Contribution ID: **290** Type: **Poster**

Optimizing Resource Utilization in Grid Batch Systems

Tuesday 22 May 2012 13:30 (4h 45m)

DESY is one of the largest WLCG Tier-2 centres for ATLAS, CMS and LHCb world-wide and the home of a number of global VOs. At the DESY-HH Grid site more than 20 VOs are supported by one common Grid infrastructure to allow for the opportunistic usage of federated resources. The VOs share roughly 4800 job slots in 800 physical CPUs of 400 hosts operated by a TORQUE/MAUI batch system.

On Tier-2 sites, the utilization of computing, storage, and network requirements of the Grid jobs differ widely. For instance Monte Carlo production jobs are almost purely CPU bound, whereas physics analysis jobs demand high data rates.

In order to optimize the utilization of resources, jobs must be distributed intelligently over the slots, CPUs, and hosts. Although the jobs resource requirements cannot be deduced directly, jobs are mapped to POSIX user/group ID based on their VOMS-proxy. The user/group ID allows to distinguish jobs, assuming VOs make use of the VOMS group and role mechanism. This was implemented in the job scheduler (MAUI) configuration.

In the contribution to CHEP 2012 we will sketch our set-up, describe our configuration, and present experiences based on monitoring information.

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Session Classification: Poster Session

Track Classification: Computer Facilities, Production Grids and Networking (track 4)