

# Multi-VO Rucio

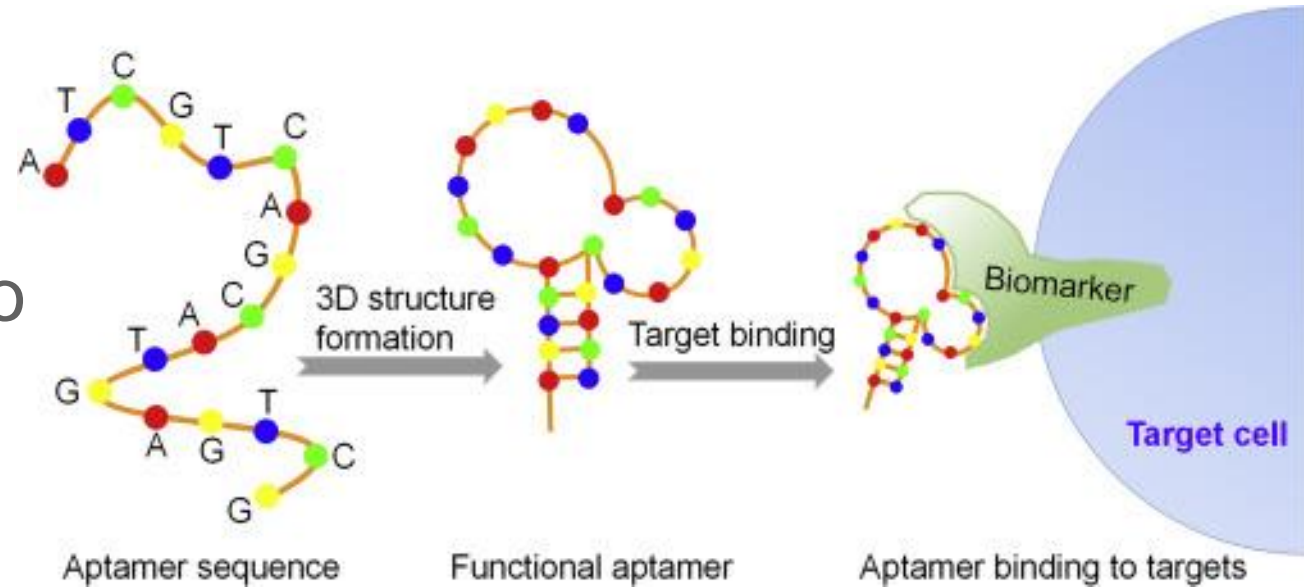
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(Multi-VO service owner)

# Overview

- Introduction
- Rucio
- Objectives
- Progress
- Future
- Conclusion

# Education Background

- PhD in Biomedical Science, specialising in Molecular and Cellular Biology.
- To discover proteins on the surface of cells that pointed to bone marrow stem cells.



# Industrial Experience

- Worked within industry for 3 small biotechnology companies.
- The joy of small companies is that you are involved in everything all the time.
- While furloughed decided to learn coding and develop a small app.

The screenshot shows a web application window titled 'KAMB' with a 'Kobold Reference Sheet' interface. The interface is divided into several sections:

- Name Your Kobold:** A text input field and a 'Save' button.
- Kobold Reference Sheet:** A table with three rows of stats and skills:

Brawn:	7	Sport	
Meat:	2		
Ego:	3		
Cunning:	1		
Extraneous:	10	Cook	
Luck:	3		
Get Lucky			
Reflexes:	7	Fast	
Agility:	2		
- HITS:** Max Kobold HITS: 7. Sub-sections: Armour HITS (1), Kobold HITS (7).
- +Edge:** +Animal Chum, +Kobold Senses, +Bark Like A Kobold.
- Bogie:** -Tastes Like Baby, -Tastes Like Kobold, -Fearless.
- Victory Points:** 1. **Death Cheques:** 0.
- Worn:** Socks.
- Wrong Paw:** Lint, Belly Button. **Right Paw:** Cooking Utensil.
- Bottom Row:** Death Cheque, Victory Point, -Hits, Use Magick.

