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A simple SPAGO implementation enabling the connection of heterogeneous computational resources to a gLite based GRID

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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 or 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. This simplified solution is the object of this presentation.

3. Impact

The SPAGO architecture allows the EGEE user to submit jobs that are 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. On the other way round, the SPAGO approach provides a simple way for local resource managers to join the EGEE infrastructure without strong requirements on architecture/ platform/ operating system distribution and with advantages also concerning the firewall configuration requirements. 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.

URL for further information:

http://www.afs.enea.it/project/eneaegee/

4. Conclusions / Future plans

This paper presents a new simplified implementation of the SPAGO architecture, describing the guidelines that allow any grid manager to integrate into EGEE his own non-standard machines. The result relies on the experience of the ENEA EGEE site, where AIX resources are seamlessly integrated into the EGEE production grid (successful tests also conducted for IRIX and MacOSX). The SPAGO approach will be also used for the new ENEA HPC system (CRESCO, ~2500 cores, initial operation early 2008).

Provide a set of generic keywords that define your contribution (e.g. Data Management, Workflows, High Energy Physics)

Interoperability, heterogeneous platforms, computing element

1. Short overview

SPAGO (Shared Proxy Approach for GRID Objects) is a methodology which relies on 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 without strong requirements on the architecture or operating system compatibility with the gLite middle-ware. SPAGO has been developed in the context of the interoperability solution between EGEE and ENEA-GRID.

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