

Plans for a future European Grid Infrastructure Organization

By Christopher Lazou

The European Grid Initiative Design Study (EGI_DS) represents an effort to establish a sustainable grid infrastructure in Europe. Driven by the needs of the research community, it is expected to enable the next leap in research infrastructures, thereby supporting collaborative scientific discoveries in the European Research Area (ERA).

Within this effort, major key stakeholders in grid infrastructures in Europe, such as the National Grid Initiatives (NGI) and the consortium of the EU Project EGEE, are working together to establish a long-term perspective for the co-ordination and operation of European grid infrastructures. This involves identifying possibilities for transforming the current project-based funding of grid infrastructures into a more sustainable one, such that continuity and interoperation of grids in Europe is ensured.

The goal of the EGI_DS project is to evaluate cases of grid use, identify processes and mechanisms for establishing EGI, define the structure and ultimately initiate the construction of the EGI organization.

The core foundation of EGI is the National Grid Initiatives (NGI), which operate the grid infrastructures in each country. EGI intends to link the existing NGIs and will actively support the set-up and initiation of new ones.

The three principal strategic objectives of EGI are to ensure the long-term viability of the European e-infrastructure, co-ordinate the integration and interaction between National Grid Infrastructures and operate the European level of the production grid infrastructure, for a wide range of scientific disciplines.

In addition, a series of other objectives necessary for EGI to function properly was fleshed up at the EGI workshop held in Rome in March. Examples include virtual organization support, security, middleware

development co-ordination, packaging future software and making them widely available to the scientific communities across Europe; promotion of grid interface standards based on practical experience gained from grid operations and middleware integration activities; encouraging consultation with relevant standards organizations and collaborate closely with technology and service providers; initiating training to promote the rapid and successful uptake of grid technology by European industry.

EGI is an important initiative for science and research in Europe. Dieter Kranzlmüller, the EGI_DS Project Director explains that the current project-based funding of grid infrastructures has reached its limits. Infrastructure users require a perspective, that their investments for bringing their applications to the grid are protected. At the same time, Europe and its member states have invested heavily in grid infrastructures and these investments need to be leveraged for the future. The grid of today should be available seamlessly as a future service, he says.

The partners of EGI are the National Grid Initiatives (NGIs) in European countries, whose representatives congregate in the EGI policy board. From this group of NGIs, nine institutions form the consortium of the EGI_DS project.

The National Grid Initiatives (NGIs) are the recognized national bodies, each with a single point-of-contact operating the national grid infrastructure. They support user communities, mobilise national funding and resources, contribute and adhere to international standards and policies. An interesting question for EGI_DS is to define the split of responsibilities between NGIs and EGI. These should of course be federated and complementary.