# Role within RAL

- PhD conversion course to take skills and further develop skills for the role.
  - Software Development
  - Project management
  - Sys-admin
  - Service management

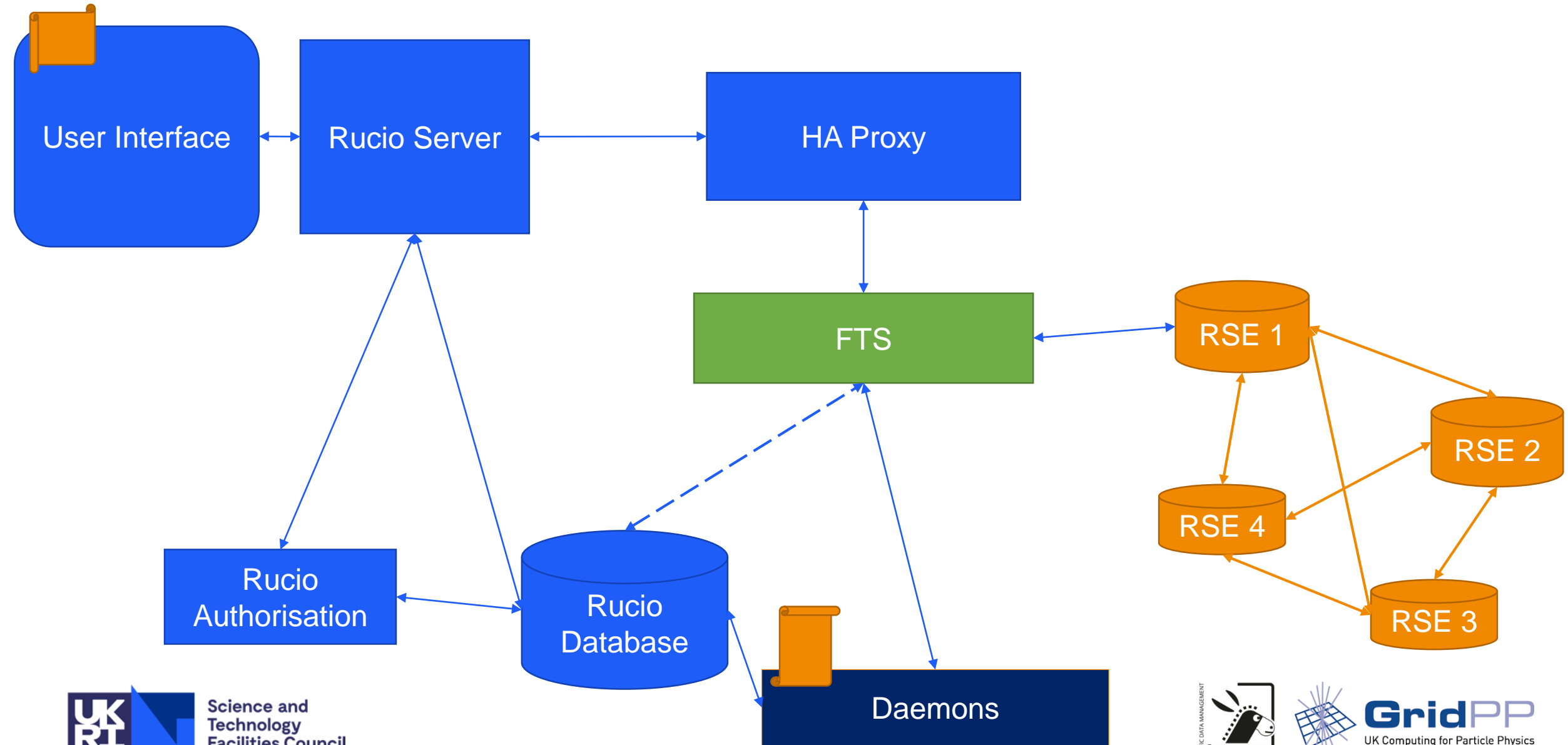
# Rucio

- Data management tool
- Developed by ATLAS, now used by other communities
- Data agnostic
- Heterogeneous storage ready
- Open source

