Contribution ID: **114**   Type: **oral presentation**

Implementation and performance analysis of the LHCb LFC replica using Oracle streams technology

Thursday 10 May 2007 11:00 (20 minutes)

Describe the scientific/technical community and the scientific/technical activity using (planning to use) the EGEE infrastructure. A high-level description is needed (neither a detailed specialist report nor a list of references).

The presentation will describe the architecture and the deployment of the LHCb read only File Catalog for the LHC Computing Grid (LFC) replica implemented at the Italian INFN National Center for Telematics and Informatics (CNAF) and evaluates a series of tests on the LFC with replica. The LHCb computing model foresees the replication of the central LFC database in every Tier-1, in order to assure more scalability and fault tolerance to LHCb applications.

Report on the experience (or the proposed activity). It would be very important to mention key services which are essential for the success of your activity on the EGEE infrastructure.

This talk will describe the replica implementation of LHCb LFC database that is foreseen to be done to each LHCb Tier-1 site. The LFC database replication is realized by means of Oracle Streams technology, a high-speed tool that allows synchronization and full consistency of replicated database. The streams technology takes care of propagating information from one database to another. In order to verify the requirements asked by the LHCb Collaboration a series of tests have been performed. The tests are designed to evaluate performances, delay on the propagation of the streams and the scalability of LFC. The tests show the robustness of the replica implementation with performance going beyond the experiment's requirements. In our tests we also took into account these issues verifying the ability of the LFC to retry a connection if the Oracle server becomes unavailable, as well as the ability of the LHCb applications to choose an LFC replica and if this replica fails.

With a forward look to future evolution, discuss the issues you have encountered (or that you expect) in using the EGEE infrastructure. Wherever possible, point out the experience limitations (both in terms of existing services or missing functionality)

The LHCb LFC replica implementation will allow to the LHCb users to perform data analysis with high performance, scalability and fault tolerance. This results of this experience will be useful for many other EGEE applications based on Oracle databases. Applications need to be aware of the underlying replicated environment in order to take advantage of the added fault tolerance and scalability.

Describe the added value of the Grid for the scientific/technical activity you (plan to) do on the Grid. This should include the scale of the activity and of the potential user community and the relevance for other scientific or business applications

Scientific data intensive applications use a large collections of files for storing data. In particular, as regards the HEP community, data generated by large detectors

will be managed and stored using databases. The intensive access to information stored in databases by the Grid computing applications requires a distributed database replication in order to guarantee the scalability and, in case of failure, redundancy. Besides the results of the tests will be an important reference for all the Grid users.

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Session Classification: Data Management

Track Classification: Data Management