

UK DIRAC for IRIS

(+ one bonus slide)

Daniela Bauer



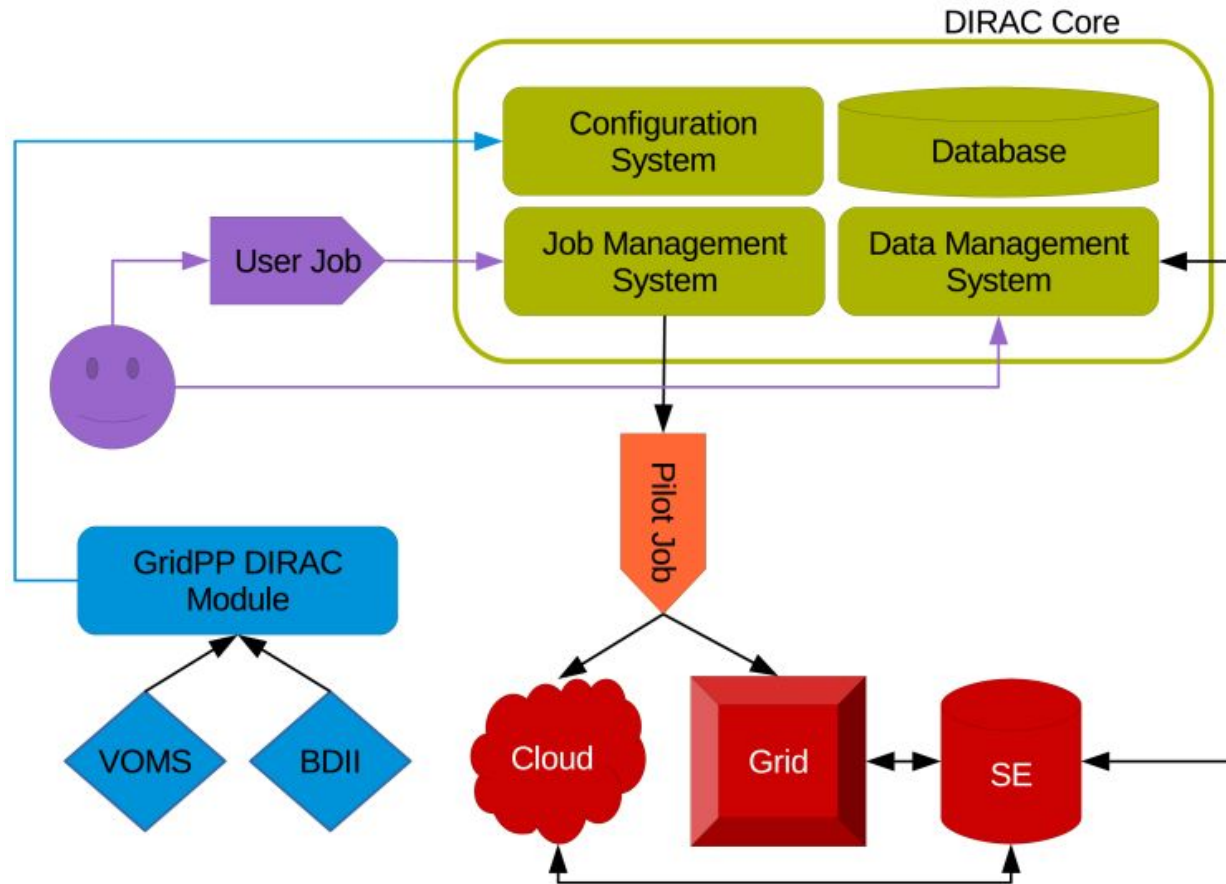
What is DIRAC ?



