iBridges: A comprehensive way of interfacing with iRODS

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iRODS User Group Meeting 2023
Chapel Hill North Carolina, USA

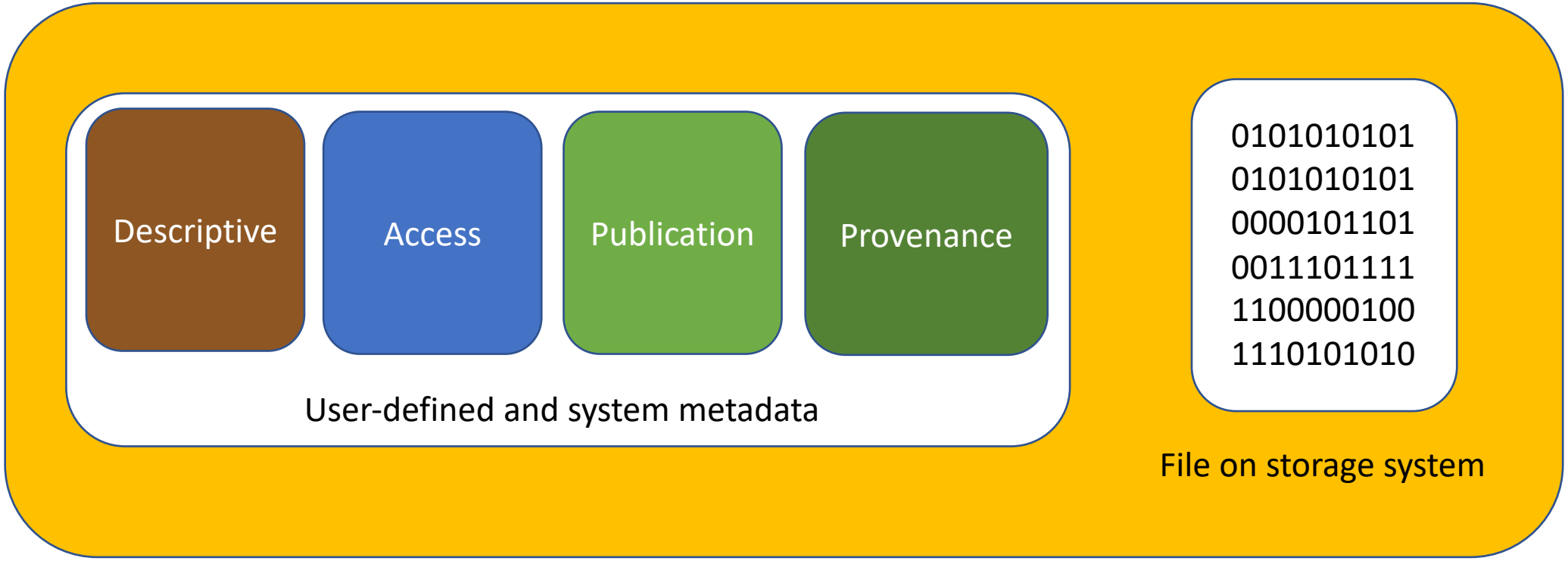
What would we need to master the data chaos?

- What if data objects
  - Could tell us where their copies are stored?
  - Could tell us which other data is derived from them?
  - Would carry metadata describing how they were generated?
  - Could tell us in which state they are (version, published, volatile)?

- Other metadata than system metadata → user-defined metadata
- System and user-defined metadata that cannot be separated from the data object
- A service that shows us the data object and not only the files