SCIENTIFIC DATA MANAGEMENT



# Rucio - How transfers work



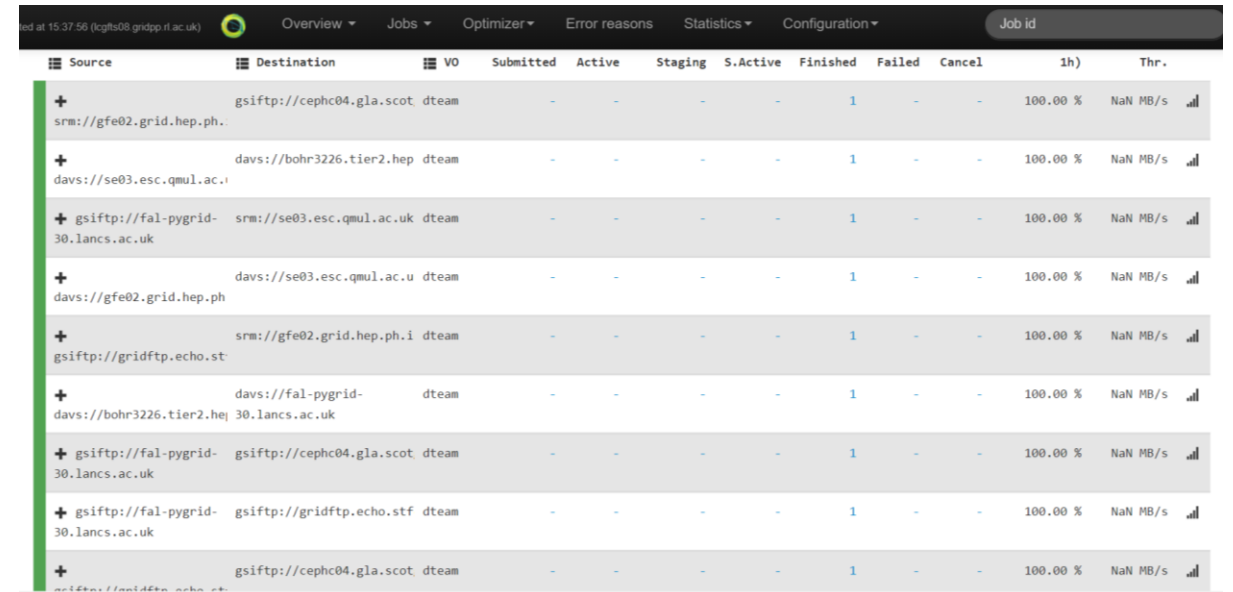
# Objectives

- UK based Data Lake
  - Configure at least 4 core sites
  - Configure additional sites with non-standard storage
  - Create metrics to compare prototype
- Work with developers to improve Rucio (including for Multi-VO)
- Integration of token authentication into Rucio to allow easier access.
- Increasing ease of access Rucio for smaller communities



