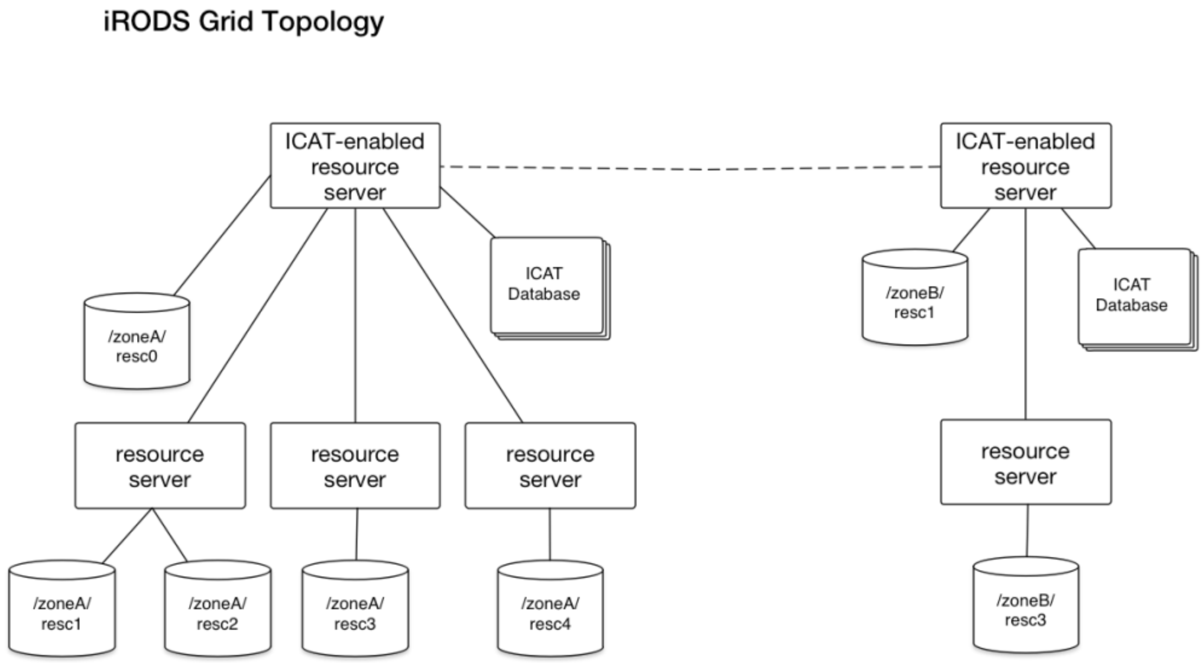
dCache and iRODs

iRODs

- Open source data management middleware
- Metadata
- Actions triggered based on rule engine
- Federation
  - Sharing data
- Storage are “resources”
  - Composable resources
- Clients
  - Commandline (iCommands)
  - API (libraries C++, Python, Golang, PHP,….)
- WebDAV
- More info on irods.org

iRODs


iRODS Grid Topology
ICAT-enabled resource server
ICAT Database
/zoneA/ resc0
resource server
resource server
resource server
/zoneA/ resc1
/zoneA/ resc2
/zoneA/ resc3
/zoneA/ resc4
ICAT-enabled resource server
/zoneB/ resc1
ICAT Database
resource server
/zoneB/ resc3

iRODs

- IRODs in use in a number of places
  - EUDAT’s B2SAFE
  - SweStore
  - …..
- @SURF
  - Scale-out service
  - Hosting
  - YODA (GUI)

iRODs and dCache

- Make iRODs sit on top of a dCache nfs4.1 mounted filesystem
- IRODs has various plugins
- libunixfilesystem.cpp
- Make it work with WORM storage

iRODs and dCache

- Needed to modify libunixfilesystem.cpp at a few places
  - At places where a file is opened for (over)writing, throw it away first
- iCommands seem to work (imkdir, icp, irm, imv,…)
- There is one thing though….or actually two

iRODs and dCache

- In libunixfilesystem.cpp there is a unix_file_open_plugin
- This function is used when files are overwritten
- Opens files with O_RDWR|O_CREAT|O_TRUNC when files are overwritten
- That’s what I filter for when deciding to throw away a file
- But are O_RDWR|O_CREAT|O_TRUNC used in this function for purposes other than overwriting files?
  - Needs to be checked out
  - The O_RDWR is what worries me

iRODs and dCache

- Then there is the client API
  - rcDataObjOpen, rcDataObjLseek, rcDataObjWrite
- This will not work on WORM storages

iRODs and dCache

- What needs to be done?
  - Make sure that throwing away existing files first will not create havoc
  - Fix API in some way

iRODs and dCache

- How?
  - Make a clear distinction between opening files for reading and (overwriting)
    - Maybe a separate WORM iRODs plugin?
  - Make the dangerous API calls return a proper error message
  - Put the file that is to be modified in some noWORM scratch space and copy it back when you are done
  - Or…….a NoWORM dCache???