iRODS provides Data objects

Data object = File + metadata + identifier



Keeping data and metadata tied together: iRODS

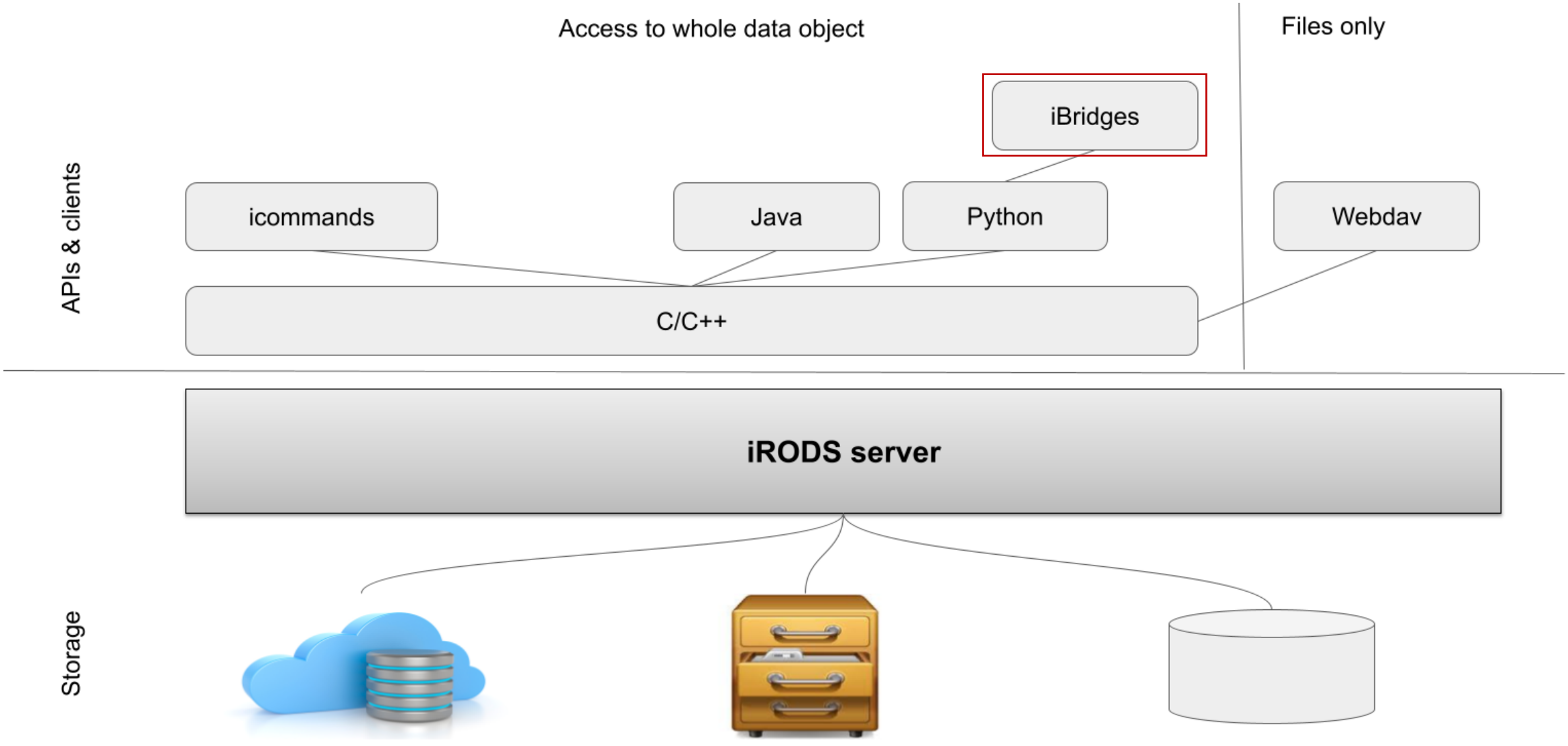
iRODS is great, but …

- We need an easy interface for researchers to interact with their data

  → GUI

- Use case requirements
  - NPEC project, Wageningen UR:
    - standalone software, needs to be able to run on computers provided by suppliers for laboratory equipment → no influence on preinstalled software
    - Large data uploads; ~500GB per upload
    - Continuous data uploads (synchronisation from local source to iRODS)
- GUI
  - Supported on major platforms: Windows, macOS and Linux
  - Respects and does not to interfere with any possible policies on the iRODS servers
  - Easily interface with other data services on the client side

