications and interactive dashboard without requiring any modification to the content.

SWAN — Platform to perform interactive data analysis in the cloud without the need to install any software.

LEARN MORE

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SERVICE 2

Open Data Systems

Add metadata and publish datasets with persistent identifiers directly on the Science Mesh sites or to external data repositories.

Describo, RO-Crate — Describe data in aggregate and at the individual resource level, with metadata to aid in discovery, re-use. and long term management of data.

INVENIO RDM — A modern web architecture and standards that make it easy to deploy, maintain, and use, for building large-scale digital repositories.

Sciebo RDS — Assign a directory on a sync and share System to a research project, annotating the contained data to match the format required by the desired Data Repository and publishing the Research Data directly from the Cloud.

LEARN MORE

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SERVICE 3

Collaborative Documents

Cross-federation collaboration on content in real time: simultaneous editing of documents, commenting, versioning, in safe EU-based cloud environments.

CodiMD — Platform for sharing and writing notes in Markdown editor, export as PDF, import from Gist, as well as slides and notes support.

COLLABORA — Comprehensive range of services to help the user in every step of Open Source projects, whether writing a line of code or shaping a longer-term strategic software development plan.

ONLYOFFICE — Complete productivity suite with document management, project management, CRM, calendar, mail, and corporate network.

LEARN MORE

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SERVICE 4

On-demand Data Transfers

Transfer information at high speed information from remote locations to local sites across different countries.

FTS File Transfer Service — Software for reliable and large-scale data transfers, with easy interfaces that allow parallel transfers optimization to get the most from networks without burning the storages.

RCLONE — A multi-threaded, command line computer program to manage or migrate content on cloud and other high latency storage, with sync, transfer, crypt, cache, union and compress capabilities.

RUCIO — Distributed Data Management System, where usersuser can upload, download, manage, and delete everything from single files up to Ppetabyte -sized datasets.

LEARN MORE

Listen to the Podcast | Watch the demo video | Watch the Webinar

Understand how Science Mesh is uniting European Data Services, check our Use-cases