EOSC EU Node: User experience

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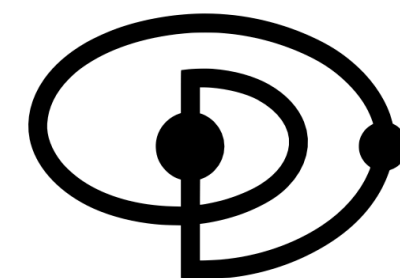
Observatoire de Paris | PSL

Context
Observatoire de Paris as an early EOSC adopter

- Early adopter of EOSC (since 2019)

  - EOSC-Hub 2nd Early-adopter program (2019):
    — within EPN2024RI Virtual Access activities (GA 871149)
    — **Goal**: deploying astronomy virtual observatory data publishing framework on EGI open stack.
    — **Continued use** until now for tutorial and workshops.
    — **New skills**: deploy of framework on openstack

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  - Adoption of EduTEAMS AAI (2020):
    — within EPN2024RI Virtual Access activities (GA 871149)
    — **Goal:** AAI for our gitlab sever (https://voparis-gitlab.obspm.fr)
    — **new skills:** integrate with AAI

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  - Cold storage by EOSC-DICE (2022):
    — NenuFAR project, an SKA pathfinder (nationally funded instrument)
    — provision of cold storage backup for NenuFAR datacenter: ~0.5 PB/yr.
    — hosted at MPCDF (Germany)
    — still using the service, thanks to collaboration with MPIfR (Bonn)
    — **new skills:** implement IRODS interface

Context

Observatoire de Paris as an astronomy pilot for EOSC

- ObsParis is a member of the EOSC association since 2020.

- Europlanet (H2020-INFRAIA-2019-1)
  — **ObsParis Goal**: FAIR data publication for planetary sciences in Europe
  — Adapt astronomy Virtual Observatory for Solar System sciences.
  — Adopted by ~30 institutes throughout Europe (+2 international) sharing ~90 data collections, ~40 millions of products
  — Early adopter (EOSC-Hub, EduTEAMS…)

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- EXTRACT (HORIZON-CL4-2022-DATA-01-05)
  — **ObsParis Goal**: compute continuum framework for a distributed datacenter (e.g., SKA)
  — successful deployment of EXTRACT framework at EGI (CESNET) and on EOSC-EU-Node

EXTRACT

A distributed data-mining software platform for extreme data across the compute continuum

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- FAIR-IMPACT (HORIZON-INFRA-2021-EOSC-01-05)
  — **ObsParis Goal**: Improve semantic interoperability
  — Adopted OntoPortal, for sharing and reusing vocabularies and ontologies.
  — Follow up: OSCARS cascading Grant for consolidating the prototype

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  + OSCARS: OPAL cascading grant

- OSTRAILS (HORIZON-INFRA-2023-EOSC-01-03)
  — **ObsParis Goal**: Lead the astronomy pilot (with ESCAPE cluster)
  — Two pilots:
      low frequency radio astronomy + astroparticles (cosmic ray showers)

Using the EOSC-EU-Node
Services we tested

- Credits

- File Sync and Share (online storage)

- Interactive Notebooks

- Virtual Machines

- Cloud Container Platform

Using the EOSC-EU-Node
Credits

- Credit system works well.

- We tested the "faculty" user type (500 credits renewed every 3 months).

  — *Issue*: for support teams (e.g., IT personnels), the 100 credits allocated, and the restriction on the services can be a problem

- We tested the "groups" feature (extra credits shared for the team).

- Good experience overall.

  — *Missing feature*: reminder to the user that the credits are expiring soon.

Using the EOSC-EU-Node
Storage and Notebooks

- Storage service based on OwnCloud.
  — Users reported loss of data after 3 months.
  — Desktop client works well
  — Storage space shared with the Notebook service 👍

- Interactive notebooks
  — no complaint, works as expected
  — "git clone repository" feature is great !

- *Missing feature:*
  — direct connection with the EOSC resource hub (or its future replacement)
    currently: one need to copy the data in local storage space
    solutions exist in community (e.g. within ESCAPE cluster)

Using the EOSC-EU-Node
Virtual Machines — Openstack

- Virtual Machines service tested as a follow up of previous EGI-based open stack experiments (Europlanet project).

- Worked well when we tested.

- But not really adapted to our use:
  — need for public and persistent IP for external access.
  — need VM running on the long term, since it is a pushing interface.

- Ok for short-term prototyping, processing or computing needs

- Not for persistent production service

Using the EOSC-EU-Node
Cloud — Kubernetes

- Deployed the EXTRACT project framework on the service.
  EXTRACT (https://extract-project.eu/)
  — EU project lead by BSC (Barcelona)
  — compute continuum infrastructure for massive and distributed data
  — *all development has been done on OVH-cloud (€€€)*
  — ObsParis use case = optimised workflow for distributed data processing
    (workflow orchestrator = COMPSs; task optimizer = Lithops)

- Seamless deployment, small demo workflow could run easily
  No specific hack needed, thanks to OKD (EOSC-EU-Node cloud technology).

- EOSC-EU-Node only used for testing/demo, not for development.
  Next step is real case processing with much larger dataset.

Summary
Great services !

- Storage + Notebook are very useful.

- Credit system is working well for us.

- Virtual machines and cloud are also working (only tested)

- **What's missing:**
  - Need to test at larger scales for Virtual Machines and Cloud
  - No solution for deploying production service.
    when no local IT infrastructure: teams have to pay OVH or Amazon
  - Need for better integration with resource hub (or equivalent)
  - manage and set-up "virtual organisations" (as in current AAI interfaces)