

Dirac integration with a general purpose bookkeeping DB: a complete general suite for distributed resources exploitation

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Abstract. In the context of High Energy Physics computing field the R&D studies aimed to the definition of the data and workload models have been carried on and completed by the SuperB community beyond the experiment life itself. The work resulted of great interest for a generic mid- and small size VO to fulfill Grid exploiting requirements involving CPU-intensive tasks.

We present the R&D line achievements in the design, developments and test of a distributed resource exploitation suite based on DIRAC. The main components of such a suite are the information system, the job wrapper and the new generation DIRAC framework. The DB schema and the SQL logic have been designed to be able to be adaptive with respect to the VO requirements in terms of physics application, job environment and bookkeeping parameters. A deep and flexible integration with DIRAC features has been obtained using SQLAlchemy technology allowing mapping and interaction with the information system. A new DIRAC extension has been developed to include this functionality along with a new set of DIRAC portal interfaces aimed to the job, distributed resources, and metadata management. The results of the first functionality and efficiency tests will be reported.

1. Introduction

2. Description of suite design

- philosophy: simple, standard and long term solution - bird's eye view all over the project

3. The Dirac extension

- extension structure description - Dirac general purpose project short description + Dirac configuration - service and systems description in detail - web interface components description

4. Bookkeeping DB integration

- Software layer based on SQLAlchemy – advantages using SQLAlchemy: Object relational Mapping, clean code, fast – development, change of DB backend - BK description, highlighting the general purpose characteristics – session, request, dataset concept

5. Job wrapper component

- general workflow - data management policy: stage-in and stage out strategies

6. Simulation production use case: the SuperB experience

- general description: workflow, Dirac portal design - past experience: the webui project – Session definition interface – DB dynamic build up

7. Test session

- goal description - testbed description - results and conclusions

8. Conclusions

- We are offering a Dirac extended suite capable to satisfy the needs on small and mid size VOs in terms of distributed resource exploitation....

References

- [1] Fielding R T 2000 *Architectural Styles and The Design of Network-based Software Architectures* , PhD Thesis, University of California Irvine
- [2] A.Fella, E.Luppi, L.Tomassetti *A General Purpose Suite for Job Management, Bookkeeping and Grid Submission*. International Journal of Grid Computing & Applications (IJGCA) Vol.2, No.2, June 2011. DOI: 10.5121/ijgca.2011.2202.