Contribution ID: **315** Type: **poster**

GRIDCC-Bringing instrumentation (back) onto the Grid

Wednesday, 15 February 2006 09:00 (20 minutes)

While remote control of, and data collection from, instrumentation was part of the initial Grid concept most recent Grid developments have concentrated on the sharing of distributed computational and storage resources. The GRIDCC project is working to bring instrumentation back to the Grid alongside compute and storage resources. To this end we have defined an Instrument Element (IE) as a virtualization of physical instrument. The IE can be regarded as analogous to the Compute Element (CE) and Storage Element (SE) defined in other projects. Much of the power of using instrumentation over a Grid is only realized when it is used in conjunction with existing compute and storage resources. GRIDCC achieves this by building on the gLite infrastructure being developed by the EGEE project. Many features that can be regarded as desirable within other Grid projects become essential when instrumentation is introduced and so must be addressed by the GRIDCC project. These include the ability to work collaboratively with colleagues in remote locations, guaranteed quality of service and advanced reservation of resources. The GRIDCC project will produce a generic solution for instrumentation on a Grid. We have a number of exemplar instrumentation use cases selected to cover the full range of system requirements. We plan to implement our solution on a limited number of these instrument use cases. One such “instrument” is the CMS detector where it is planned to implement the run controller, which is responsible for configuring, controlling and monitoring the experiment, as an IE. A second example is the Synchrotron Radiation Sotorage Ring Elettra where the accelerator will be operated remotely using GRIDCC technology. In this paper we describe the GRIDCC architecture and the progress towards its implementation as the project approaches the midpoint of its three years of funding.

Summary

We report progress of the GRIDCC project.

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Session Classification: Poster

Track Classification: Grid middleware and e-Infrastructure operation