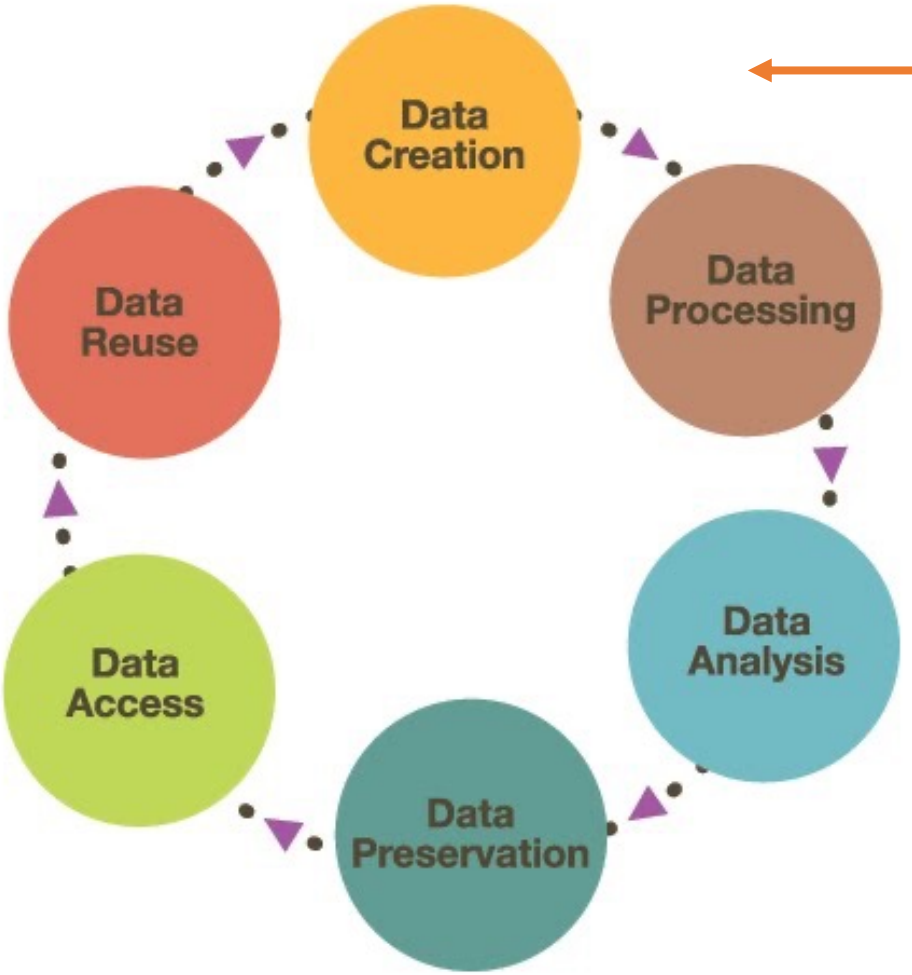
YODA: Accessing data objects



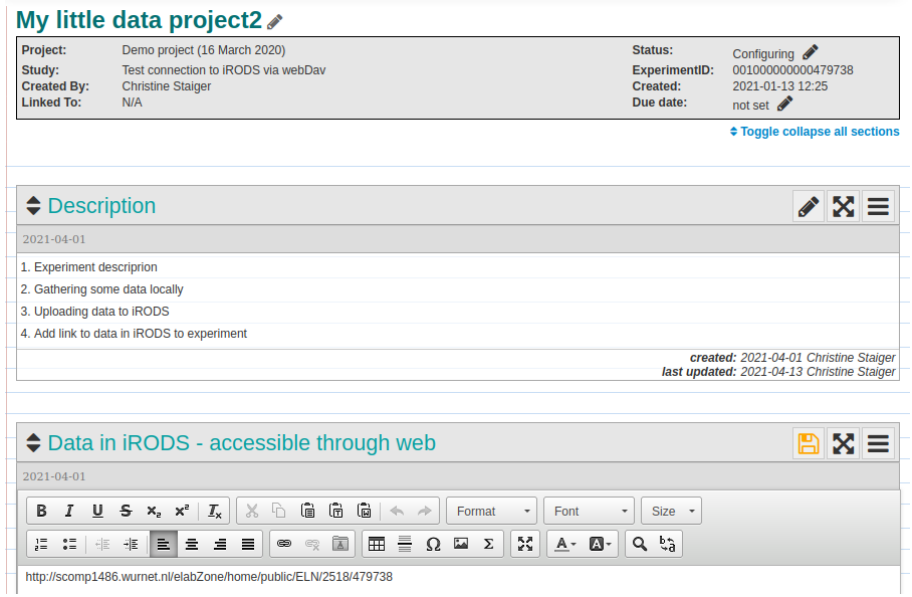
Interfacing with other services

- Client-side integration
  - Light-weight integration
  - Code should potentially also be easy to understand to enable scientific programmers to provide their group with a different view on their data
  - Integrate iRODS and other services on API level
- Examples
  - Integration of iRODS with an electronical labnotebook server
  - Integration of iRODS with an audio transcription service

