Contribution ID: **140** Type: **Demonstration**

Porting Scientific Application to the EDGeS Service Grid/Desktop Grid Platform

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The EDGeS project connects the g-Lite based EGEE grid to several BOINC and XtremWeb based Desktop Grid system. The EDGeS infrastructure successfully extends EGEE with volunteer and institutional desktop resources to be utilized by master worker or parameter sweep applications. The project has successfully ported several EGEE applications to the combined platform, including the WISDOM meta-middleware for molecular docking simulations, the ISDEP plasma fusion application, or the VisIVO server tool for the visualization of astrophysical data.

Detailed analysis

The aim of the EDGeS project is to support parameter sweep or master worker EGEE applications with a large number of Desktop Grid resources collected from individuals or from scientific institutions. As part of the project several EGEE applications has been made capable to utilize Desktop Grid resources and can now be executed on the EDGeS platform. The demonstration will show applications from several application domains, including bio-molecular simulations using the WISDOM middleware, plasma fusion simulations using ISDEP, astrophysical visualization using ViSIVO, and the EMMIL e-marketplace application. The applications are submitted from either the command-line g-Lite user interface or from the P-GRADE or WS-P-GRADE portals. The usage of Desktop Grid resources is completely transparent for the EGEE users. The execution utilizes public Desktop Grid resources of the SZTAKI Desktop Grid and the EDGeS@home DG that was specifically set up by the EDGeS project to support EGEE application, and also institutional desktop resources in the University of Westminster Local Desktop Grid.

Conclusions and Future Work

The European EDGeS project created a bi-directional bridging system between EGEE and large public and institutional Desktop Grid infrastructures. The project has successfully ported several EGEE applications and supported EGEE user communities in utilizing this hybrid platform. The aim is to disseminate these results and to raise the awareness of further communities regarding the usability of these additional resources to run computationally intensive applications faster and more efficiently.

Impact

The EDGeS project has successfully demonstrated that a large number of EGEE applications can efficiently use Desktop Grid resources to support computationally intensive parameter sweep tasks. The resources can be collected from volunteer individuals or can come from more secure institutional desktop PCs. The sustainability of such Desktop Grid systems is much simpler and initiated by the actual resource owner, compared to the sustainability of large computing clusters. Moreover, the Desktop Grid resources can speed up the parameter sweep Grid applications and support the better utilization of cluster based Grid resources for more specific tasks, for example to run MPI applications. The ported applications are used by large user communities of EGEE. These communities gained a substantial number of new resources and a more efficient application execution by utilizing EDGeS.

Keywords

desktop grid, application porting, grid portal

URL for further information

http://www.edges-grid.eu/

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

The demonstration will show the execution of several EGEE applications on the EDGeS platform using the g-Lite command line interface and the P-GRADE Grid portal.

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