



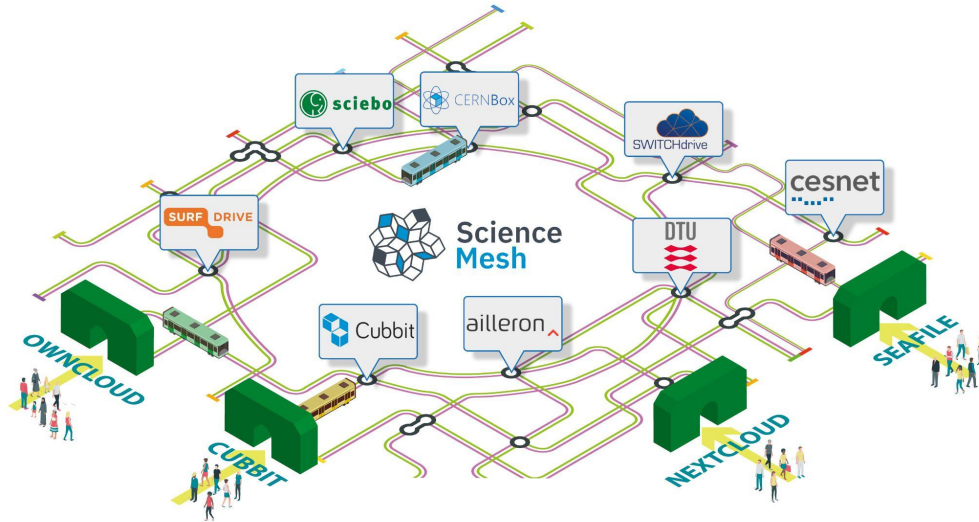
Rucio and CS3API

To enable data management for the ScienceMesh Cloud

Mentors: Martin Barisits, Hugo Gonzalez Labrador, Mario Lassnig, Giuseppe Lo Presti

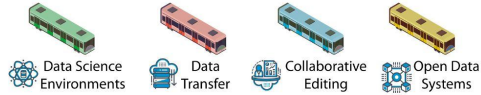


CS3MESH4EOSC



The ScienceMesh aims to federate a frictionless data transfer between these various siloed cs3 services across EU.

Data Services

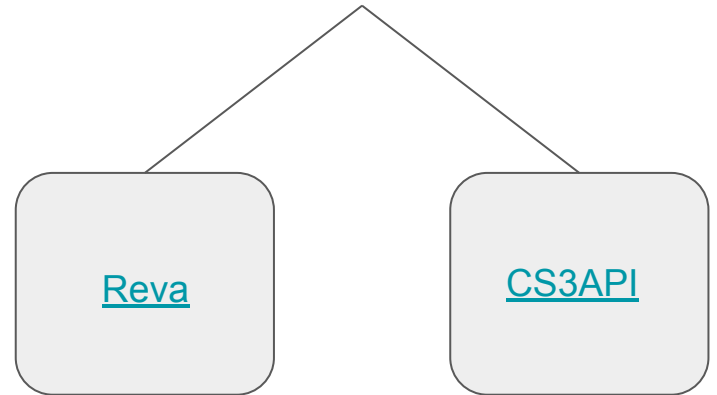


CS3 based technologies



TRAIN INFORMATION BOARD

Train	From	To	Platform
	CERN	SWITCH	OwnCloud
	SURF	PSNC	NextCloud
	Cubbit	WWU	Cubbit