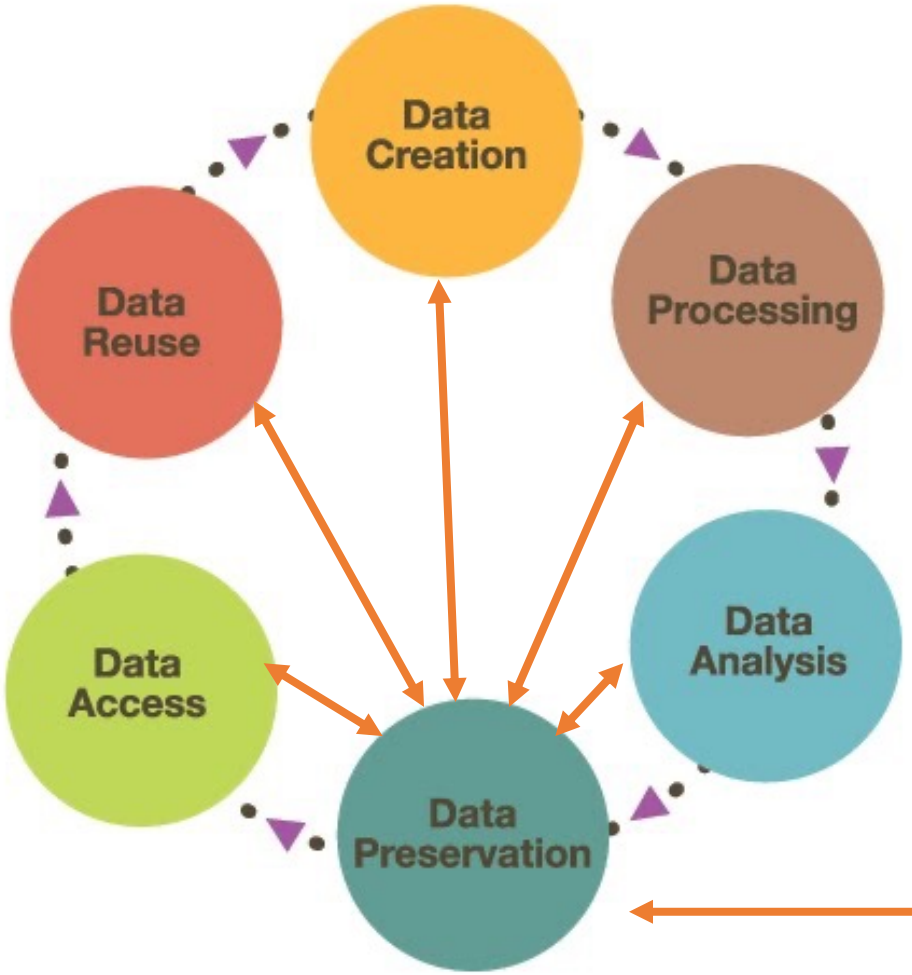
From data creation to archiving: ELN



ElabJournal: Describe how data is generated in a lab (Experiment)



