



Contribution ID: 506

Type: oral presentation

The ALICE Data Challenge 2004 and the ALICE distributed analysis prototype

Wednesday 29 September 2004 15:40 (20 minutes)

During the first half of 2004 the ALICE experiment has performed a large distributed computing exercise with two major objectives: to test the ALICE computing model, included distributed analysis, and to provide data sample for a refinement of the ALICE Jet physics Monte-Carlo studies. Simulation reconstruction and analysis of several hundred thousand events were performed, using the heterogeneous resources of tens of computer centres worldwide. These resources belong to different GRID systems and were steered by the AliEn (ALICE Environment) framework, acting as a meta-GRID. This has been a very thorough test of the middleware of AliEn and LCG (LCG-2 and grid.it resources) and their compatibility. During the Data Challenge more than 1,500 jobs run in parallel for several weeks. More than 50 TB of data have been produced and analysed worldwide in one of the major exercises of this kind run to date. ALICE has developed an analysis system based on AliEn and ROOT. This system starts with a metadata selection in the AliEn file catalogue, followed by a computation phase. Analysis jobs are sent where the data is, thus minimising data movement. The control is performed by an intelligent workload management system. The analysis can be done either via batch or interactive jobs. The latter are “spawned” on remote systems and report the results back to the user workstation. The talk will describe the ALICE experience with this large-scale use of the Grid, the major lessons learned and the consequences for the ALICE computing model.

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Session Classification: Distributed Computing Systems and Experiences

Track Classification: Track 5 - Distributed Computing Systems and Experiences