- DIRAC is a software originally developed by LHCb that comprises of:
 - Workload Management System
 - File Catalog
 - Workflow Management System (“Transformation System”)
- Apart from LHCb it is used by a number of communities to manage the various aspects of their data processing:
 - Experiment specific: e.g. Belle2, ILC, [Cherenkov Telescope Array](#), NICA (JINR), BES (Beijing), biomed
 - Multi-Experiment: e.g UK (GridPP) DIRAC, France-Grilles, EGI
 - UK DIRAC: [LZ](#), [SKA](#), [LSST](#), NA62, SNO+, MICE, T2K, SoLid + more

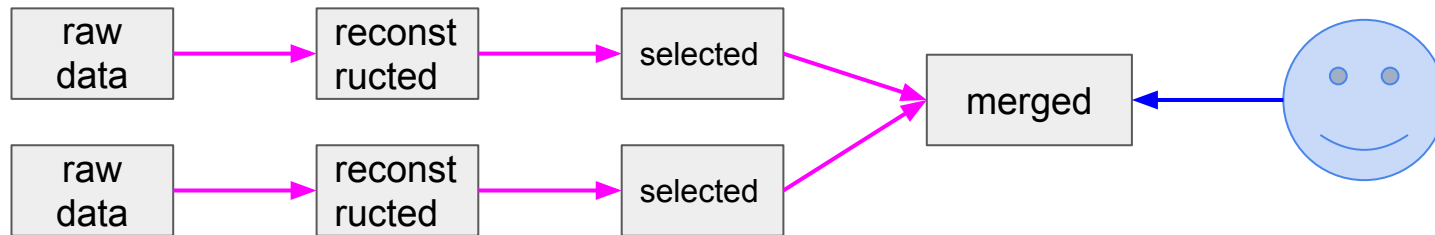


DIRAC Overview - Job and Data Management



DIRAC Overview: Workflow Management (“Transformation System”)

- DIRAC File Catalogue:
 - keeps track of where the files are
 - there can be more than one replica for each file
 - stores metadata about each file
- Transformation System:
 - runs one or more processing jobs on a set of input files
 - input files are selected using metadata queries
 - output is returned to the catalogue and can drive further processing



Digital assets

- Support for the Transformation System in a multi-experiment environment
 - File Catalogue: Separating metadata between experiments: Work has started.
- Integration of the multi-experiment UK DIRAC with the multi-experiment RUCIO instance at RAL
 - Allow users to use the RAL RUCIO instance as their file catalogue, including its use for Workflow Management.
 - Dedicated session at DIRAC workshop in May
- Enhance direct cloud submission in multi-VO DIRAC for the IRIS project
 - e.g. LZ submission to OpenStack
- Support for the Resource Status System
 - Will provide infrastructure monitoring using previous jobs on an experiment by experiment basis. Reduces the need for manual intervention.
 - Based on existing single experiment monitoring.



DIRAC Workshop

- DIRAC workshop:
<https://indico.cern.ch/event/756635/>
- Learn how other communities use DIRAC.
- Learn about new DIRAC developments.
- Talk to the developers.
- Tutorials/Hacking sessions
- There's still time to put your favourite item on the agenda.

**THE 9TH
DIRAC
USERS'
WORKSHOP**

14th -17th May 2019
London

indico.cern.ch/e/duw9
Organizers:
Federico Stagni (CERN)
Daniela Bauer (IC)
Simon Fayer (IC)
Andrei Tsaregorodtsev (IN2P3)

