Contribution ID: **66** Type: **oral presentation**

A GSI-secured jobmanager for connecting PBS servers in independent administrative domains

Friday 11 May 2007 09:20 (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).

The "RemotePBS" jobmanager is aimed at security-conscious PBS server managers of major non-Grid computing facilities. It enables them to securely connect existing PBS servers to the Grid, even if the PBS server is in an separate administrative domain to the Grid servers. The PBS server admins have full control over authorisation of grid-authenticated users accessing their resources. The software has been designed to support execution of grid applications at large-scale computing centres.

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.

RemotePBS is installed at four Grid-Ireland sites in EGEE. We have tested over 6000 jobs, including MPI codes, with good results. A stress-test run of 3000 small jobs completed with a 100% success rate. We have identified a number of key weaknesses in current jobmanagers. The "RemotePBS" manager is still in an experimental stage, and a number of bug fixes and enhancements are likely. Given the lightweight requirements required from the remote resources, it is hoped that jobmanager would connect to the Grid.

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)

Current Grid middleware does not support the Grid model we had envisaged deploying at a national level. Lack of MPI support, portability of middleware, and the facility to connect remote queue managers are still issues. The gLite CE assumes an implicit

unsecured trust between the CE and the queue manager and does not accommodate
independent administrative domains. In addition, only one remote queue manager per CE
is allowed. We expect to to implement a comparable gLite CE version presently.

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

The EGEE middleware assumes the gatekeeper and PBS system enjoy an implicit trust
relationship, an anathema to security-conscious admins of supercomputing centres.
Also the EGEE model assumes the PBS is configured to suit EGEE and is typically
installed on a gatekeeper. Major sites already have PBS servers, often tuned over
years. To have access to these sites, these issues must be redressed. Our jobmanager
does this.

The jobmanager, with modified information publishers, allows multiple PBS servers to
be attached to the Grid via a single gatekeeper. Interactions between the CE and PBS
are GSI-secured. The design makes it easy for PBS servers to manage existing nodes
that only need to have standard WN software installed. It is extensible to allow some
batch related information to be passed into the job. In addition, the environment can
be customized whenever any enqueued Grid jobs are executed. The burden and cost of
running a full Grid site is reduced for the PBS administrator.

Author: Mr WALSH, John (EGEE SA1 & SA3/Grid-Ireland/Trinity College Dublin)

Co-authors: Dr COGHLAN, Brian (EGEE/Grid-Ireland/Trinity College Dublin); Dr KENNY, Eamonn (EGEE SA3/Trinity College Dublin/WebCom-G); Dr CHILDS, Stephen (EGEE SA1/Trinity College Dublin)

Presenter: Mr WALSH, John (EGEE SA1 & SA3/Grid-Ireland/Trinity College Dublin)

Session Classification: Workflow

Track Classification: Workflow