



Science & Technology
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Multi-VO Rucio

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Overview

Rucio!

Multi-VO?

The Project

Development

Status

Usage

Rucio@RAL

Future work

Rucio!

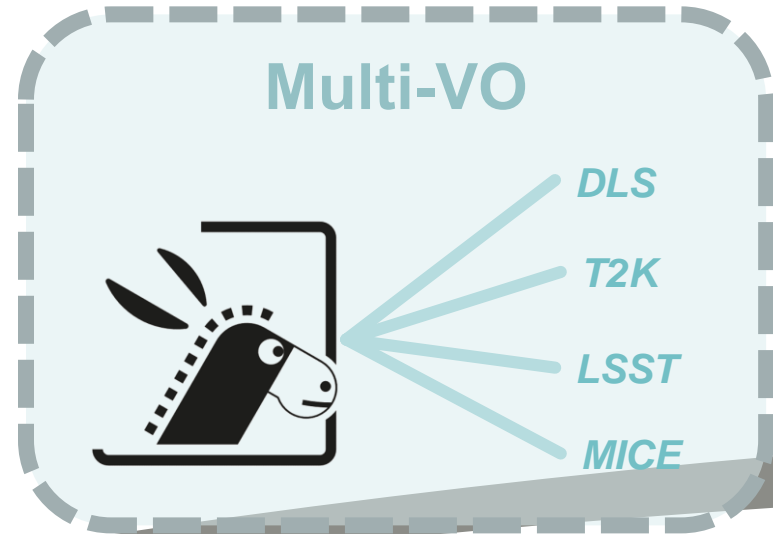
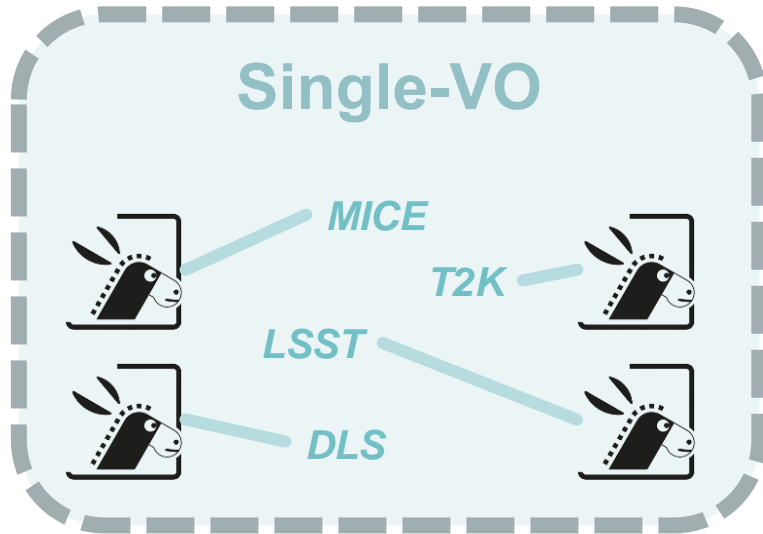
SCIENTIFIC DATA MANAGEMENT



- Distributed data management tool
- Developed to handle HEP domain volumes of data
- Originally built for ATLAS, now supporting CMS and other VOs
- Open source

Multi-VO?

A single instance capable of supporting smaller VO's



The Project

The Tier-1 is committed to providing a distributed data management service via Rucio to any supported experiment

My project is a 6-month project in collaboration with ATLAS to develop Multi-VO functionality in Rucio.

IRIS Tasks:

- 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

Developed on an STFC Cloud machine (m1.large, 8GB RAM, 2VCPUs)

Development

Split into 4 phases, each ending in a Pull Request:

- 1: Separate internal and external representations for RSE
- 2: Internal representations for Account and Scope
- 3: Database Schema updates (2.1)
- 4: Multi-VO features! (2.2 & 2.3)

No impact to Single-VO instances

Development



Travelled to CERN to kick start the project



Joined weekly meetings with developers via vc



Collaborated with core development team via Slack to make important design decisions



