Contribution ID: **28** Type: **Demo**

Integration of heterogeneous computational resources in EGEE infrastructure: a live demo

Tuesday 23 September 2008 16:03 (1 minute)

Describe the activity, tool or service using or enhancing the EGEE infrastructure or results. A high-level description is needed here (Neither a detailed specialist report nor a list of references is required).

The aim of this demo is to show how a computational platform not supported by gLite (such as AIX, Altix, Irix or MACOS) may still be used as a gLite Worker Node. This is realized by employing the SPAGO (Shared Proxy Approach for GRID Objects) methodology, which relies on the availability of standardized tools for file-sharing and remote process execution to build a proxy system providing a simple solution to connect to the EGEE GRID a local computational resource.

Report on the impact of the activity, tool or service. This should include a description of how grid technology enabled or enhanced the result, or how you have enabled or enhanced the infrastructure for other users.

The SPAGO architecture allows the EGEE user to submit jobs not necessarily based on the x86 or x86_64 Linux architecture, thus allowing a wider array of scientific software to be run on the EGEE Grid and a wider segment of the research community to participate in the project. It also provides a simple way for local resource managers to join the EGEE infrastructure and the procedure shown in this demo further reduces the complexity involved in implementing the SPAGO approach. This fact can widen significantly the penetration of gLite middle-ware outside its traditional domain of the distributed and capacity focused computation. For example the world of the High Performance Computing, which often requires dedicated system software, can find in SPAGO the easy way to join the large EGEE community. An instance of this is the new ENEA HPC system (CRESCO, ˜2700 core) which employs the SPAGO approach to connect with a gLite-based infrastructure.

Abstracts for online demonstrations must provide a summary of the demo content. Places for demos are limited and this summary will be used as part of the selection procedure. Please include the visual impact of the demo and highlight any specific requirements (e.g. network connection). In general, a successful demo is expected to have some supporting material (poster) and be capable of running on a single screen or projector.

The proposed demo aims at showing how a worker node of an architecture/operating system not explicitly supported by gLite can be integrated into EGEE. All the machines required to support the demo (consisting of both the gLite infrastructure machines and the non-standard Worker Nodes) reside on the ENEA sites. The demo will summarize the steps to integrate a generic UNIX machine into the grid and job submission will be demostrated to AIX, Altix, IRIX and MacOSX worker nodes. Each of them will have a dedicated CE inside ENEA EGEE site. In case that the local firewall on the conference site may be configured to allow connection

from/to all the required ports we might be able to show the procedure on a physical machine on-site, or even perform it on the laptop of interested people. (A public local ip address should be made available for that).

Describe the added value of the grid for your activity, or the value your tool or service adds for other grid users. This should include the scale of the activity and of the potential user community, and the relevance for other scientific or business applications.

The success of the GRID depends also on its flexibility in accommodating the computational resources available over the network. A big effort is underway to develop accepted GRID standards but in the meanwhile solutions have to be found to include into EGEE infrastructure resources based on platforms/operating systems which are not currently supported by gLite middle-ware. SPAGO concept has been developed in the implementation of the ENEA Gateway which now provides access from EGEE to the ENEA AIX SP systems. Although the ENEA Gateway implementation requires a solution for the interoperability between ENEA-GRID and EGEE (due to the different authentication mechanisms, AFS and Kerberos 5 vs. X509), a much simpler solution has been found for standard UNIX/Posix systems where NFS and ssh can be adopted as the base for the proxy implementation. By such means we have developed an easy step-by-step integration procedure that will be shown in this demo on AIX, Altix, Irix and MacOSX machines

Authors: ROCCHI, Alessio (ENEA); Dr QUINTILIANI, Andrea (ENEA); Dr SANTORO, Andrea (ENEA); Dr SCIO', Carlo (ENEA); Dr BRACCO, Giovanni (ENEA); Dr MIGLIORI, Silvio (ENEA)

Presenter: Dr SANTORO, Andrea (ENEA)

Session Classification: Demos and Posters

Track Classification: Demo