

# Prospects and needs for iRODS at CC-IN2P3

Jean-Yves Nief Pascal Calvat Yonny Cardenas

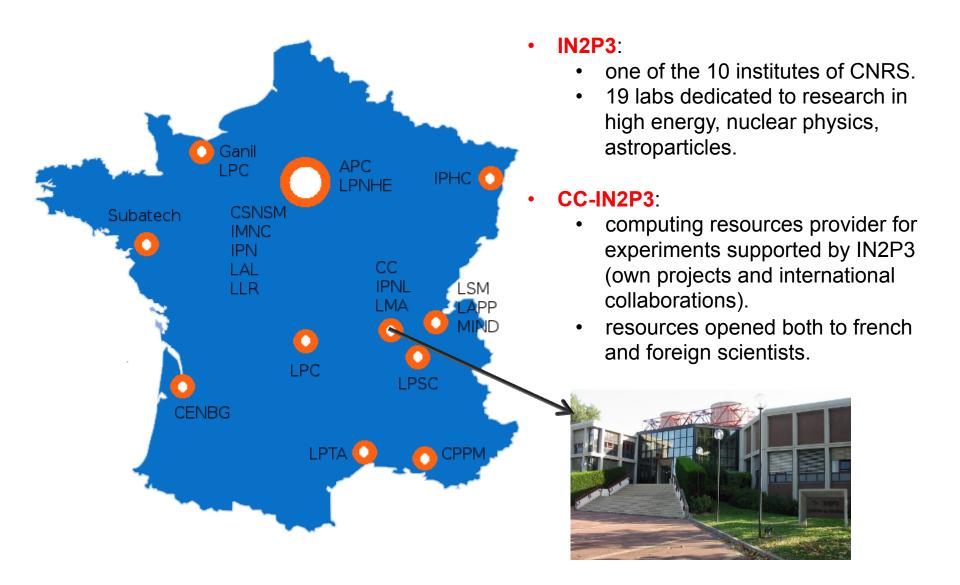




- Brief status of iRODS usage at CC-IN2P3:
  - Users.
  - Architecture.
- What is needed or missing for us in iRODS ?
- Where are we heading with iRODS ?
  - Future plans.
  - Scalibility.



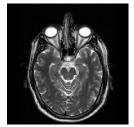
### What is CC-IN2P3?



### iRODS users' profile @ CC-IN2P3

- Researchers of various disciplines:
  - Data sharing, management and distribution.
  - Data processing.
  - Data archival.
  - Physics:
    - High Energy Physics
    - Nuclear Physics
    - Astroparticle
    - Astrophysics
    - Fluid mechanics
    - Nanotechnology
  - Biology:
    - Genetics, phylogenetics
    - Ecology
  - Biomedical:
    - Neuroscience
    - Medical imagery
    - Pharmacology (in silico)
  - Arts and Humanities:
    - Archeology
    - Digital document storage
    - Economic studies
  - Computer science





