Building a multi-VO Rucio instance at RAL

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Project Scope

- Rucio is a Distributed Data Management service

  - Used by ATLAS, CMS, exploration from SKA, DUNE and LIGO.

- We believe that Rucio is a sensible choice to manage user data between the various IRIS storage resources.

  - Currently Rucio is limited to a single Experiment per instance.

- The project is to build a production-quality, multi- experiment Rucio instance at RAL.

  - The Tier-1 has Rucio expertise from its Tier-1 Liaisons.

  - The Tier-1 had already set up a Rucio test instance for SKA to evaluate.

    - Attract.eu project to test network connectivity between South Africa and Europe using this instance.

Current Status

- Ian Johnson has spent 3PM on this work.

    - 1.1 Deploy a resilient database backend.

        - M1.1 Database migration failed. We had to re-populate the database manually.

        - D1.1 Resilient PostgreSQL database deployed.

    - 1.2 Deploy a Rucio UI and enable monitoring.

        - D1.2 UI has been setup.

        - M1.2 Monitoring is waiting on stable Elastic Search cluster.

    - 1.3 Improve resilience and scalability of service.

        - M1.3 Migrated service to OpenStack instance and documented deployment steps (easier in future).

        - D1.3 Provisioned ActiveMQ machine, but no additional Rucio servers yet.

Ian Johnson, 23th January 2019

Future work

- Add Multi-VO support to Rucio, to support multiple experiments in the same instance:

    - 2.1 Schema adaptation - Add VO field to all database tables.

    - 2.2 Authentication and Base client - Add VO specific authentication

    - 2.3 Functionality - Add VO field to all Rucio functions.

- Will recruit 6 month graduate from either STFC (Scientific Computing Dept.) or Centre for Doctoral Training.

    - Ian will supervise during this time.

- Expected completion September 2019.

    - We would want to start engaging with potentially interested experiments then.

    - We would expect to request further funding for digital assets to continue to expand the service.

Backup