# Progress - UK data lake prototype

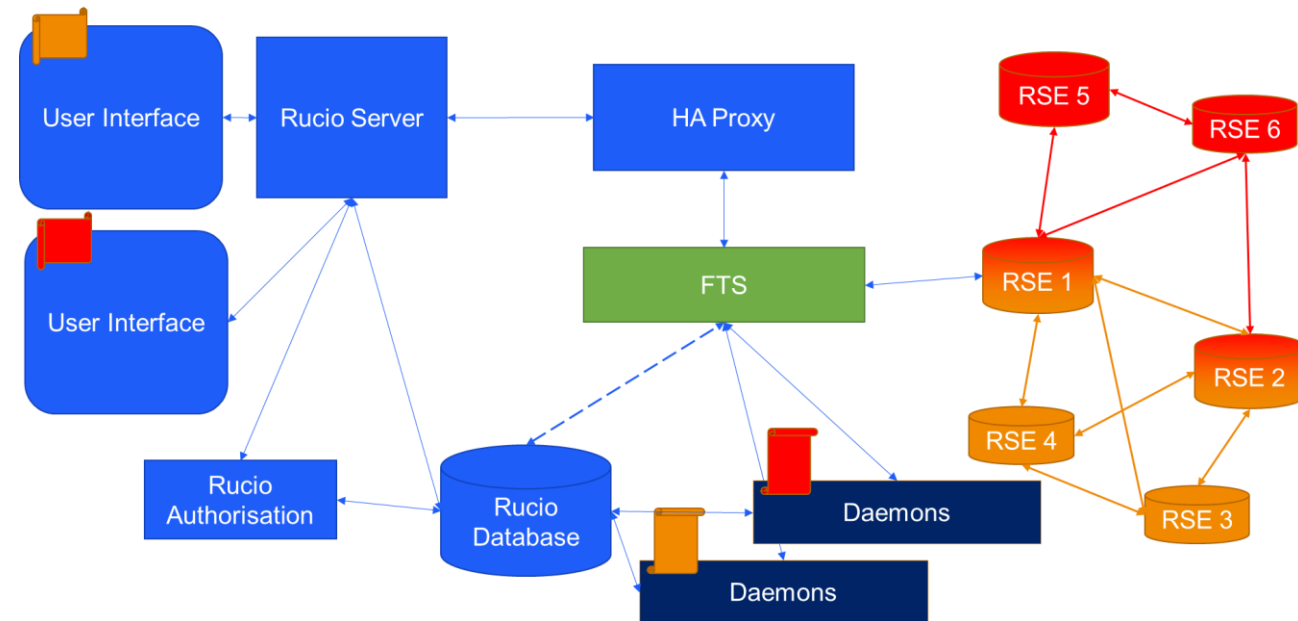
- Currently have 6 sites on the Multi-VO Rucio instance, with hourly transfers between these sites to test and monitor transfer success.
- Further monitoring to be incorporated.
- Will be incorporating other sites with non-standard storage (cloud, state-less, no storage)



Source	Destination	VO	Submitted	Active	Staging	S.Active	Finished	Failed	Cancel	1h)	Thr.
+ srm://gfe02.grid.hep.ph.	gsiftp://cephc04.gla.scot.dteam	dteam	-	-	-	-	1	-	-	100.00 %	NaN MB/s
+ davs://se03.esc.qmul.ac.uk	davs://bohr3226.tier2.hep.dteam	dteam	-	-	-	-	1	-	-	100.00 %	NaN MB/s
+ gsiftp://fal-pygrid-30.lancs.ac.uk	srm://se03.esc.qmul.ac.uk	dteam	-	-	-	-	1	-	-	100.00 %	NaN MB/s
+ davs://gfe02.grid.hep.ph	davs://se03.esc.qmul.ac.uk	dteam	-	-	-	-	1	-	-	100.00 %	NaN MB/s
+ gsiftp://gridftp.echo.st	srm://gfe02.grid.hep.ph.i	dteam	-	-	-	-	1	-	-	100.00 %	NaN MB/s
+ davs://bohr3226.tier2.hep	davs://fal-pygrid-30.lancs.ac.uk	dteam	-	-	-	-	1	-	-	100.00 %	NaN MB/s
+ gsiftp://fal-pygrid-30.lancs.ac.uk	gsiftp://cephc04.gla.scot	dteam	-	-	-	-	1	-	-	100.00 %	NaN MB/s
+ gsiftp://fal-pygrid-30.lancs.ac.uk	gsiftp://gridftp.echo.stf	dteam	-	-	-	-	1	-	-	100.00 %	NaN MB/s
+ gsiftp://gridftp.cephc.st	gsiftp://cephc04.gla.scot	dteam	-	-	-	-	1	-	-	100.00 %	NaN MB/s