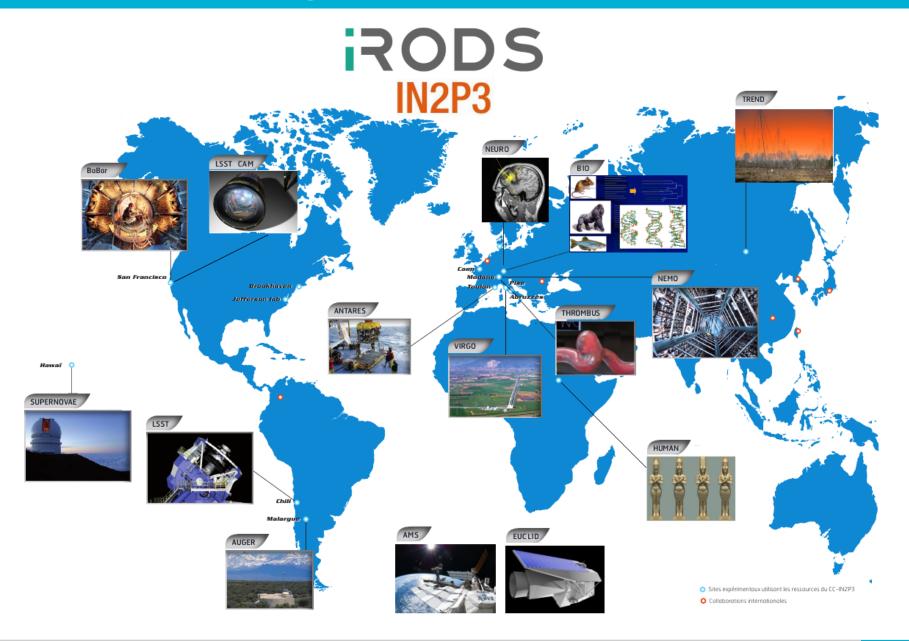








### iRODS @ CC-IN2P3: some of the users



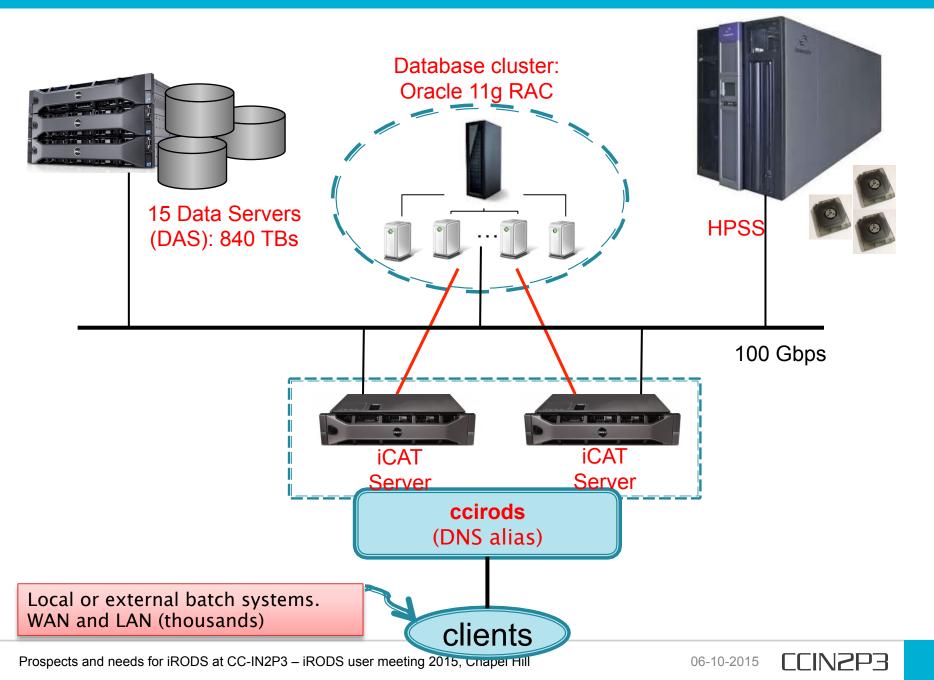
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- > 23 zones.
- ▶ 41 groups.
- 469 users:
  - Maximum of 800k connections per day.
  - Maximum of 6.4m connections per month.
- 80 millions of files.

## 9700 TBs of data as of today: Up to +30 TBs growing rate per day.

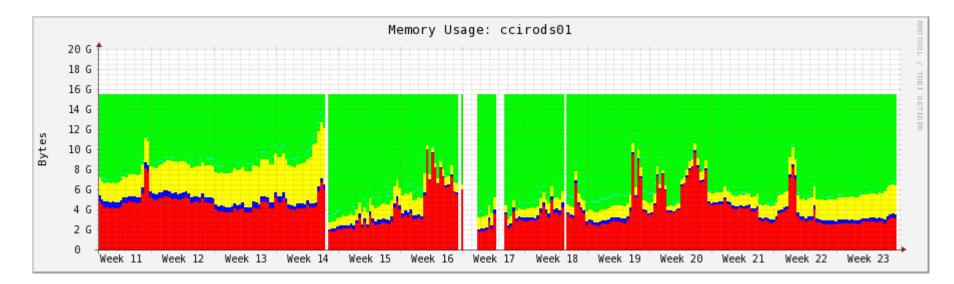


#### iRODS Server side architecture



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- Connection control:
  - Very important as client activity not under control.
  - Can go wild (especially memory usage):



- Usage of CCMS: mainly protecting the iCATs.
- Improvements needed:
  - Better to queue the client requests instead of rejecting them immediatly.
  - If connection limit reached, even privileged user cannot login.

- Rule management:
  - Up to 10 of thousands of delayed rules in queue (eg: replication onto tapes).
  - Some rules (like admin rules) have higher priority (eg: disk cleanup).
  - → Scheduling priority needed: no need for fancy scheduling.
  - Adding a name stick to rule id: easier to manage (for iqdel etc...).
  - Rule information stored on local filesystem ? Could be in the database ? (easier to have several irodsReServer in the same zone).



On the client side.

- Windows support.
  - icommands v3.0 still being used.
- Should remain multiplatform as it is (various Unix flavors used).
- GUIs:
  - Old Windows explorer still being used.
  - Unmaintained php browser still being used.
- APIs:
  - Support of PHP APIs.

### Bulk download:

Extremely important for collections with small files.

### GUI example (developed at CC-IN2P3)

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06-10-2015 LLIN2P3

- On the fly compression for upload/download (like what has been made for myirods with snappy lib).
- File versionning:
  - Extra value for small sites: could be a solution for sites needing a backup solution.
- Automatic replication of « hot » files between two physical resources.
- Monitoring/accounting modules added to iRODS (for small sites):
  - Everybody cannot have Nagios, Elastic Search etc...



- Volume increase: linear growth now.
- Reaching 10 PBs very soon.
- Massive migration to v4.
- Provide a REST interface to our storage systems through iRODS.
- Medium term archival service build on iRODS ?
- Scalability: throttle the clients requests, avoid overwhelming the servers.
- Feeling the rising competition with cloud technologies:
  - Even though they do not provide the same services or just a subset of what iRODS provides.