

The LCG based mass production framework of the H1 Experiment

Tuesday 14 February 2006 16:20 (20 minutes)

The H1 Experiment at HERA records electron-proton collisions provided by beam crossings of a frequency of 10 MHz. The detector has about half a million readout channels and the data acquisition allows to log about 25 events per second with a typical size of 100kB.

The increased event rates after the upgrade of the HERA accelerator at DESY led to a more demanding usage of computing and storage resources. The analysis of these data requires an increased amount of Monte Carlo events. In order to exploit the new necessary resources, which are becoming available via the Grid, the H1 collaboration has therefore started to install a mass production system based on LCG. The H1 mass production system utilizes Perl and Python scripts on top of the LCG tools to steer and monitor the productions. Jobs and their status are recorded in a MySQL database. During autonomous production a daemon lunches appropriate scripts while a web interface can be used for manual intervention. Additional effort has been put into the sandbox environment in which the executable runs on the worker node. This was necessary to work around present weaknesses in the LCG tools, especially in the area of storage management, and to recover automatically from crashes of the executable. The system has proven to be able to track several hundred jobs allowing for production rates of more than one million events per day. At the end of 2005 ten sites in five countries are contributing to the production.

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Session Classification: Distributed Event production and Processing

Track Classification: Distributed Event production and processing