CERN: Update and Plans

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(CERN)

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CERN's ESCAPE *Services*

- Operation of the ESCAPE dedicated EOS storage endpoint 350TB, xroot native, gridftp-door and http-door.

```
[root@eu-leman (mgm:master mq:master) ~]$ eos space ls
```

type	name	groupsize	groupmod	N(fs)	N(fs-rw)	sum(usedbytes)	sum(capacity)	capacity(rw)
spaceview	default	20	200	102	101	62.28 TB	347.90 TB	345.90 TB
spaceview	spare	0	0	97	36	3.26 TB	144.82 TB	70.83 TB

- Operation and maintenance of the the Kubernetes cluster hosting the Rucio components
  - 52 vCPUs, 104 GiB RAM, and 460 GB. Shared with other fundamental ESCAPE services, e.g. testing suite.
- FTS service using a production instance embedded in CERN IT infrastructure.
- Monitoring dashboards development and operation. General infrastructure for Grafana and DBs are embedded in CERN IT standard services.
- Operation of the ESCAPE dedicated CRIC (informations system) service.
- XCache based caching service, core contributions to XCache/XrootD team.
- Analysis Platform being built: RUCIO extension, XCache and SWAN.

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CERN Updates and Plans (1/3): Notebooks and User Analysis

- Analysis Platform infrastructure is paramount to disseminate new data management concepts and open data paradigm for education and small/medium experiments:
  - XCache, Jupyter/RUCIO integration, open data for LHC and non-LHC experiments, hackathons, science events for public.
- We aim to deploy a flexible analysis platform at CERN to:
  - Notebook oriented and RUCIO aware to provide user analysis ability, training platform, on-demand resources for organised events, integration with SWAN, etc.
  - Be able to absorb suitable workloads from experiments (LHC and fixed target)
  - Able to scale-up within the CERN infrastructure and make eventual use of external resources (i.e. commercial cloud vouchers)
- Possibilities for collaborations with fellow EC projects and sciences:
  - Sync&Share, educational scope: CS3MESH4EOSC
  - PaN community: PaNOSC/ExPaND, need for simple data management and analysis

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CERN Updates and Plans (2/3): Ecosystem Sustainability

- Demonstrate the usage of the ESCAPE Data Lake infrastructure and the ecosystem of tools
- Pursue real data access and real results from experiments as one of the main focus for the next FDR
- Foster the participation of idea of relatively inexperienced scientists in view of project sustainability:
  - How easy/difficult it is to start doing Data Management over an existing infrastructure?
    - *MMDM: Minimal Model for Data Management:* Recipes, instructions to fulfill kickstart approach for medium and small experiments data management framework/tools/….
- Leverage with WLCG/DOMA R+D activities

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CERN Updates and Plans (3/3): HL-LHC

- Increase focus on HL-LHC use case via ATLAS and CMS. Emphasis on technology exploration/contribution rather on volumetric tests.
  - RUCIO: multi-VO, metadata, QoS integration, token-based AAI
  - Caching: Analysis Facilities, Latency hiding+content delivery, resource integration
  - Software stack Data Lake integration: CRIC-FTS-RUCIO-Monitoring

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