UK DIRAC for IRIS

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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

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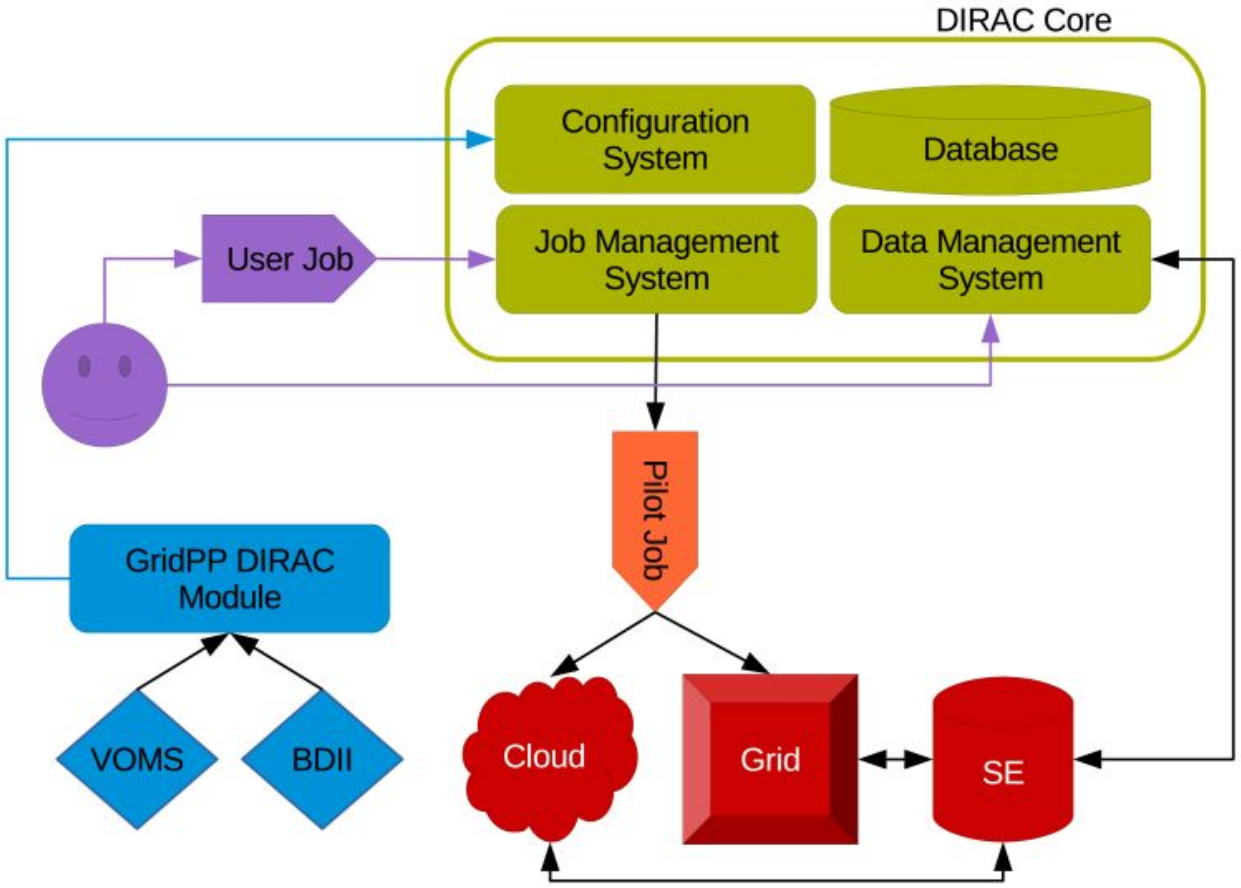
DIRAC Overview



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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

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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.
- 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.
  - Based on existing single experiment monitoring.

Conclusions

- Questions ?
- DIRAC workshop: https://indico.cern.ch/event/756635/
- 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

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