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How to share production resources using both UNICORE and gLite. A PL-Grid experience

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Overview

The main EMI (European Middleware Initiative) is harmonization of the main european middlewares. In this paper we focus on one of the steps towards harmonization of UNICORE (UNiform Interface to COmputing REsources) and gLite on operational infrastructure. We describe common installation of the middleware on the same hardware system and problems related to such set up. We present integration of some core functionality which allows users and administrator share UNICORE and gLite access to the computational systems.

Impact

The main idea is that the computing element can be shared by both middlewares.
We were also able to integrate Nagios based monitoring system to provide information on all services: gLite and UNICOIRE.
However, common installation issues number of restrictions.
The most important are: lack of integration of storage elements, necessity to use shared file systems on the clusters, problems with spool accounts in gLite which forces usage of the static ones.
These and other issues are presented in the paper

The common installation of the production infrastructure accessible in parallel using gLite and UNICORE is significant step towards Uniform Middleware Distribution. This work provides analysis of the problems and
requirements coming from gLite and UNICORE installations. The successful deployment in production environment is presented.

Description of the work

UNICORE grid middleware and gLite are part of the EMI Distribution.
gLite is an integrated set of components designed to enable resource sharing.
The gLite middleware is produced by the EGEE project with the main focus of the needs of High Energy Physics. The distribution model is to construct different services ('node-types') from these components and then ensure easy installation and configuration on the chosen platforms (currently Scientific Linux versions 4 and 5, and also Debian 4 for the WNs).
gLite middleware is currently deployed on hundreds of sites and enables global science in a number of disciplines, notably serving the LCG project.

UNICORE comes with a history of more than 10 years. Originally initiated in the Supercomputing domain, today UNICORE is a general-purpose Grid technology.

In its recent version, UNICORE 6 follows the latest standards from the Grid and Web Services world and offers a rich set of features to its users.

UNICORE is used in Grid infrastructures of different nature and without limitations on the type of computing resources such as NGI-PL, NGI-DE or DEISA. Being Java-based UNICORE is portable. In order to achieve interoperability it uses HTTPS-based Web services as well as several common open Grid standards. UNICORE provides users with a strong security based on a rule-based access control engine (SAML).

Since UNICORE is protable due to the fact that is written in Java with some components implemented in perl The installation is possible on different systems. In particular we have been able to create production quality installation on the system where gLite is installed.

Conclusions

This work identifies problems which have to be solved to provide full harmonization of the UNICORE and gLite
middlewares.

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