

Agenda

- Introduction to iRODS (10m)
- VSC Tier-1 Data Use cases (15m)
- Introduction to the KU Leuven iRODS testbed infrastructure (10m)
- Connecting to the KU Leuven testbed (10m)
- Working with iRODS (Basic)
 - Clients:
 - GUI: Metalnx (20m)
 - WebDav (15m)

BREAK -> People not interested on CLI/Python and advanced features can stop here

- Command line: icommands (20m)
- Python iRODS client (PRC) (20m)
- Working with iRODS (Advanced):
 - Task automation:
 - Rules (30m)
 - Other capabilities – not yet implemented (15m)
 - landing zone
 - auditing
 - provenance

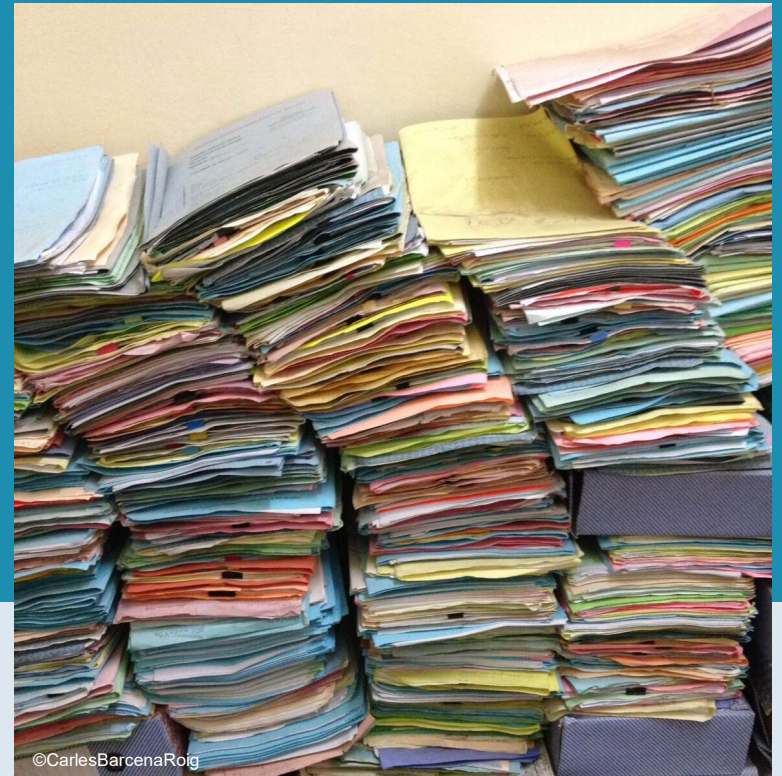
Training material

- All training material is available on github
 - <https://github.com/hpcleuven/iRODS-local-admin-training>

Mailing list: ICTSIRODS@ls.kuleuven.be

- All participants in the training has been added
- To submit support questions
- Share information with the group

