



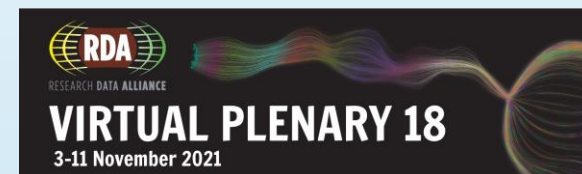
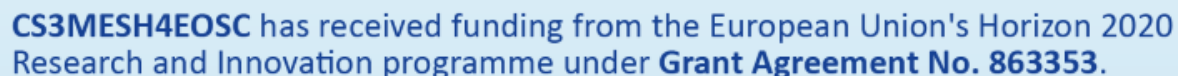
Connecting European Data



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Science Mesh: Harmonising Architectures and APIs

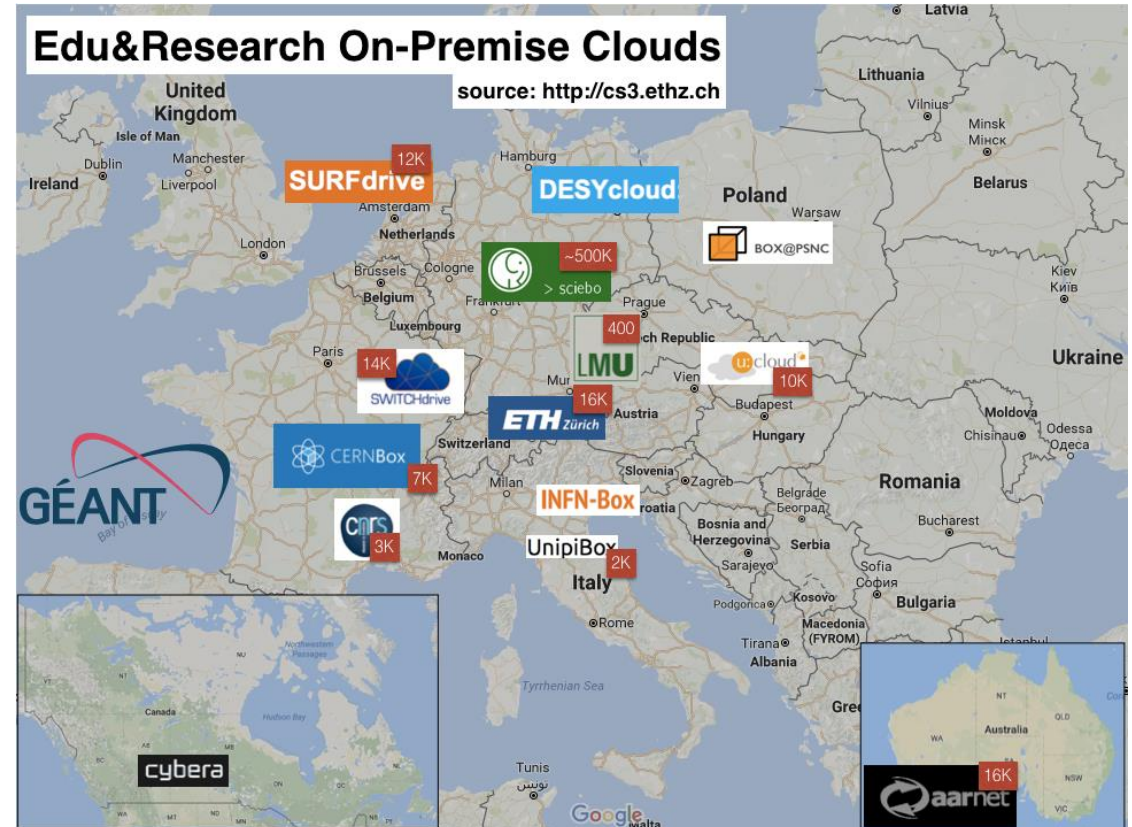
Across Operators to Reduce Tech Debt and Increase Clout



Sync&Share in the Research Landscape (admittedly a slightly euro lens ;--)



- TF-Storage
- CS3
- SIG-CISS
- ...





CS³

Worldwide grassroots community, yearly conference



Moving higher up the stack

We realized many CS3 sites had gone the extra mile...

- + applications, collaborative tools: application hubs ...
- + research interfaces: interactive notebooks ...
- + integration with big data repositories
- + Open Data workflows: implementing FAIR in practice

Clear evolution: from simple file stores to rich, data science and research environments

Encouraging, but...