DIRAC
THE INTERWARE

**Imperial College
London**

diracgrid.org DIRACGrid dirac-grid dirac.readthedocs.io

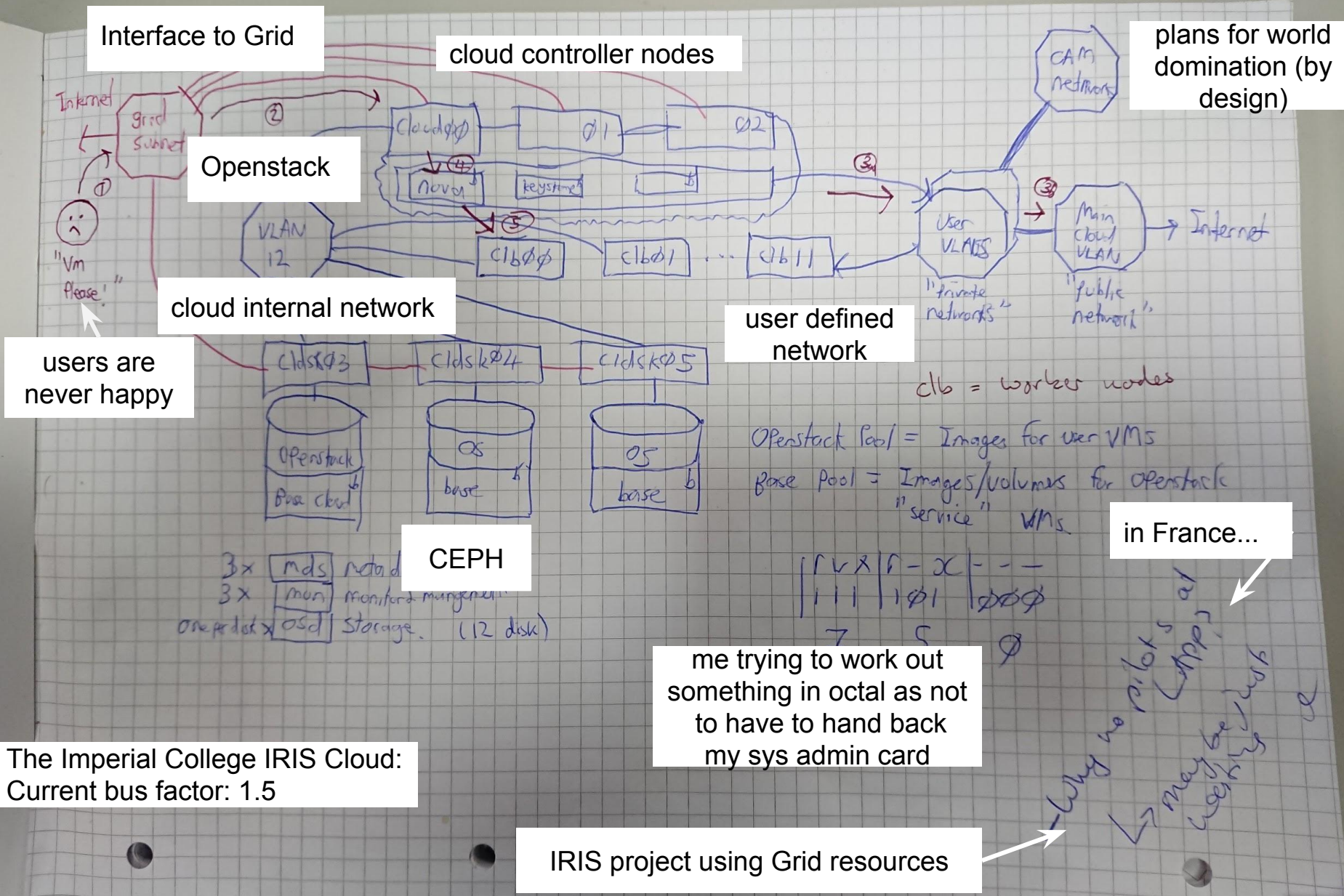


Conclusions

- Questions ?
- Further reading:
 - DIRAC: <https://github.com/DIRACGrid/DIRAC/wiki>
 - LZ as an example of a non-LHC experiment using DIRAC as a workload manager:
<https://indico.cern.ch/event/587955/contributions/2937236/>
(Proceedings in preparation)
 - Multi-VO DIRAC: Bauer D, Fayer S, 2017, *GridPP DIRAC: Supporting non-LHC VOs on LHC centric resources*, J. Phys.: Conf. Ser. 898 052003 ([Link](#))
 - <https://github.com/DIRACGrid/DIRAC/wiki/Transformation-System-Tutorial>



Bonus slide: IRIS Operational experience (for Andrew S)/Digital Asset Item 3 (for Pete C)



Interface to Grid

cloud controller nodes

plans for world domination (by design)

Openstack

cloud internal network

user defined network

users are never happy

CEPH

in France...

me trying to work out something in octal as not to have to hand back my sys admin card

The Imperial College IRIS Cloud: Current bus factor: 1.5

IRIS project using Grid resources

Why no robots at LAPP, may be just waiting

clb = worker nodes

Openstack Pool = Images for user VMs

Base Pool = Images/volumes for openstack "service" VMs

3x mds metadata
3x mon monitor-management
one podsk x osd Storage (12 disk)

1	2	3	4	5	6	7	8	9	10	11	12
1	2	3	4	5	6	7	8	9	10	11	12