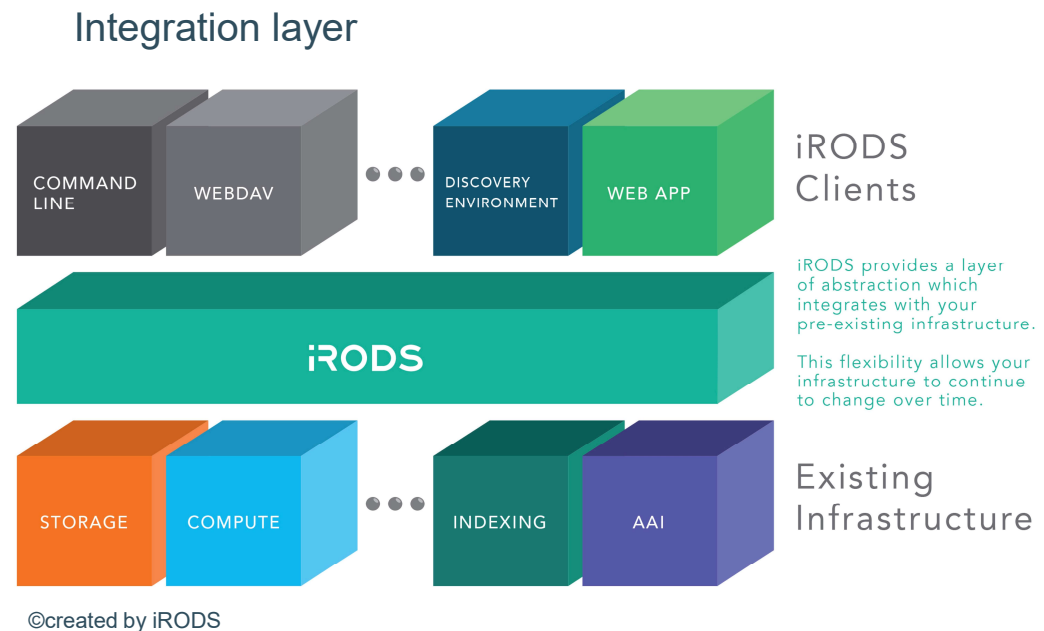
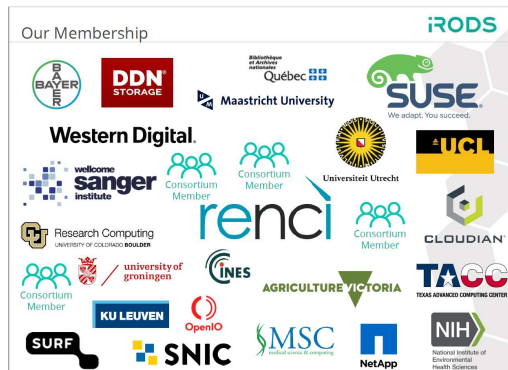
01.Introduction to iRODS



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What is iRODS?

- iRODS (integrated Rule-Oriented Data System)
- Open Source distributed data and storage management system
- Configurable data management policies and workflows
- Scalable
- A flexible framework for the abstraction of infrastructure



KU Leuven is part of the iRODS consortium – Sustained member

iRODS architecture



Clients

Provides access to iRODS



Catalogue Service Consumer – Storage server

Provides access to storage and other resources



Catalogue Service Provider – iRODS server

Provides access to the Catalogue

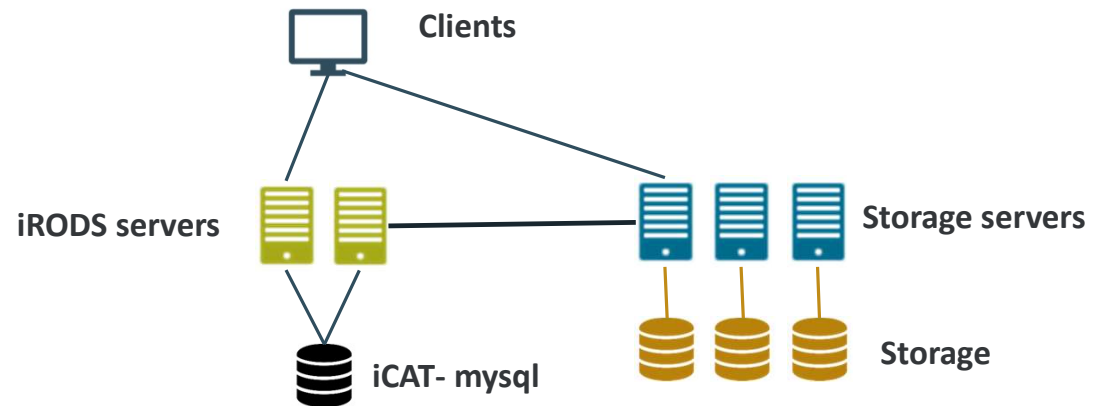
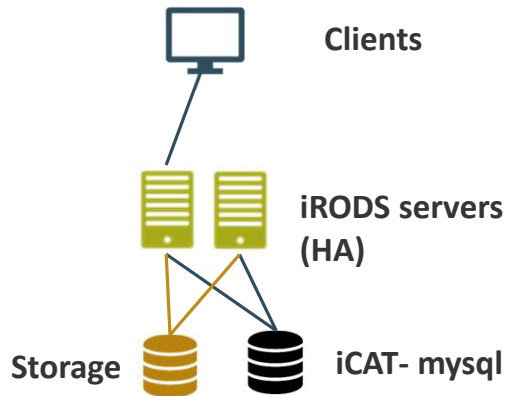


