Contribution ID: **25** Type: **Parallel Talk**

Tools to use heterogeneous Grid schedulers and storage system

Friday, February 26, 2010 2:00 PM (25 minutes)

The Grid approach provides an uniform access to a set of geographically distributed heterogeneous resources and services, enabling projects that would be impossible without massive computing power. Different storage projects have been developed and a few protocols are being used to interact with them such as GsiFtp and SRM (Storage Resource Manager). Moreover, during last few years different Grid projects have developed different middleware such as EGEE, OSG, NorduGrid and each one typically implements its own interface and workflow. For a user community which needs to work through the Grid, interoperability is a key concept. To handle different Grid interfaces, the resource heterogeneity and different workflows, in a really transparent way, we have developed two modular tools: BossLite and Storage Element API. These deal with different Grid schedulers and storage systems respectively, by providing a uniform standard interface that hides the differences between the systems they interact with. BossLite transparently interacts with different Grid systems, working as a layer between an application and the middleware. Storage Element API implements and manages the operations that can be performed with the different protocols used in the main Grid storage systems. Both the tools are already being used in production in the CMS computing tools for distributed analysis and Monte Carlo production. In this paper we show their implementation, how they are used and performance results.

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Session Classification: Friday, 26 February - Computing Technology for Physics Research

Track Classification: Computing Technology for Physics Research