

EDGeS: Integrating EGEE with Desktop Grids

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For the EGEE users, having the option to enhance jobs with the ability to seamlessly migrate them to a DG environment will open up new possibilities and enable more widespread and frequent use of data challenge problems that require massive resources. Large DGs far outstrip the performance of even the largest supercomputers, and although DGs are certainly not intended, nor suited, for every application, especially those that are tightly coupled and require inter-processor communication, they have proven to be very beneficial for a wide range of applications, including many that are currently being run on expensive supercomputers and clusters. E.g. most parameter sweep applications of EGEE can easily be migrated into the connected DGs. The EGEE-DG Bridge will provide a mechanism to migrate these applications to a Desktop Grid environment when needed, thereby freeing up resources for use by tightly coupled MPI applications that require low latency inter-processor communication.

3. Impact

Currently the SG and DG infrastructure provider communities are completely separated. Although some preliminary experiments have been conducted between CERN and IN2P3 to try to make interoperable the EGEE Grid and XtremWeb these experiments were in initial status and in practice the two communities have been developing and maintaining their infrastructure completely independently. As a result, their infrastructure, their user communities and their resource providers have been completely separated, too. This project will lead to a real turning point in the relationship of these communities.

As a result of EDGeS a combined e-infrastructure will be established with the following advantage: large number of desktop resources can be reached by the EGEE user community through public and local DG systems connected directly to EGEE. It is not only the scale that makes this vision very attractive but also its sustainability by involving home, school, city and company based computers.

URL for further information:

www.lpds.sztaki.hu/edges

4. Conclusions / Future plans

EDGeS will create a production EGEE->DG and a DG->EGEE bridge. DG systems require validated applications that can be 100% trusted by PC donors and hence EDGeS will provide an application validation service and a repository of validated applications. EGEE users can run the validated applications not only on EGEE but also on the connected DGs. Six DGs will be connected with more than 100.000 PCs: two new DGs devoted to EGEE, Extremadura DG, SZTAKI DG, AlmereGrid, Westminster DG, IN2P3 DG.

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

service grids, desktop grids, volunteer Internet computing, application validation

1. Short overview

EDGeS (a new FP7 project) will interconnect Service Grids (SG) with Desktop Grid (DG) systems. The primary SG in the project will be the EGEE infrastructure and the primary DGs will be BOINC and XtremWeb. EDGeS will investigate how such an integrated SG-DG infrastructure can be established, how applications can be adapted and developed for such an infrastructure, and how the execution of those applications can be controlled and managed on the new integrated SG-DG infrastructure.

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