Les solutions techniques de l’EOSC: la couche infrastructure

Basé sur les travaux du Work Package 7: the infrastructure layer

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Credits: L. Berberi, D. Evans J. van Wesel & all WP7 members
EOSC-Pillar WP7 is about the infrastructure layer enabling open science.
Bridging the gap between data repositories and infrastructure services

Scientific use cases

Need to export data to process them

Need to import processed or simulation data

Open data repositories

- Other repositories
- HAL
- Data Verse

Infrastructure services

- Authentication and authorization
- Big Data storage
- Cloud computing
- HPC
FAIR principles should apply to data, but also to infrastructure services

- Infrastructure services should be findable
- Infrastructure services should be accessible
- Infrastructure services should be interoperable
- Infrastructures services should be reusable
Toward FAIR infrastructure services: the challenges

• Findable
  • How to make infrastructure services easy to find?
  • => catalogue of services

• Accessible
  • How to allow users to access them easily?
  • => authentication and authorization infrastructure

• Interoperable
  • How to achieve for services to work together smoothly?
  • => integration of services, standardization of interfaces

• Reusable
  • How to achieve service sustainability and continuity?
Service catalogue
Service catalogue
Service catalogue
Service catalogue
AAI
Interoperable services
EOSC-Pillar WP7: applying FAIR principles to infrastructure services

- **bring together** user communities, use cases, e-infrastructure and service providers
- provide **technical and strategic guidance** for the integration and federation of services in the EOSC ecosystem

Practical help, providing answers to
- How to (better and easier) integrate services in the EOSC?
- How to find the right AAI solution?
- Provide technical solutions to the use cases of WP6
- deploying services already available for several scientific communities and support their integration in the EOSC framework
Towards FAIR infrastructure services

- Task 7.1 Guidance and procedures for integrating services
- Task 7.2 Support for the integration of national services
- Task 7.3 Integrated services validation and operation of the federated services in a production environment
- Task 7.4 Ready to use services
WP7 supports the integration of national services and validate the integrated services in a production realm

- The following workflow describes an overall roadmap and timeline to support service owners in Pillar project to integrate/federate their relevant national services

  - Procedures and Guidelines to integrate/federate national services with EOSC-Hub
  - Support services from T7.4 to integrate with Pillar-IAM AAI instance
  - Analyze WP6 use-cases needs, check which UC wants to access/use which service in process
  - Validate services based on a set of tests MS36
  - Propose as candidate services to federate to EOSC portal
  - Follow the report procedure from MS31
  - Follow the path defined to include services to EOSC catalogue and Marketplace
  - According to state-of-the-art solutions
  - Ensure the use of standards
  - Follow the instructions published in the MS36
  - Select 7.4 ready-to-use services
  - Follow the report procedure from MS31
  - Follow the path defined to include services to EOSC catalogue and Marketplace

D7.1 Guidelines and Recommendations for the technical integration of resources and services into the EOSC

June 2021

Credits: Lisana Berberi (KIT)
More than 30 infrastructure services provided by EOSC-Pillar partners to the project use cases

- 6 ready-to-use services
- 20+ in-kind services

<table>
<thead>
<tr>
<th>Service</th>
<th>Provider</th>
<th>Category</th>
<th>Status</th>
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<td>Ready-to-use (7.4)</td>
<td>Production</td>
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Do these infrastructure services respond to the needs of the scientific use cases?
<table>
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<tr>
<th>WP7 services</th>
<th>WP6 usecases</th>
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<td>FIB cloud Galaxy</td>
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Example: archaeological applications of airborne lidar scanning (Use Case 6.5)

Credits: A. Joffres (Humanum)
D. Evans (EFEO / Sorbonne Université)
Archaeoscape goals

- Archive data sets from Lidar acquisition
- Web portals to access Lidar data
- Simple, web-based systems for collaboration
- Advance, Real-Time, Online Visualisation Capabilities
- Accessing Automated Feature Recognition Products
- Machine Learning as a Service for Archaeology

5 GB data per km² Lidar scan
500-2000 km² per archeological campaign

WP7 enabling services:
- GPU computing
  (WP7.4.1)
- France Grilles iRODS federation (in kind contribution)
WP7 status & timeline

**2020**
- MS35: Interim report on interoperability and validation
- MS31: Integration and Federation Guidelines
- MS36: Validation Suite ready and tested
- MS32: Procedures to include national services in EOSC released

**2021**
- MS33: Interim integration report and gap analysis
- D7.1: Guidelines and recommendations for the technical integration of resources and services in the EOSC
- MS34: Report on the services integrated at month 34
- MS37: Report on the validation runs and first operational service readiness

**2022**
- D7.3: Report on the expected statistics, operational infrastructure services and recommendations for future integration work
- D7.4: Report on transnational service usage

Credits: Lisana Berberi (KIT)
Next steps

- Interfacing WP5 FAIR Federated Data Space with WP7 infrastructure layers
- Transnational access and usage of WP7 services
COVID-19 use cases

• Scientific goals:
  • virtual screening of existing / potentially new drugs against COVID-19 target proteins
  • Modeling of COVID-19 propagation
  • Analysis of COVID-19 epidemiological data sets
Conclusion

- Making infrastructure services Findable, Accessible, Interoperable and Reusable is a considerable challenge
- EOSC-Pillar WP7 aims at enabling this vision on a portfolio of use cases and services