From data creation to archiving: Yoda



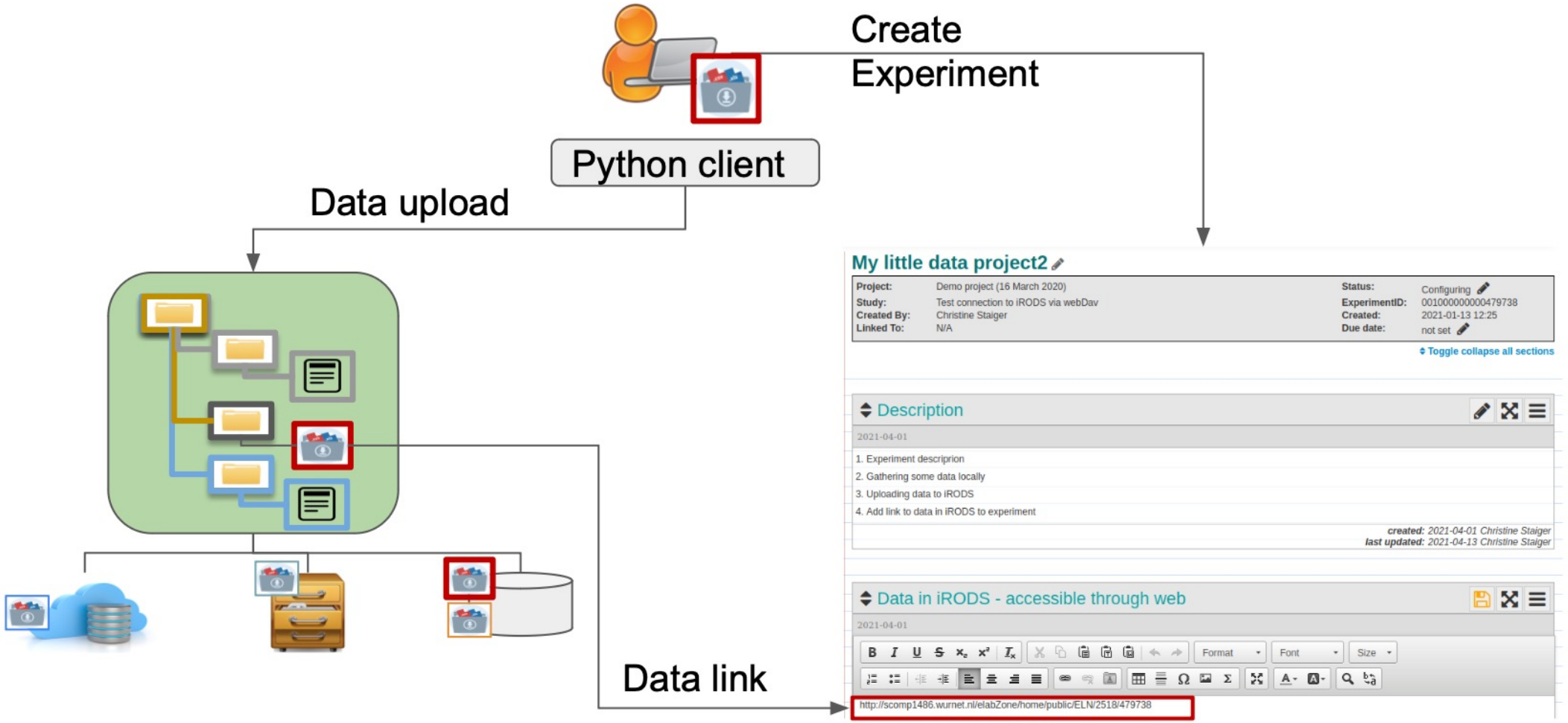
- Based on iRODS (Talk by Lazlo Westerhoff in the afternoon)
- Provides data steward workflow to
  - Ensure quality of archived data, data curation
  - Transfer responsibility from researcher to data manager

- No matter in which state your data is, Yoda is the route and guide to safe archiving

- Check out archived data to any stage in which the project is

Yoda: Preparing data for archiving and properly archive data

The workflow



Demo time

Future work & the Team

- Unit tests for backend (in progress)
- Data synchronisation (in progress)
- Improving performance of data transfers through the python API (in progress)
- Code optimalisation of the front-end
- Packaging software as executable
- Plugin structure for interfacing with other data services
- Extend iRODS ticket functionality

Contribute or test:
https://github.com/chStaiger/iBridges-Gui

The team and special thanks to:

University of Groningen:
John Mc Farland, Simona Stoica

Utrecht University:
Maarten Schermer, Christine

Wageningen University and Research:
Jos Tersteeg, Tim van Daalen