Implemented code to the agreed plan



Tested against unit tests, code review, and integration tests

Status

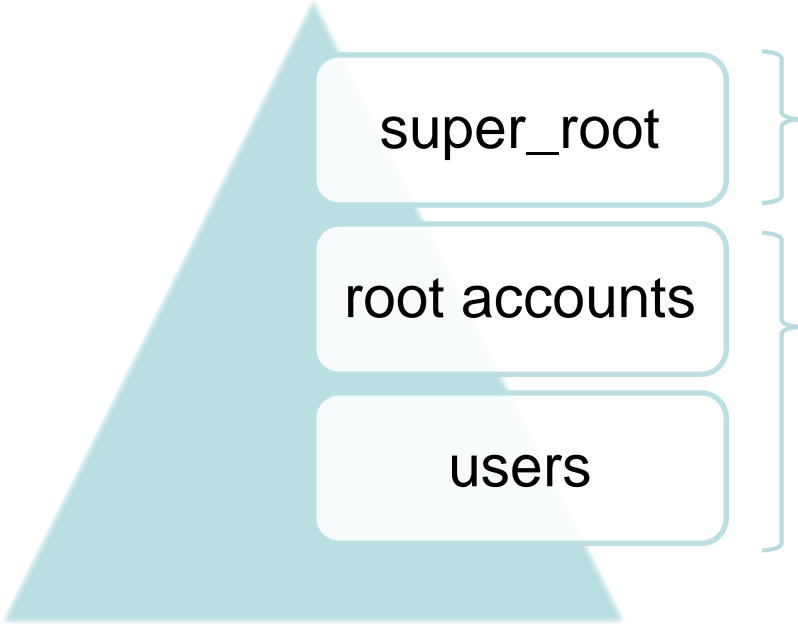
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Miscellaneous:

- Ensure all daemons work with Multi-VO (16/18)
Still to do: Auditor and c3po (Dark data and Copying popular files)

Usage (Admin)



super_root

Super_root creates VOs

root accounts

New VOs have individual root accounts for standard admin (e.g. Adding users)

users

Usage (User – Current)

An example of using Rucio for a typical user

Authentication

- Add Account, and credentials to “rucio.cfg” config file.

List Files

```
rucio ls user.jdoe:*
```

- Use Rucio CLI

Upload Files

```
rucio upload --pfn ~/a_file.txt --rse endpoint1 ...
```

- Use Rucio CLI

Usage (User – Multi-VO)

An example of using Multi-VO Rucio for a typical user

Authentication

- Add Account, **VO**, and credentials to “rucio.cfg” config file.

List Files

```
rucio ls user.jdoe:*
```

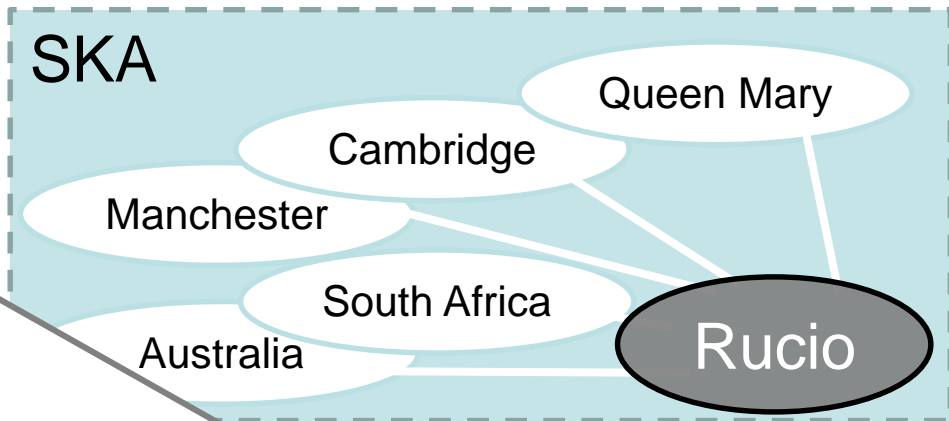
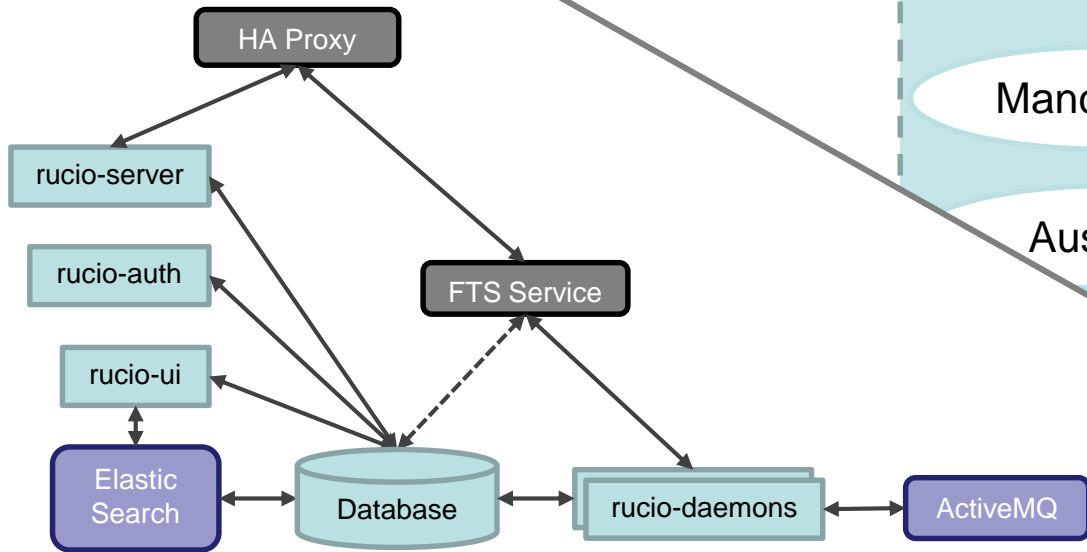
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Upload Files

