Enabling Grids for E-science in Europe

Industry Forum Newsletter

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Editorial

The European project EGEE (Enabling Grids for E-science in Europe) aims to integrate current national, regional and thematic Grid efforts, in order to create a seamless European Grid infrastructure for the support of the European Research Area. The EGEE vision is that this Grid infrastructure will provide European researchers in academia and industry with a common market of computing resources, enabling round-the-clock access to major computing resources, independent of geographic location.

The EGEE Industry Forum has been created in order to promote and disseminate Grid concepts towards Industry and Services Companies, to raise awareness of the EGEE project amongst industry and to encourage businesses to participate in this project.

The members of EGEE Industry Forum are companies of all sizes having business activities in Europe, large international companies, SMEs or consortium of SMEs, services companies, IT companies or Grid Service Providers.

The EGEE Industry Forum is the main entry point for companies interested by GRID technologies, especially those developed by the EGEE project.

The EGEE Industry Forum is managed by a steering group including participants of EGEE and main representatives of industrial sectors. It has representatives members in different groups of the project such as EGAAP (EGEE Generic Applications Advisory Panel), Security group, …

Two working groups have been created for proposing recommendations to the various actors of Grid technologies :

- The first working group (managed by Y.Guerin –IBM) concerns the different technical aspects of GRID.
- The second one is devoted to the business models and the economic aspects. It is directed by M. Benard (HP).

Following the proposals of the members, other working groups may be launched.

This quaterly newsletter will be the link between participants of EGEE, members of the Industry Forum and the various communities interested by GRID-concepts. With this electronic publication we hope to participate actively to the dissemination of a technology in which Europe must play a major role.

Christian Saguez, CRSA / Guy Wormser, In2p3

Our newsletter key article

eINFRASTRUCTUREs in the EU

Kyriakos Baxevanidis, European Commission

The context

The *e*Infrastructure concept was first proposed in 2003 to coin a vision for the development of a next generation of transnational ICT Research Infrastructures in Europe. This concept envisions the researcher's ability to have a controlled, secure, seamless, easy and economical access and shared use of science and engineering resources, enabled by the provision of a fully integrated advanced information and communication infrastructure.

Building the European Research Area

The concept of *e*Infrastructure, responding mainly to the needs of advanced research communities to get the benefits of "virtual collaborative environments", has been well adopted in Europe.

It is building upon Europe's strong position in communication networks for research (National Research and Education Networks – NRENs - and the European backbone Géant) and on the successful results of experimental large scale Grid-based test-beds (such as DATAGRID, Eurogrid, DAMIEN or CrossGrid).

Furthermore, a number of National programmes in Europe are creating similar models for the shared use of resources across different institutional and user application domains. This favours the development of a common approach, in which the European and the National efforts are complementary ("subsidiarity" principle) increasing the value of each National and of the European as a whole infrastructure.

The *e*Infrastructure concept is key for the realisation of the European Research Area (ERA), as it has the potential to bring the power and the services of big information processing and communication facilities to the desktop of the researcher. At the same time it provides a truly European dimension to facilities of European interest, independently of their physical location, promoting cohesion and rationalisation of investments.

This initiative runs in parallel with similar ICT development programmes in North-America (e.g. the Cyberinfrastructure and iInfrastructure Programmes) and in the Asia-Pacific region (e.g. the Naregi and the APGrid projects).

The approach

The *e*Infrastructure is being realised through the integration of several technology and infrastructure components most important of which are the following:

- The pan-European networking infrastructure for research (GÉANT and NRENs).
- A new generation of Grid-middleware based services that allow any authorised user to efficiently share resources for collaborative research work. This is enabling the creation of a pan-European Grid empowered infrastructure for research bringing together the key science and engineering facilities in Europe.
- A framework of administrative and policy mechanisms to break down barriers related to the deployment and shared use of new technologies.
- A mechanism that integrates new validated technologies and experiences from Test-bed or other Research projects.

The achievements

The concept of eInfrastructures builds strongly on the achievements of FP5 projects in the area of Research Networking (namely GÉANT, IPv6, Grid-based test-beds etc).
In 2004, a first wave of new projects was launched to implement the *e*Infrastructures concept:

- GN2, a project that will be responsible for the second generation of GÉANT, extending and improving the functionalities and the services provided by the current GÉANT network.
- EGEE, a project that will be deploying the largest international Grid infrastructure with the combined capacity of over 20.000 CPU's, federating 70 institutions in 20 countries, supporting amongst others the High Energy Physics and the Biomedicine communities.
- DEISA, a project that aims at building a distributed tera-scale supercomputing facility with the initial plan to integrate six major supercomputing centres across Europe.
- SEE-Grid, a project extending the cross-European Grid infrastructure to the South Eastern Europe.

- A serie of Test-beds, promoting the integration, testing, validation and demonstration of networking technologies and favouring the up-take of technologies by fostering the interoperability of solutions across different disciplines.

