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User-friendly access to computational services with FARO portal for EGEE and ENEA-GRID

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A simple and flexible user access to applications is the final target for any system providing access to computational resources, even more for highly abstract infrastructures as grids and clouds. In this work we present a portal to the EGEE user that allows to submit widely used scientific softwares as jobs to EGEE. The main target of this interface is to hide from the end user low-level details connected with job submission. The expected result of this work is to make the GRID more palatable to other scientific communities, which at the moment are not interested in using this technology.

Detailed analysis

FARO [Fast Access to Remote Objects] is a portal based on the integration of Open Source Software elements with a XML based Java application whose aim is to provide a simple, flexible and customizable Web access to user applications in grid/clouds context. It has been originally developed to provide user access to ENEA-GRID, a GRID-like infrastructure used to interconnect computational and data storage resources of ENEA. Many researchers from several different fields (nuclear fission and fusion, climate and ocean simulation, computational chemistry, CFD) use this vast array of computational resources to run their own simulations. Interoperability between EGEE and ENEA-GRID is in production since the beginning of the EGEE project. This work is a new FARO implementation that allows to submit to the EGEE grid jobs based on software widely used by the computational chemistry community (e.g. CPMD), all with few mouse clicks. The key feature of this interface is that the job submission happens in a very transparent and easy-to-use way through a dedicated portal that hides most of the low-level details to the user so that application access becomes really the access to a service.

Conclusions and Future Work

Many scientific communities are not yet involved into the GRID, despite the potential benefits they might obtain from it. Part of the reason can be easily found in the intrinsic complexity of submitting jobs to the grid itself. You have to obtain certificates, write jdl files, often manage data transfers, etc. By the means of FARO, we aim at making specific softwares of those communities available to users through a common web browser (IE7, Firefox, Opera) and run them with a single mouse click.

Impact

One of the main reasons why the GRID has difficulties in reaching a large part of the scientific community that might benefit from its resources, is because of its inability to be transparent to the end-user. The end-user (i.e. the "generic" scientist) is interested only in launching the code, possibly giving it one or more input files, and in retrieving the output. Ideally he would like to click on a "submit job" button, without concerning himself with certificates, jdl files, data transfers to SEs, and other low-level issues, and focus on the result of the job. By developing a user interface that 1) allows users to authenticate only once and 2) submit to EGEE some widely used softwares by using a graphical interface which hides most of the technicalities involved, we aim

at interest the “average” researcher more into the GRID by reducing the prerequisite knowledge he should have about the EGEE inner workings, allowing him to focus more on his research.

Keywords

User-friendly, interface, portal, open source, computational chemistry

URL for further information

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

Justification for delivering demo and/or technical requirements (for demos)

The aim of this work is improving the ability of users to interface with the GRID. Thus it is important for potential users in the interested communities to see and try the interface first-hand.

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