

EGEE/XtremWeb : Bridging Institutional and Desktop Grids

Wednesday 9 May 2007 17:30 (20 minutes)

Describe the scientific/technical community and the scientific/technical activity using (planning to use) the EGEE infrastructure. A high-level description is needed (neither a detailed specialist report nor a list of references).

LAL provides resources to its physicists both through the EGEE infrastructure, an institutional grid, and through Xtremweb, a desktop grid. Xtremweb developed by LRI-INRIA and LAL-IN2P3 aims to construct large-scale distributed systems by aggregating individual resources in virtual fault-tolerant clusters. It is similar concept to BOINC developed at Berkeley. Currently, these two sets of resources serve different groups within the laboratory and present markedly different interfaces to their

Report on the experience (or the proposed activity). It would be very important to mention key services which are essential for the success of your activity on the EGEE infrastructure.

We have built a prototype that successfully links the EGEE grid infrastructure to resources managed by Xtremweb. Currently the prototype uses Xtremweb resources that have the gLite client software installed to ensure users have the environment that they expect. A standard gatekeeper (LCG CE) acts as the interface and rudimentary state information is published to permit grid-level scheduling.

With a forward look to future evolution, discuss the issues you have encountered (or that you expect) in using the EGEE infrastructure. Wherever possible, point out the experience limitations (both in terms of existing services or missing functionality)

Three areas requires further work. The most trivial is binding for the more recent gLite CE. Then, to fully take advantage of the two systems, the gLite developers must make the software portable enough to run on the volatile, heterogeneous resources typical of desktop grids. Lastly, an efficient grid meta-scheduling needs predictive mechanisms that forecast the size and type of volatile resources. This is a general issue that must be solved regardless of the desktop grid implementation.

Describe the added value of the Grid for the scientific/technical activity you (plan to) do on the Grid. This should include the scale of the activity and of the potential user community and the relevance for other scientific or business applications

We propose to bridge the EGEE and Xtremweb infrastructures by making the Xtremweb system appear as a standard Computing Element on the EGEE infrastructure, bringing more resources into the EGEE infrastructure from a currently unutilized pool of resources. The bridging could potentially increase overall efficiency by off-loading smaller tasks to the desktop systems and freeing larger, "institutional" resources for larger tasks. Primarily, however, the merged system provides a unique interface to the users, freeing them from costly ports of their software to different systems.

Authors: Dr LOOMIS, Charles (LAL - IN2P3 - CNRS); Dr LODYGENSKY, oelg (LAL - IN2P3 - CNRS)

Presenter: Dr LODYGENSKY, oelg (LAL - IN2P3 - CNRS)

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