The efforts of EGI should benefit all grid projects in Europe. As Dietmar Erwin

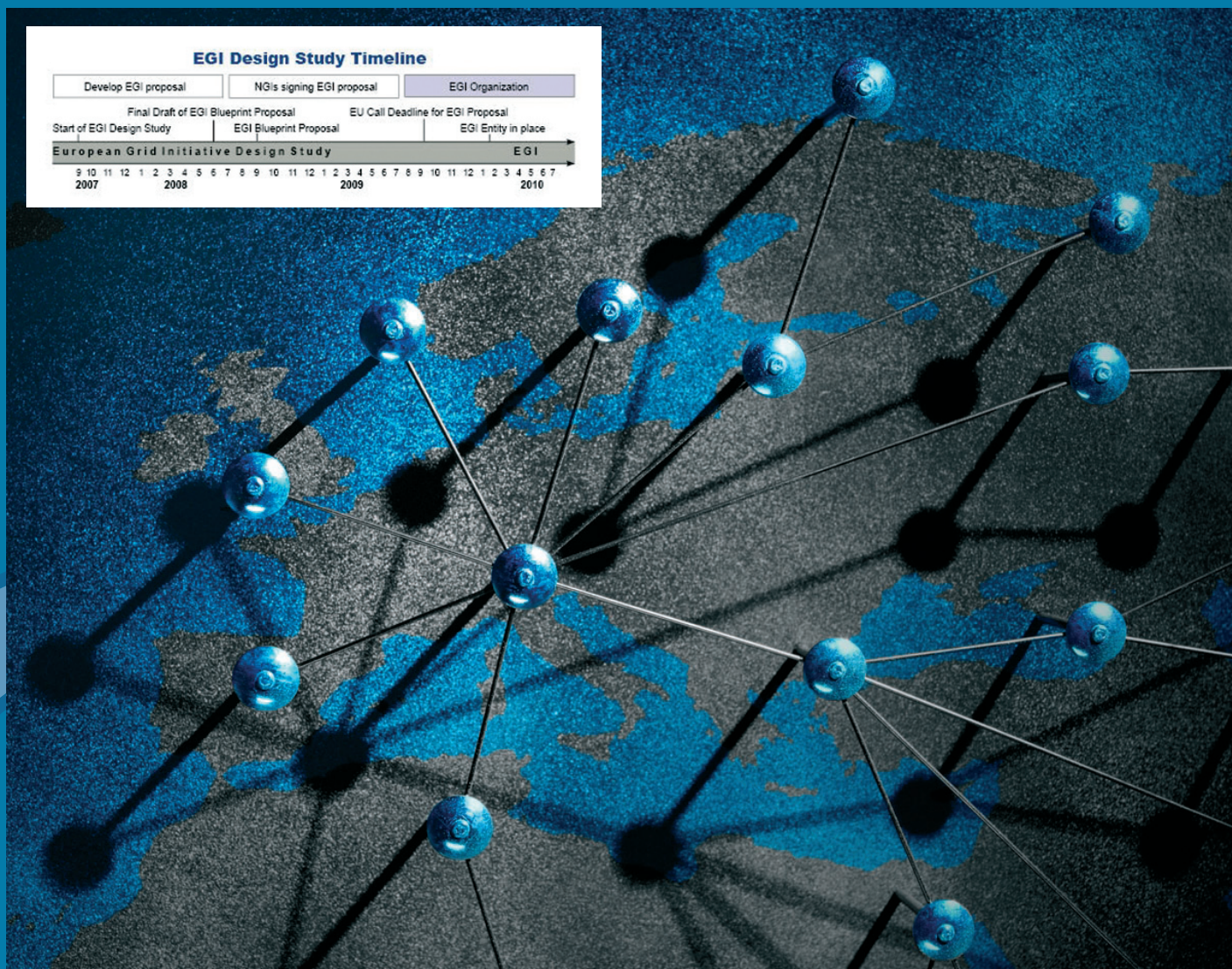
of PRACE (Partnership for Advanced Computing in Europe), which aims to provide European scientists and researchers with world-class compute resources at the highest (Petaflop/s) performance level, stated: "To serve its users, PRACE has to be firmly integrated into the European High Performance Computing (HPC) ecosystem. The glue that links departmental, national, and European systems is grid technology. PRACE supports EGI's efforts towards a sustainable e-infrastructure to overcome today's fragmentation".

Europe has no significant HPC hardware industry, but needs a European Grid Infrastructure for nurturing European research. In addition, EGI would be a coordinating point for interaction with grids outside Europe.

Grids are already in use in industry, mostly in the form of intra-grids limited to one particular organization, often dealing with job scheduling and virtualisation. However, grid technology could provide additional functionality for industry, e.g. resource sharing and security, available in academic and scientific grids, says Per Öster, who is in charge of contacts with industry in the EGI_DS project.

Grids of supercomputers are essential for simulating large-scale problems. The time taken to run a simulation is reduced from years on a desktop computer, to hours by using the many thousands of processors made available across countries.

The EGI organisation is the next logical step towards grid service sustainability. However, this organisation is expected to evolve over time to take onboard new technologies and changed user needs. EGI should become the driving force of tomorrow's European research and technology, enabling science to remain at the cutting edge and industry competitive.



More information:
www.eu-egi.eu
<http://knowledge.eu-egi.eu>

The European Grid Initiative Design Study is funded by the European Commission's 7th Framework Programme. The project started on September 2007 and continues until November 2009. The EGI organization is expected to start its operations in 2010.