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Offline Processing in the Online Computer Farm

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LHCb is one of the 4 experiments at the LHC accelerator at CERN. LHCb has approximately 1600 (8 cores) PCs for processing the High Level Trigger (HLT) during physics data acquisition. During periods when data acquisition is not required or the resources needed for data acquisition are reduced, like accelerator Machine Development (MD) periods or technical shutdowns, most of these PCs are idle or very little used. In these periods it is possible to profit from the unused processing capacity to reprocess earlier datasets with the newest applications (code and calibration constants), thus reducing the CPU capacity needed on the Grid.

The offline computing environment is based on LHCb-DIRAC (Distributed Infrastructure with Remote Agent Control) to process physics data on the Grid. In DIRAC, agents are started on Worker Nodes, pull available jobs from the DIRAC central WMS (Workload Management System) and process them on the available resources. A Control System was developed which is able to launch, control and monitor the agents for the offline data processing on the HLT Farm. It can do so without overwhelming the offline resources (e.g. DBs) and in case of change of the accelerator planning it can easily return the used resources for online purposes. This control system is based on the existing Online System Control infrastructure, the PVSS SCADA and the FSM toolkit. A web server was also developed to provide a highly available and easy view of the status of the offline data processing on the online HLT farm.

Student? Enter 'yes'. See <http://goo.gl/MVv53>

No

Primary author: GRANADO CARDOSO, Luis (CERN)

Co-authors: JOST, Beat (CERN); GASPAR, Clara (CERN); LIU, Guoming (CERN); CLOSIER, Joel (CERN); FRANK, Markus (CERN); NEUFELD, Niko (CERN); CALLOT, Olivier (LAL-Orsay (FR)); CHARPENTIER, Philippe (CERN)

Presenter: GRANADO CARDOSO, Luis (CERN)

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