



EGEODE: a grid Infrastructure for research and education in geosciences

D. Thomas

Compagnie Générale de Géophysique, France (dthomas@cgg.com / fax : +33 164473098)

Modern seismic data processing and geophysical simulations require more and more huge amount of computing power and storage. The research and education community hardly keeps pace with this evolution resulting in difficulties for small or medium research centers to deliver their innovative algorithms and for new students to experiment state of the art technologies.

Grid Computing is an opportunity to foster sharing of computer resources and to give access to large computing power for a limited period of time at an affordable cost. Capability to solve new scientific complex problems and to validate innovative algorithms on real size problem is also a way to attract and keep the brightest researchers for the benefit of both the academic and industrial R&D geosciences communities.

EGEODE is an initiative to create a Virtual Organization dedicated to research in Geosciences for both industrial R&D (public and private) and Academic Laboratories. It was launched by CGG mid 2004 in the context of EGEE (Enabling Grids for E-scienceE), the largest worldwide grid infrastructure project to date.

EGEODE stands for “**Expanding Geosciences On Demand**”. It raises already interest across Europe and Russia and delivers a framework for collaboration Industry / Research and Education. It works closely with Earth Sciences Research, another Virtual Organization, which includes different applications: Earth Observation, Climate, Hydrology, and Solid Earth physics

The talk will explain the main benefits of this Grid Computing emerging technology for geosciences and particularly for data sharing and processing in the geophysical domain.

Then we will introduce EGEODE Open Virtual Organization, with a practical descrip-

tion of how to join the community and become an actor in this exciting project

Several issues in computer sciences are still open, like software license management and database access to fully get all benefits of grid computing in geosciences. A major step is also expected from new economic and usage models to facilitate new membership. However the capacity of grids for enabling access to geographically distributed computing power and storage facilities has been seriously demonstrated and new international projects are now focused on operational grids used for day-to-day production, like EGEE

The most convincing argument for collaborative, grid-based production is the achievement of scientific results which are difficult to obtain without using the Grid and which may also represent new, and original results. This is our common target.

1 References

Foster and C. Kesselman, The Grid, Blueprint for a new computing infrastructure, Morgan and Kaufmann Publishers Inc., San Francisco, CA (USA), 1998.

Site EGEE: <http://egee-intranet.web.cern.ch/egee-intranet/gateway.html>

Site Earth Science Research: <http://datagrid.nadc.nl/twiki/bin/view/ESR/WebHome>