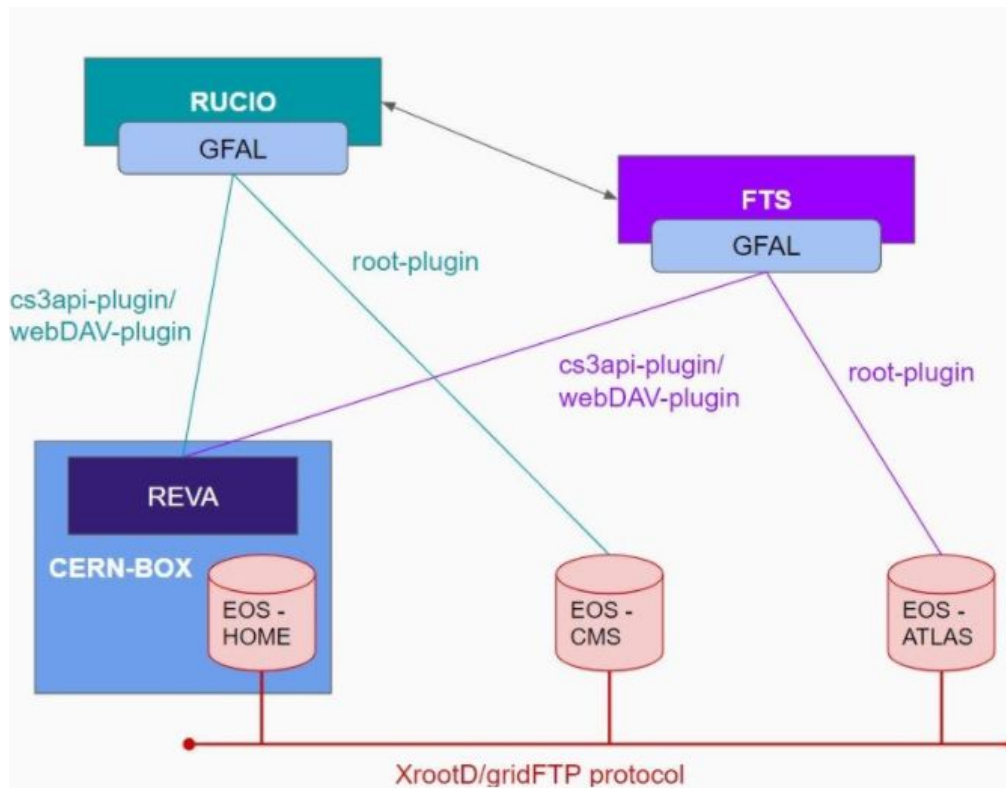
Rucio



[Rucio](#) serves the data needs of modern scientific experiments. Large amounts of data, countless numbers of files, heterogeneous storage systems, globally distributed data centres, monitoring and analytics.

We want to use Rucio to orchestrate on demand data transfers both within the ScienceMesh and between a ScienceMesh site and a Grid Site.

Proposed Solution



We add a plugin or extend existing plugins in the GFAL library and allow the multiplexer to use the custom flow for ScienceMesh sites based on the the url prefix. Further we devise an authentication flow to retrieve tokens from reva.

Results

Below we perform a COPY in pull mode from one site in the ScienceMesh to other.

```
gfal-copy -vf \  
  --copy-mode=pull \  
  cs3://reva:19001/remote.php/webdav/home/srcFile \  
  cs3://reva2:17001/remote.php/webdav/home/dstFile
```

```
[root@1480da8e24fc build]# gfal-copy -vf --copy-mode=pull cs3://reva2:19001/remote.php/webdav/home/large-file cs3://reva2:17001/remote.php/webdav/home/largeFile  
Copying 10737418240 bytes cs3://reva2:19001/remote.php/webdav/home/large-file => cs3://reva2:17001/remote.php/webdav/home/largeFile  
event: [1629654517438] BOTH GFAL2:CORE:COPY LIST:ENTER  
event: [1629654517438] BOTH GFAL2:CORE:COPY LIST:ITEM cs3://reva2:19001/remote.php/webdav/home/large-file => cs3://reva2:17001/remote.php/webdav/home/largeFile  
event: [1629654517438] BOTH GFAL2:CORE:COPY LIST:EXIT  
event: [1629654517438] BOTH http_plugin PREPARE:ENTER cs3://reva2:19001/remote.php/webdav/home/large-file => cs3://reva2:17001/remote.php/webdav/home/largeFile  
event: [1629654517449] BOTH http_plugin PREPARE:EXIT cs3://reva2:19001/remote.php/webdav/home/large-file => cs3://reva2:17001/remote.php/webdav/home/largeFile  
event: [1629654517449] BOTH http_plugin TRANSFER:ENTER cs3://reva2:19001/remote.php/webdav/home/large-file => cs3://reva2:17001/remote.php/webdav/home/largeFile  
event: [1629654517449] BOTH http_plugin TRANSFER:TYPE 3rd pull  
monitor: cs3://reva2:19001/remote.php/webdav/home/large-file cs3://reva2:17001/remote.php/webdav/home/largeFile 635102822 274255052 3175514112 5  
monitor: cs3://reva2:19001/remote.php/webdav/home/large-file cs3://reva2:17001/remote.php/webdav/home/largeFile 467435520 299768217 4674355200 10  
monitor: cs3://reva2:19001/remote.php/webdav/home/large-file cs3://reva2:17001/remote.php/webdav/home/largeFile 407378329 287263948 6110674944 15  
monitor: cs3://reva2:19001/remote.php/webdav/home/large-file cs3://reva2:17001/remote.php/webdav/home/largeFile 379887616 297415475 7597752320 20  
monitor: cs3://reva2:19001/remote.php/webdav/home/large-file cs3://reva2:17001/remote.php/webdav/home/largeFile 364234670 301622886 9105866752 25  
event: [1629654552213] BOTH http_plugin TRANSFER:EXIT cs3://reva2:19001/remote.php/webdav/home/large-file => cs3://reva2:17001/remote.php/webdav/home/largeFile
```

Special Mentions

I am grateful to my mentors and

- **Mihai Patrascoiu, Steve Murray, Joao Lopes** from the FTS team
- **Ishank Arora** from cs3org and
- **Mayank Sharma, Benedikt Ziemons and Thomas Beerman** from Rucio

for taking out time from their busy schedule to help me. And

- **Andrei Gheata** for making this a seamless experience.

Thank you 😊