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Data Management in EGI

Status of EGI Services for Data Management

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Outline

- A quick overview of all EGI Data-related services
  - Archive Storage
  - Online Storage
  - Data Transfer
  - DataHub
- Looking forward
  - Offering services for the whole data lifecycle
  - Interesting complementary solutions

EGI Archive Storage

Back-up data for the long term

- **Legacy** service for **long term archival of data**
  - Initially based on Tape
    - Multiple EGI participants using tape for their internal needs
  - Other technologies could be used

- Currently discussing access models with service providers
  - Any interested service provider is welcome
  - May be retired from EGI Service Catalogue if no way to offer it is found

Online storage

Store, share and access your files and metadata

- A **production** service covering multiple **data storage and access** technologies
  - "Grid" Storage Elements
    - DPM, dCache, StoRM…
  - "Cloud" object-storage
    - OpenStack Swift

SWIFT
an OpenStack Community Project

dCache

DPM
Disk Pool Manager

StoRM

- **Providing data access** to other services
  - Cloud Compute, Cloud Container Compute
  - High Throughput Compute
  - Workload Manger

Data Transfer

Transfer large sets of data from one place to another

- A **production** service for **managing data transfers** reliably and efficiently
  - FTS- and WebFTS-based

- Two providers have **recently agreed an OLA** with EGI
  - CERN – FTS and WebFTS
  - UKRI/RAL - FTS

- Next steps
  - **Integration** of a **with EGI Check-in and RCauth**
    - OIDC
    - Online CA

DataHub

Data as a Service, distributed data management

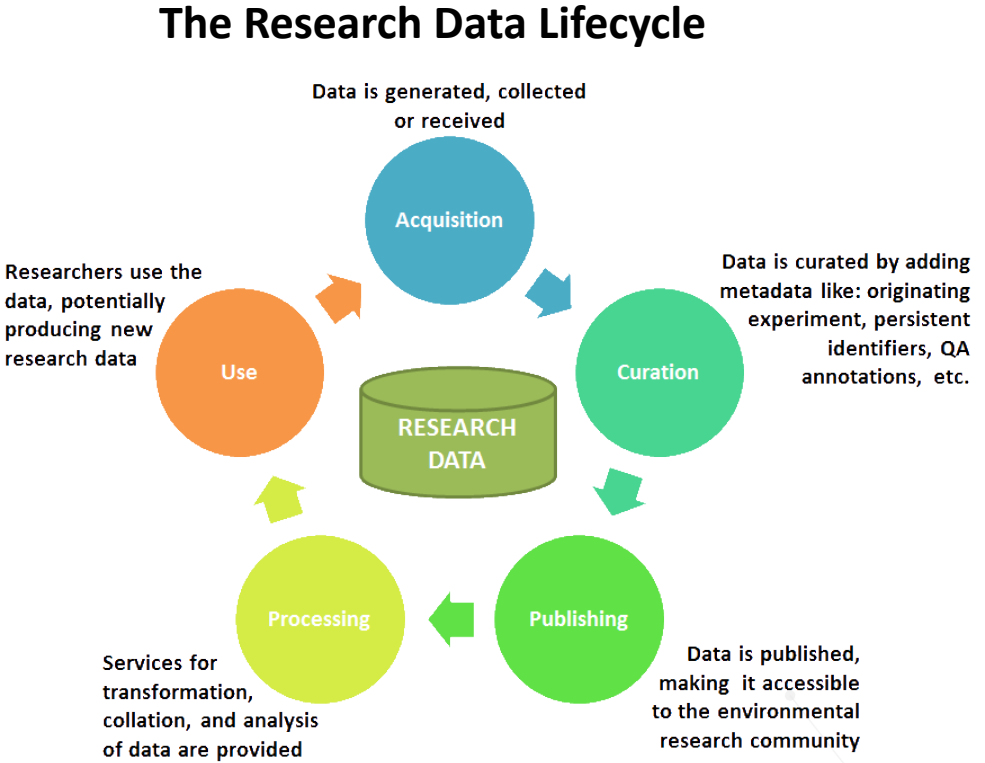
- A service for **federated access, sharing, publishing, discovery of data**
  - based on Onedata, operated by CYFRONET
  - EGI's central Onezone: https://datahub.egi.eu
    - A reference/central Oneprovider connected to the DataHub
    - Providers at various sites can be federated
  - Integration with various other services
    - EGI: Check-in AAI, Cloud Compute, Cloud Container Compute, Online Storage, Notebooks,…
    - EOSC-hub: B2HANDLE, B2FIND,…

