

**DIRAC@CNAF**

**THE INTERWARE**

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# WHY?

- WMS is being decommissioned!
- CNAF needs a replacement solution.
- Users need a replacement solution.
- Many users cannot afford manpower for development.
- We need something versatile, user friendly, customizable, fully integrated with the grid infrastructure, and ready to be implemented



## WHAT IS IT?

- is a software framework for distributed computing providing a complete solution to user communities that use distributed resources.
- The project started in 2003 for LHCb experiment (CERN) to provide a workload management for LHCb data production system and now is the base for almost all aspects of it's distributed computing as:
  - Workload management
  - Data management
  - High level productions services
  - Monitoring of resources, activities and services
  - Accounting
  - Interfaces
- In 2009 Core DIRAC splitted from LHCb to be a more generalized software, making it suitable for any user community. And in 2014 a consotium was created to develop, maintain and promote DIRAC, being currently part of this consortium: CERN, CNRS, University of Barcelona, IHEP, KEK, University of Montpellier, PNNL.

# Advantages?

- Open source software with long term support and constant development driven by a strong user community
- Starting from this year, DIRAC becomes a Core service of EGI
- Compatibility with most computing resources like HTC sites (CREAM, ARC, HTCondor), EGI FedCloud Sites, BOINC, Container based Clouds (e.g. Yandex) and even custom community specific ad hoc services like local clusters accessible via SSH or VPN
- Storage element abstraction with a client implementation for each (or multiple) access protocol:
  - DIPS, SRM, XROOTD RFIO, etc...
  - gfal2 based plugin gives access to all protocols supported by the library (DCAP, WebDAV, S3....)
- Central File Catalog maintaining a single global logical namespace
- Easy Data Management operations thru a single client interface

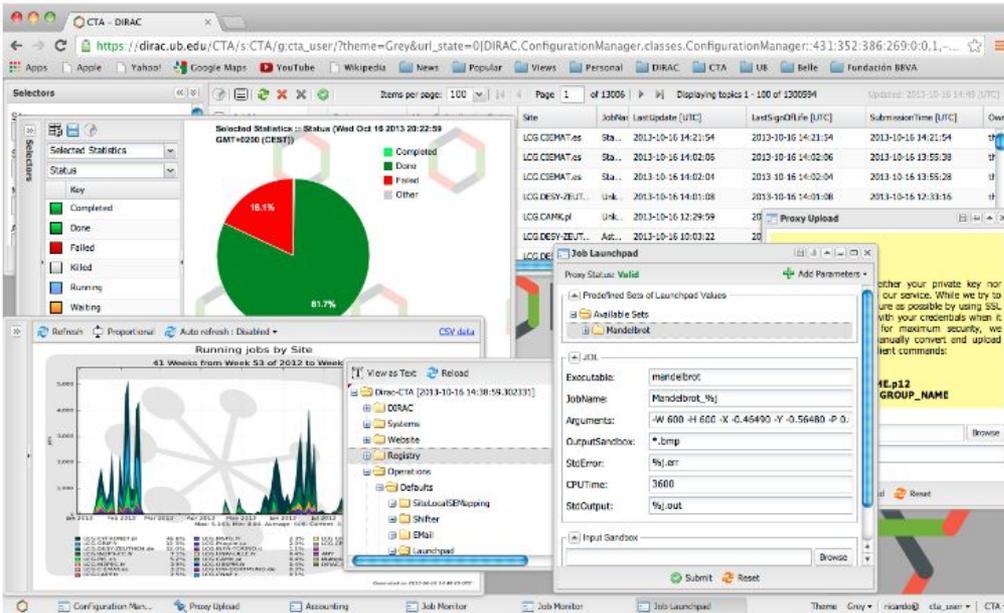


## More?

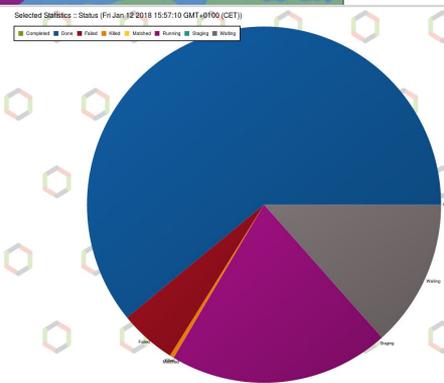
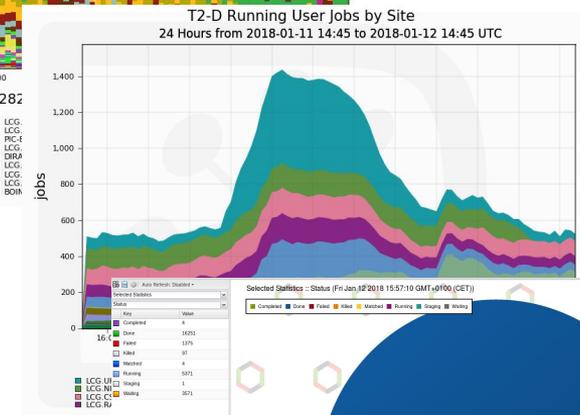
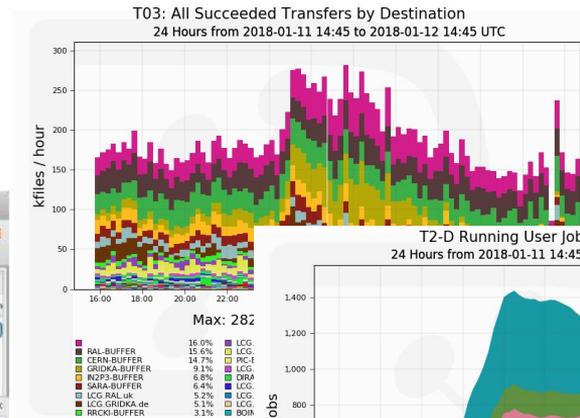
- Workload management
- Resource management
- Security infrastructure
- High level automated services
- Accounting
- Multiple interfaces:
  - Web Portal user interface
  - “gLite-Style” command lines
    - `Dirac-wms-job-submit job.jdl`
  - COMDIRAC command lines
    - `dsub echo Hello World`
  - Python API
  - REST interface for third party development using DIRAC services



# Snapshots, why not?



The screenshot shows the DIRAC Configuration Manager interface. On the left, a 'Selected Statistics' pie chart shows job status: 81.7% Completed (green) and 18.1% Failed (red). Below it, a 'Running jobs by Site' area shows a bar chart of job activity over time. The main panel displays a table of jobs with columns for Site, JobName, LastUpdate, LastSigOfLife, and SubmissionTime. A 'Job Launched' dialog box is open, showing configuration for a 'Mandelbrot' job, including arguments like '-W 600 -H 600 -X -0.45490 -Y -0.56480 -P 0' and a CPU time of 3600.



## Conclusion!

- For users, DIRAC is a great tool that allows to manage and monitor all aspects of the experiment as well as easily submit productions.
- Once the DIRAC instance at CNAF is functional, users should define their needs and together we can optimize the software and collaborate with the development of custom tools to enhance the productivity
- CNAF will provide Tutorials and Workshops for users in order to smooth the transition to the new system. As well as the usual user support.

# Thank You!