Metadata catalogue (iCAT)

Postgres/Mysql/Oracle

Where everything is written down

iRODS architecture: examples



iRODS Core competencies



Unified Storage Namespace

Data virtualization of distributed storage systems



Automation

Rule Engine to enforce data policies



Data Discovery

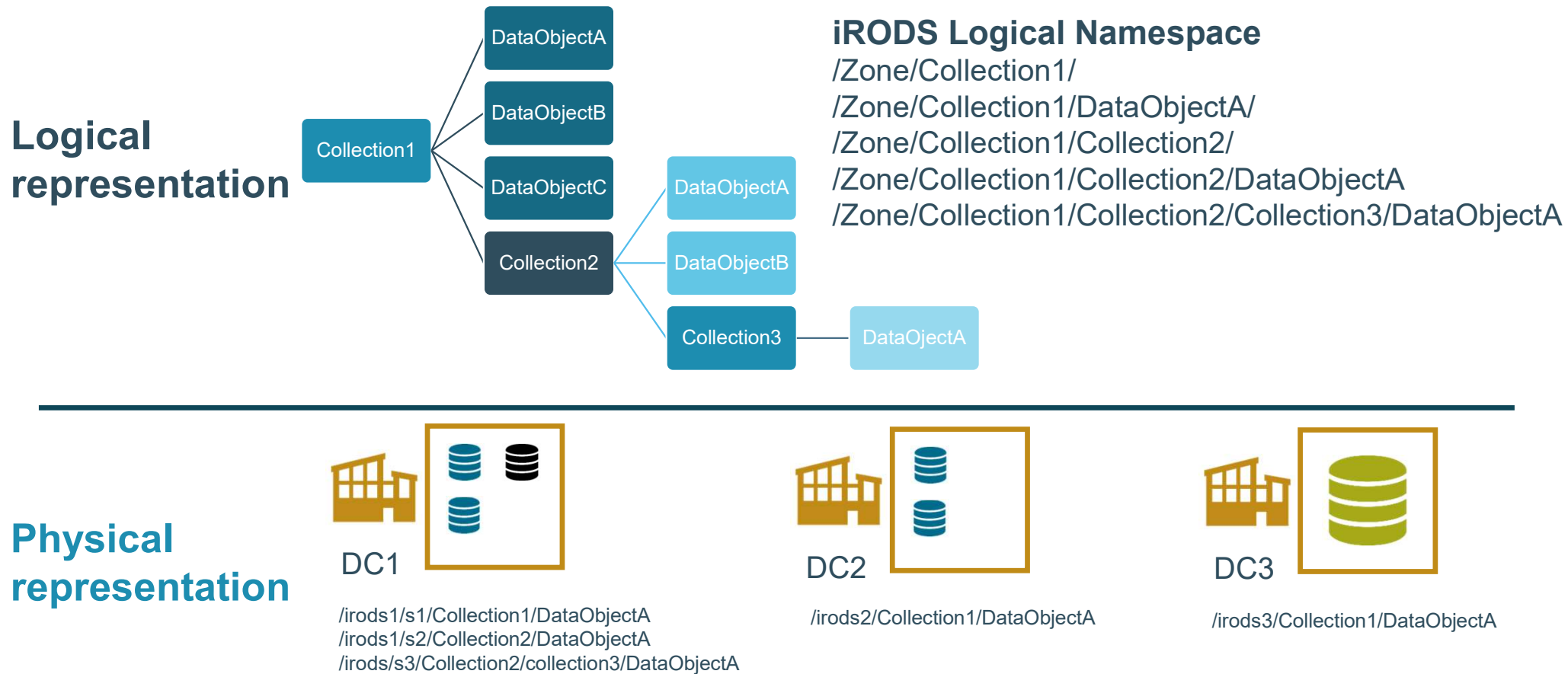
Rich Metadata for collections and data objects
(System metadata and user-defined metadata)