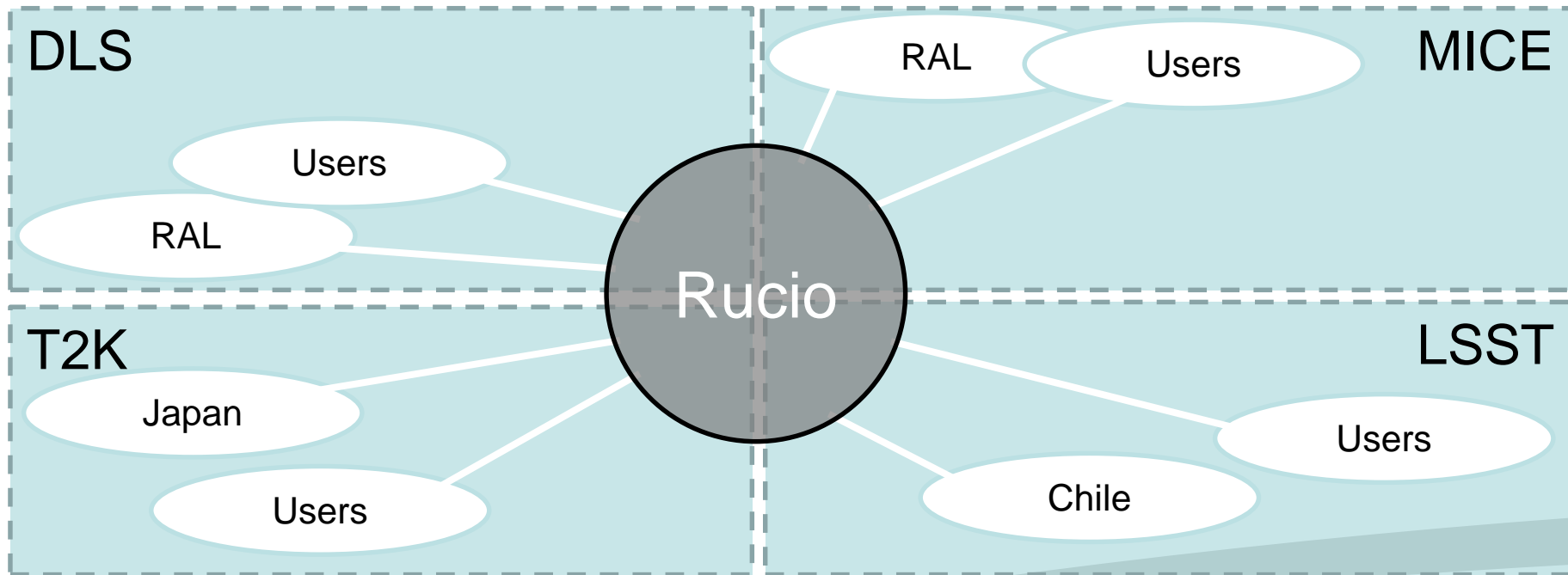
```
rucio upload --pfn ~/a_file.txt --rse endpoint1 ...
```

- Use Rucio CLI

Rucio@RAL



Rucio@RAL



Future work

Remaining daemons

Demo Multi-VO at RAL for integration tests

Multi-VO Rucio service running at RAL

Iterate permissions scheme as users join



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Thanks