- # Efforts are currently largely disconnected across CS3 community
- # **researchers** face **isolated service islands**, may not use other site services in spite of existing research collaborations across institutions
- # CS3 **sites** do not benefit from application services developed elsewhere = **risk of high cost or inadequate/obsolete service**
- # CS3 **application developers** **duplicate effort** over multiple EFSS technology stacks
- # EFSS **technology companies** **do not benefit from the community know-how**: poor transfer back to commercial and business applications

THIS WAS IN NEED OF REDRESS!

- # EU-funded project to **interconnect CS3 with EOSC**
 - # Started January 2020, 3 years + 6m “covid extension”
- # Objectives
 - # Deliver a **global CS3 interconnection and collaboration service** run through and overseen by a properly governed “umbrella org”, to be set up
 - # Provide a **community collaboration platform** on technology, applications, use-cases, software and operations



Leverage the network

- # **The value of the network is greater than the network size ($n \times \log n$)**
- # The “governance” aspect of the project is a seriously important point!
- # The objective is to turn the a loosely coupled “group of operators” into a fabric of nodes that cooperates on a day-to-day basis, in a consortium where collaboration and joint innovation is the default
- # A thoroughly considered set of governance and operations rules are being drafted as part of the project
- # *Not optional*: we need this flywheel to stay relevant vs. outsourced “commodity cloud” approaches –
 - # users attract users, data attracts data
 - # attract new actors, new use-cases and new-applications
 - # benefit from economies of scale

Which ($n \times \log n$) are we starting from?

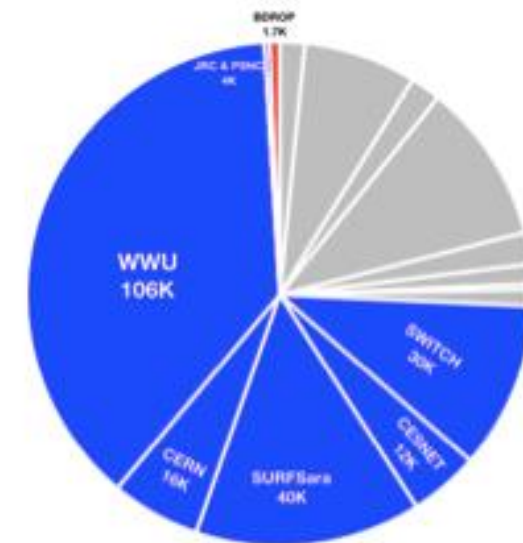
Our project partners, see figure.

These will deliver the initial nucleus of the new infrastructure and “contribute” their existing user-base and pilot use-cases

List of participants

Participant No.	Participant organisation name	Country
1 (Coordinator)	EUROPEAN ORGANIZATION FOR NUCLEAR RESEARCH (CERN)	CH
2	DANMARKS TEKNISKE UNIVERSITET (DTU)	DK
3	SURFSARA BV (SURFSARA)	NL
4	INSTYTUT CHEMII BIOORGANICZNEJ POLSKIEJ AKADEMII NAUK (PSNC)	PL
5	CESNET ZAJMOVE SDRUZENI PRAVNICKYCH OSOB (CESNET)	CZ
6	AARNET PTY LTD (AARNET)	AU
7	SWITCH (SWITCH)	CH
8	WESTFAELISCHE WILHELMS-UNIVERSITAET MUENSTER (WWU)	DE
9	AILLERON SA (AILL)	PL
10	CUBBIT SRL (CUBBIT)	IT
11	JOINT RESEARCH CENTRE- EUROPEAN COMMISSION (JRC)	BE
12	FUNDACION ESADE (ESADE)	ES

CS3 Sites (number of users)



Use existing fabric

- # **Connect existing self-sustainable sites and services**
- # Use existing authentication infrastructure
- # Use existing interoperability APIs and protocols
 - # OCM, CS3APIs, ...
- # Integrate EFSS and Application technology stacks
 - # close collaboration with all vendors
 - # vendor neutral and vendor friendly
- # Connect to all relevant projects and initiatives e.g. OpenAIRE



Specs on gRPC + Protobuf
Last mile distributed computing
Neutral-vendor APIS
Regain user freedom
Driven by you

