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Experience Supporting the Integration of LHC Experiments Software Framework with the LCG Middleware

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The LHC experiments are currently preparing for data acquisition in 2007 and because of the large amount of required computing and storage resources, they decided to embrace the grid paradigm. The LHC Computing Project (LCG) provides and operates a computing infrastructure suitable for data handling, Monte Carlo production and analysis.

While LCG offers a set of high level services, intended to be generic enough to accommodate the needs of different Virtual Organizations, the LHC experiments software framework and applications are very specific and focused on the computing and data models.

The LCG Experiment Integration Support team works in close contact with the experiments, the middleware developers and the LCG certification and operations teams to integrate the underlying grid middleware with the experiment specific components. The strategical position between the experiments and the middleware suppliers allows EIS team to play a key role at communications level between the customers and the service providers.

This activity is the source of many improvements on the middleware side, especially by channelling the experience and the requirements of the LHC experiments.

The scope of the EIS activity encompasses several areas:

- 1) Understanding of the experiment needs
- 2) Identify open issues and possible solutions
- 3) Develop specific interfaces, services and components (when missing in or not yet satisfactory)
- 4) Provide operational support during Data Challenges, Service Challenges and massive productions.
- 5) Provide and maintain the user documentation;
- 6) Provide tutorial for the users community

In the last year, the focus has been extended also to non High-Energy Physics communities like Biomed, GEANT4 and UNOSAT. In this work we discuss the EIS experience, describing the issues raising in the organization of the Virtual Organization support and the achievements, together with the lessons learned. This activity will continue in the framework of EGEE II, and we believe could be an example for several users communities on how to optimise their uptake of grid technology in the most efficient way.

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