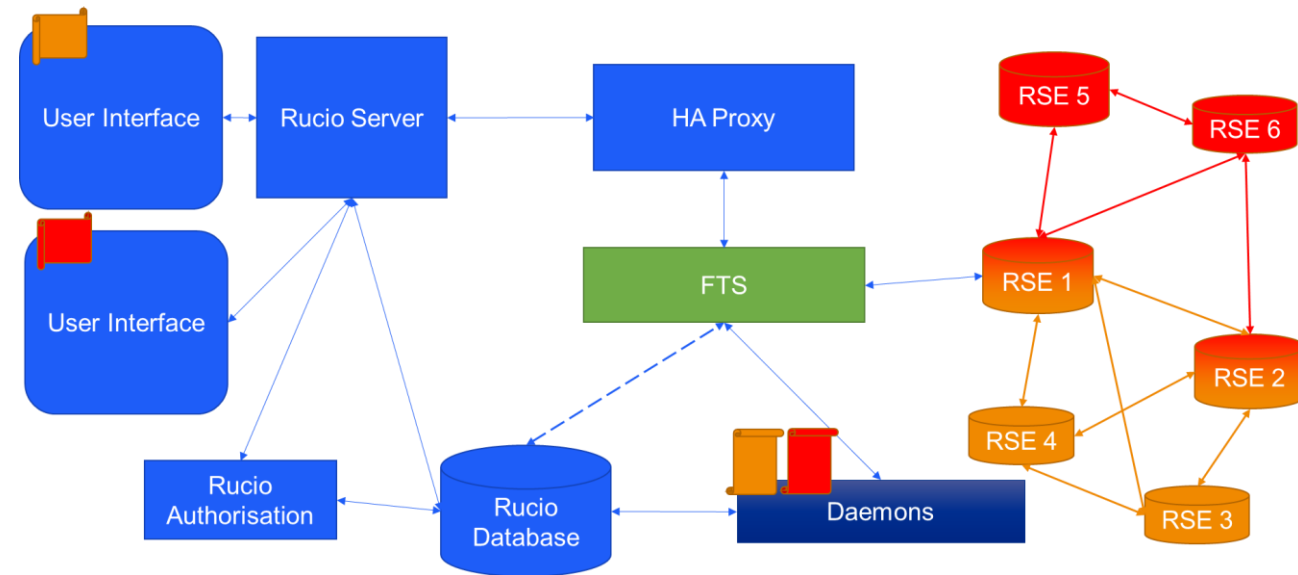
# Progress - Short term fix for Multi-VO Rucio

- Daemons can only select one certificate for authorisation currently
- A daemon server for each of the VOs



# Progress - Developed Code for fix

- Building on top of previous Multi-VO developments
- Developing a selection of certificate based on the VO submitting the job, but also allow for bulk submissions for scale up of the Multi-VO use.
- Continue to work with Rucio developers to improve Rucio.



# Progress – On-boarding of new communities

- On boarded two groups to Multi-VO Rucio
- Ran a tutorial and gave tutorial resources to a second community, with feedback to improve the resources.
- Running a webinar for EGI-ACE to promote Multi-VO Rucio to other communities  
October 6<sup>th</sup> 13:00 GMT

# Future

- Integration with IAM
- Develop Multi-VO compatible fix for the Rucio Web-UI
- Quality of Service improvements
  - Concept of high performance storage
  - Concept of reliability of storage

# Conclusion

- Multi-VO Rucio is being used to develop the UK data lake prototype
- Update of Rucio Instance to incorporate token authentication works developed already to allow for DIRAC integration
- Development works are improving Rucio constantly to communities needs
- Looking to improve ease of use to attract more communities

# Questions?