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EGI compliant access of volunteer Desktop Grid resources offered by IDGF-SP

Thursday, 11 April 2013 12:00 (30 minutes)

Impact

Based on the tools and technologies of the IDGF-SP project, e-scientist can access to and utilize much more (volunteer and private) computational capacity than before. This extra capacity may lead to a better quality of the scientific research performed by the scientists belonging to the EGI scientific communities. Moreover, it may improve sustainability, reduce operational costs, increase public awareness, etc.

Summary

Desktop Grids, aggregating the otherwise unused computing power of large numbers of Desktop computers from volunteers (globally) and campus-wide (locally), form a fast growing segment of the European Distributed Computing Infrastructure (DCI) for science in Europe.

As a result of the EDGI EU-funded FP7 project, new technologies have been developed to support the easy access and efficient utilization of volunteer and private resources of the emerging Desktop Grid systems. The IDGF-SP EU funded project - as a continuation of EDGI and DEGISCO - provide numerous tools and mechanisms: submission, monitoring, accounting, virtualization, application tuning, etc. for EGI scientific groups to seamlessly access volunteer resources of Desktop Grids handled by the IDGF-SP project and the IDGF organization. The presentation will give an overview of the latest results, technologies and tools of the IDGF-SP infrastructure offered for the EGI users.

URL

http://idgf-sp.eu

Description

Scientists need a lot of computing power. This is organized as local PC's, clusters, Grids, supercomputers that can be financed in a number of ways. However, for many applications, Desktop Grids already provide large computational resources comparable in size to the largest Grid infrastructures in Europe. Public desktop grids can and do contribute a significant amount of resources for science.

EDGI has developed a middleware that consolidated the results achieved in the EDGeS project concerning the extension of Service Grids (gLite, ARC, Unicore) with Desktop Grids (DGs) in order to support EGI and National Grid Initiative user communities that are heavy users of Distributed Computing Infrastructures (DCIs) and require an extremely large number of CPUs and cores. At the same time DEGISCO has collected more than 20 Desktop Grids and has successfully worked out several manuals like comprehensive Guides for Grid operators, best practices in application porting and in infrastructure operation and a roadmap with recommendations on linking desktop grids to Grids (such as EGI) and to Clouds. Based on the results of the former two desktop-grid projects, IDGF-SP is offering a comprehensive knowledge relating to Desktop Grids in various areas like utilization, deployment, maintenance, public outreach and so on.

This presentation will focus particularly on the new technologies offered for the scientific users. Based on the new technologies and tools an introduction will be given on how to submit jobs to Desktop Grids, how to monitor jobs of a DG through the EGI system and how to avoid application porting (which was a painful task before) by utilizing the virtualisation tool of IDGF-SP. The presentation will also show examples on how scientists already managed to utilize the power of Desktop Grids with help of the IDGF-SP.

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