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WLCG scale testing during CMS data challenges

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The CMS computing model to process and analyze LHC collision data follows a data-location driven approach and is using the WLCG infrastructure to provide access to GRID resources. As a preparation for data taking beginning end of 2007, CMS tests its computing model during dedicated data challenges.

Within the CMS computing model, user analysis plays an important role in the CMS computing strategy and poses a special challenge for the infrastructure with its random distributed access patterns. For this purpose, CMS developed the CMS Remote Analysis Builder (CRAB). CRAB handles all interactions with the WLCG infrastructure transparently for the user.

During the 2006 challenge, CMS set its goal to test the infrastructure at a scale of 50,000 user jobs per day using CRAB. Both direct submissions by individual users and automated submissions by robots were used to achieve this goal. A report will be given about the outcome of the user analysis part of the challenge and observations made during these tests using both the EGEE and OSG parts of the WLCG will be presented. The test infrastructure will be described and improvements made during the challenge to reach the target scale will be discussed.

In particular, the most prominent difference in the submission structure between both GRID middlewares will be discussed with regard to its impact on the challenge. EGEE uses a resource broker submission approach while OSG uses direct Condor-G submissions.

For 2007, CMS plans to increase the scale of the tests by a factor of 2. A report on work done in 2007 in the context of preparation for the summer 2007 data challenge will be given and first results will be presented.

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

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