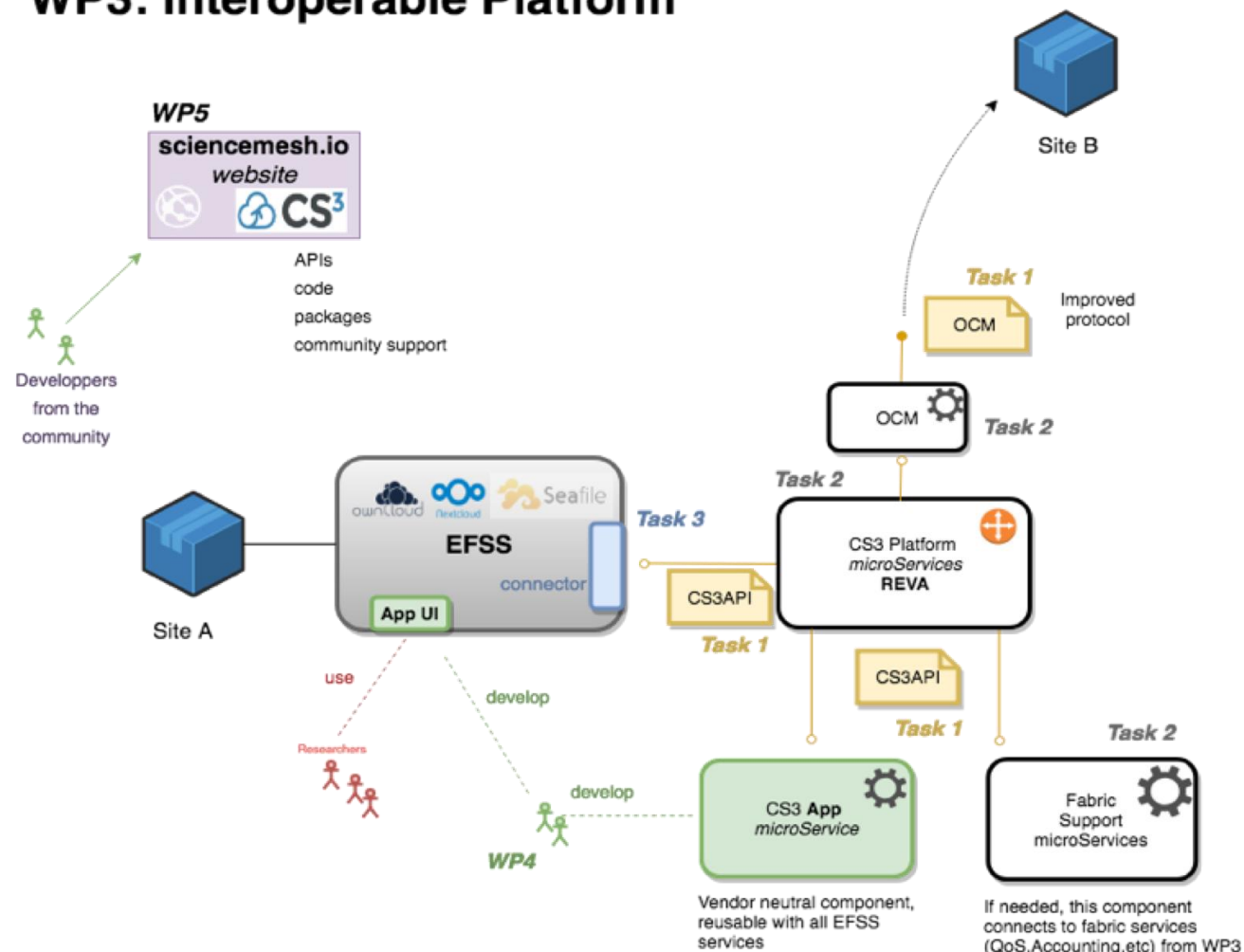


OPENCLOUDMESH

A vendor neutral standard under the GÉANT umbrella



WP3: Interoperable Platform





Thank you!
Discover more on...

 cs3mesh4eosc.eu

 company/cs3mesh4eosc

 [CS3org](https://twitter.com/CS3org)

 [CS3MESH4EOSC Project](https://www.youtube.com/channel/UCHKcZEKmqXjCvc3MLFjFxbw)
<https://www.youtube.com/channel/UCHKcZEKmqXjCvc3MLFjFxbw>

<https://sciencemesh.io/>



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