- A long exploratory phase with various piloting activities was conducted
  - Lots of improvements on stability, performance
  - Lots of new features

Looking forward

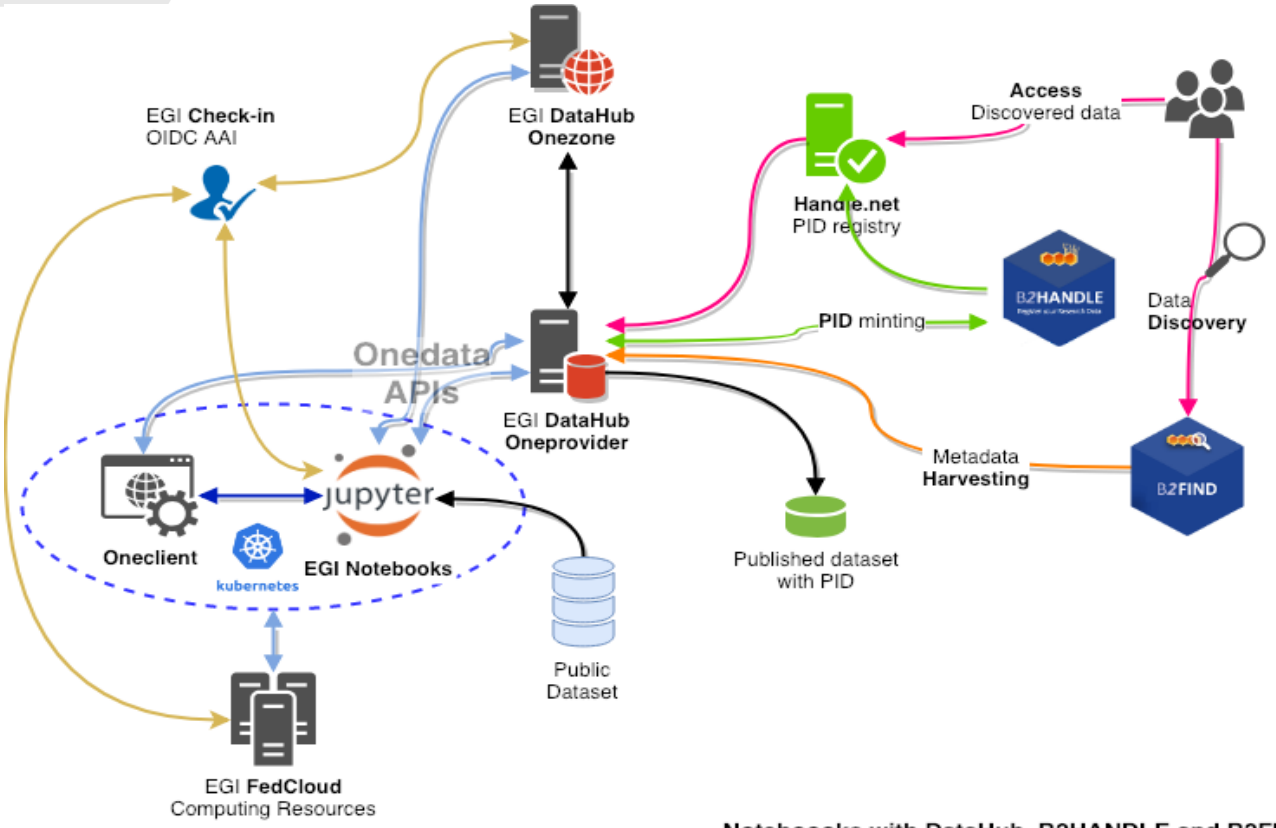
- Ambition: Providing **an interoperable** and **composable service offer** supporting the **research data lifecycle**

- Supporting FAIR practices
- Persistent Identifiers
- Cataloguing, Discovery
- Interoperability, Integration
- Data orchestration



Source: ENVRI Reference Model

Integration example



Notebooks with DataHub, B2HANDLE and B2FIND

Technology scouting

Rucio: distributed data management

- **Rucio**
  - A distributed data management solution
  - A rule-based engine for automated data management
  - FTS for Data Transfer scheduling and management
  - A central service able to connect to existing storage endpoint
    - No new component to be deployed at a site level

Technology scouting

Invenio: building data repositories

- Invenio
  - A **framework** for building data repositories
    - DOI/PID, discoverability, citation
    - Multiple “implementations”: Zenodo, CERN Videos, CERN Open Data, Reana, B2SHARE,…
  - Multiple options
    - Using/adapting/investing effort in an existing implementation
    - Creating a new one targeting EGI needs

EGI: Advanced Computing for Research

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Thank you
for your attention.

Questions?

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