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A Job Monitoring System for the LCG Computing Grid

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Today, one of the major challenges in science is the processing of large datasets. The LHC experiments will produce an enormous amount of results that are stored in databases or files. These data are processed by a large number of small jobs that read only chunks.

Existing job monitoring tools inside the LHC Computing Grid (LCG) provide just limited functionality to the user.

These are either command line tools delivering simple text strings for every job or the provided information is very limited. Other tools like GridIce focus on the monitoring of the infrastructure rather than the user application/job.

In contrast to these concept, we developed the Python-based "Job execution Monitor".

Typically, the first thing to be executed on a worker node is not a binary executable, but a script file which sets up the environment (including environment variables and loading of data from a storage element, a tasks known to be critical). It is the goal of the Job Execution Monitor to monitor the execution of such critical commands and report their success or failure to the user.

The core module of the Job Execution Monitor is the script wrapper. To gain detailed information about the job execution, a given script file (bash or python) is executed command by command. After each command, the complete environment is checked and logged.

Together with the other components of this system, an expert system tries to classify the reason for a failure. An integration into the Global Grid User Support is planned.

Submitted on behalf of Collaboration (ex, BaBar, ATLAS)

D-Grid

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