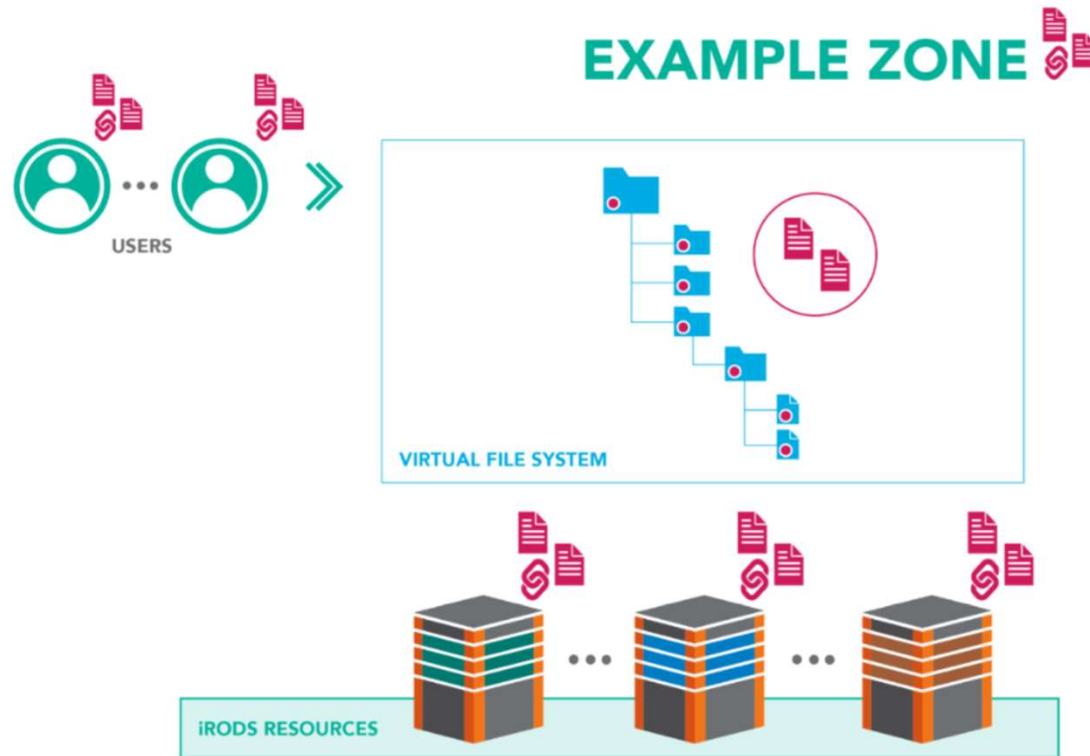
Secure collaboration

Three mechanisms: Permissions, Tickets and Federation

Data virtualization in iRODS



Data discovery: Metadata everywhere



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System Metadata:

- filename, file size, creation date ...

