



Contribution ID: 78

Type: Oral

Supporting diverse local virtual organisations

Monday 12 April 2010 15:45 (15 minutes)

Within ScotGrid-Glasgow, primarily an ATLAS Tier-2 grid site, we are involved in supporting a number of local virtual organisations (VO)'s, including Electrical Engineers, Solid State Physicists (SSP) and Optics all with very specific non-high energy physics requirements (HEP). An account of the main issues and achievements that resulted from working with other groups at our site who sought direct access to a batch system rather than a grid site will be presented. This includes trialling various submission mechanisms and middleware components to achieve the goals of each of the specific VO's

Detailed analysis

At ScotGrid-Glasgow primarily a High-Energy Physics (HEP) grid cluster we support a number of local virtual organisations (VO)'s through our grid site. These include Electrical Engineers, Optics and a Solid State Physics Group (SSP). Each group has its own unique requirements that differ from the usual HEP usage of large VO's with many people to support and run the VO, produce and install software and VO operated submission systems that we see at ScotGrid. The lessons learned from this will be presented. The Electrical Engineers had not run on the EGEE grid and were used to a local batch system. The issues from transitioning from batch to grid are presented alongside the measures taken to increase adoption rates within their community. Optics had a requirement to run licensed software on the grid called FDTD by Lumerical Inc. A solution to this licensing issue using functionality within CREAM will be presented. Optics and SSP had a requirement to run MPI codes, FDTD and CASTEP respectively. Something new for ScotGrid not necessarily EGEE. A discussion of issues surrounding this implementation are presented.

Conclusions and Future Work

There are lessons to be learned from the experiences of other user communities using ScotGrid and from sites administrators working directly with them to accomplish their goals. This work has described three local VO's and their use cases on ScotGrid. Issues encountered and their solutions have been presented with specific examples. Future work will include continuing to support non-HEP communities and easing their adoption of grid technologies.

Impact

This research has allowed ScotGrid to understand the requirements across many diverse virtual organisations (VO)'s and learn from this work to ease the transition of new users to the Grid world. More importantly it has enabled researchers in their various fields to carry out their work more efficiently. At ScotGrid this has meant helping our electrical engineering group run their work on the EGEE grid and enabling users of Lumerical's FDTD package to perform large-scale design of devices across a diverse range of applications in biophotonics, display technologies, solar energy, optical communications, sensing and imaging. Running MPI codes has brought up some suggestions for new functionality within the current EGEE MPI implementation. This work has lead to the creation of a unified batch/grid submission framework titled gqsub (submitted under a different abstract) which has applications beyond ScotGrid.

Keywords

ScotGrid Glasgow Lumerical FDTD CASTEP MPI CREAM

URL for further information

<https://www.scotgrid.ac.uk/wiki/index.php/Users>

Justification for delivering demo and/or technical requirements (for demos)

no demo

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Session Classification: User Support and Services

Track Classification: Experiences from application porting and deployment