

US CMS Milestone Achievement Report

LCG Interoperability

Milestone Goal:

Demonstrate Interoperability of LCG and US grid infrastructure at the level of job execution and resource utilization. This was not a general grid interoperability milestone and the activities were constrained to two specific areas.

- Demonstrate job submission to LCG and US Grid infrastructure using the same job configuration and submission system.
- Configure one physical set of hardware resources to accept jobs from two independent grid interfaces: LCG2 and Grid3.

Achieved:

The milestone was originally planned for April 2004, but was met only in the fall of 2004 mainly due to effort constraints. The common submission section of the milestone was met in September. One set of hardware resources appearing to both grids was successful in November. Achieving the milestone was effort limited, with support of simulation production and support for the Tier-1 facility having higher priority..

Results

Job submission to LCG and US Grid infrastructure using the same job submission system:

The common submission point work was centered on making RUNJOB again capable of submitting to the LCG resource broker (RB). This functionality was temporarily lost during a RUNJOB upgrade in the spring, to support new production steps. RUNJOB started as a US-CMS deliverable to CMS production. It is used for production on all grids and there are currently active development contributions both in the US and in Europe. It is used to configure all simulation production jobs. RUNJOB is used as the basis for US grid configuration as well as all local International CMS simulation submission.

Supporting submission to the LCG from RUNJOB was a significant step in making the LCG infrastructure useful for CMS simulated event productions. It also maintains a consistent environment for job configuration.

Hardware resources accepting jobs from LCG2 and Grid3:

Configuring a single set of physical hardware resources to appear in two grid systems was completed in November. Meeting the goal involved work to ensure the information providers from both grids reported consistently in the presence of jobs from both sides. The local batch system and the dynamic information provider consistently handle this. The monitoring and accounting did not conflict nor double-count work. The processing submission required less development than the interface to permanent storage. The Tier-1 facility implemented one storage interface using SRM that appeared to both grid infrastructures. This is the more desirable solution for the processing interface in the future, but involved some development on virtual organization management synchronization to populate the access lists from the LCG and Grid3.