User Metadata:

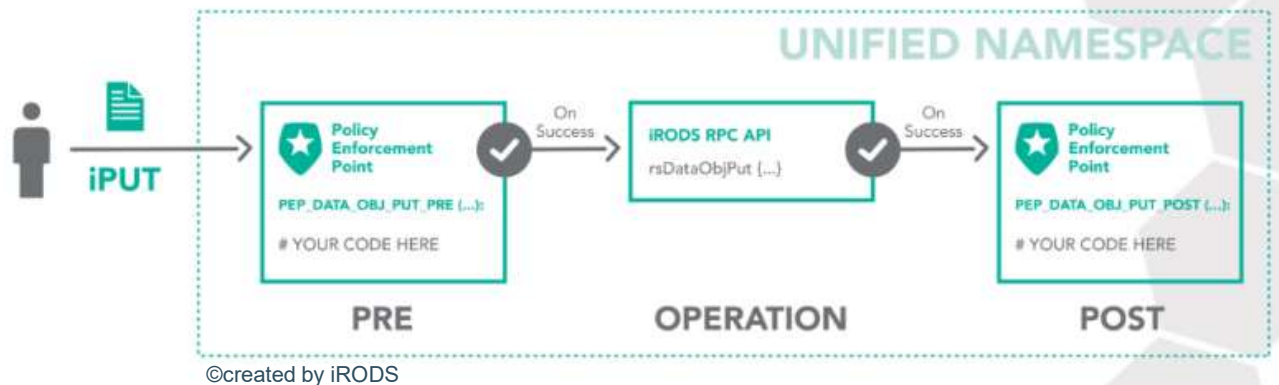
- Manual introduction
- Metadata templates
- Automation (rules/microservices)

Automation

Integrated policy engine can be triggered by any operation:

- Authentication
- Storage Access
- Database Interaction
- Network Activity
- Extensible RPC API

Dynamic Policy enforcements



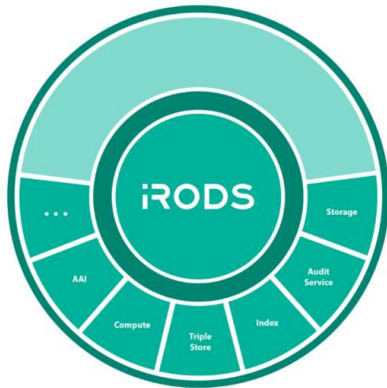
The iRODS rule may:

- restrict access
- log for audit and reporting
- provide additional context
- send a notification
- Execute a process on the file

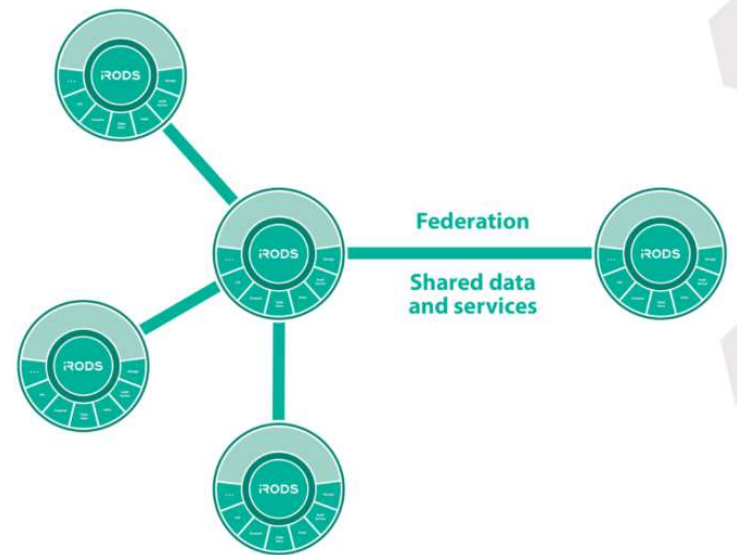
Secure collaboration

Inside a zone

- ACL (users, groups)
- Tickets:
 - Temporary access
 - No iRODS account needed



Between zones: federation



iRODS capabilities



Storage Tiering



Automated Ingest



Auditing



Provenance



Indexing



Publishing



Data Integrity



Compliance

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