Further to this R&D effort, the European Commission in co-operation with the Research Authorities of the rotating EU-Presidency deployed an initiative with the objective to create a policy, technological and administrative framework for the easy and cost effective shared use of electronic resources in Europe (focusing on Grid-computing, data storage, and networking resources) across the national and administrative domains.

In this context (following active involvement of the Greek and the Italian EU Presidencies in 2003) an *e*Infrastructures Reflection Group (eIRG) was established (composed of members appointed at Ministerial level) to support on the political, advisory and monitoring level, the creation of the above policy framework. The 16 April 2004 meeting of the above group in Dublin (under the aegis of the Irish presidency of the EU) resulted in the endorsement of a text that opens the way for the deployment of a pan-European Authentication policy on the use of Grid-controlled ICT-resources. Topics to be addressed next in this context are Authorization, Virtual Organisation Resource Provisioning policies, Accounting etc.

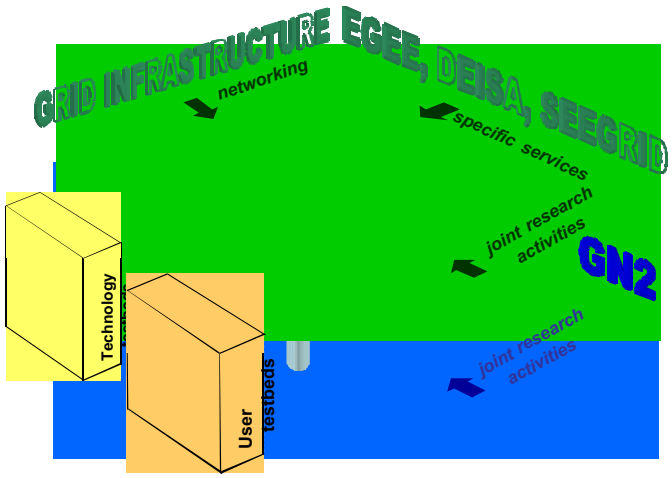
Next Calls for Proposals and Events – *provisional information !*

There are currently three Calls for Proposals that are planned to take place in 2005 in the area of eInfrastructures. The proposed topics to be addressed are the following:

- *"eInfrastructures - Consolidating initiatives"* (to address geographical expansion of eInfrastructure initiatives, policy and support level actions on electronic resource sharing, the involvement of new user communities in eInfrastructures).
- *"eInfrastructures – Grid initiatives"* (to address topics in relation to deployment of Grid-based research infrastructures).
- *"Research networking Test-beds"* (to address the deployment of Test-beds in various technological and application areas).

Relevant information days will be organized in due time.

The following events in close relation to eInfrastructures are planned for the next months:



- An eHealth – eInfrastructures session at GGF12 (Brussels, 20-23 September 2004).
- An eInfrastructures booth at IST2004 (The Hague, 15-17 November 2004).
- A policy level workshop on eInfrastructures and a meeting of the eIRG (The Hague, 18-19 November 2004).

The first concertation meeting in FP6 of the eInfrastructure projects (22-23 November 2004, in the context of the EGEE/DEISA conferences).

The European Grid Computing Project EGEE is already in cruise mode

The Grid computing project Enabling Grids for E-science in Europe (EGEE) has made considerable progress after the project kick-off conference in Cork last April to complete its initialisation phase and produce its first deliverables. All of its activities are currently concluding and reporting on the project's first quarter of activity. The next big event will be the second project conference this coming November in Den Haag, the Netherlands.

EGEE has already deployed its grid over 60 geographically distributed sites around the world leveraging the production Grid developed

by the LCG collabrating particle physics projects. In the meantime, the project has started its *virtuous cycle* by releasing internally the first prototype version of its re-engineered prototype middleware "gLite" for testing to application representatives. This middleware will form the core software of the next generation of the EGEE grid, taking on-board key new technologies such as web services and a consolidation of its security model, in order to accommodate data sensitive applications (e.g. bio-medical).
The Den Haag event, the second of the four project conferences planned for the initial two years of the project, will once again bring together not only different EGEE partners but also representatives of national universities and research organisations and the project's commercial partners. This event will again provide the intense communication platform which unfortunately cannot be matched with telephone and email.
A concertation event among the most significant EU Grid infrastructure projects will be organized by EGEE on behalf of the EU INFSO direction as part of the open starting days of the conference.
The conference will immediately follow the IST2004 event, a large exhibition of all technologies projects within the European Information Society. The EGEE project will contribute with a rich stand, including demos and information material, grouped together with four other grid related projects (DEISA, GEANT2, SEE-Grid and DILIGENT). The five infrastructure projects are coordinating their exhibitions at this event around a common theme. These projects share the ambitious goal of building the future communications infrastructure for European science.
EGEE brings together 70 organisations from 27 countries with the common aim of building on recent advances in grid technology and developing a production quality service grid infrastructure in Europe, available to scientists round the clock. This infrastructure will provide researchers in academia and industry with access to major computing resources, independent of geographic location. The EGEE project will also focus on attracting a wide range of new users and their novel applications, from the fields of bio-medical, space observation, high-energy physics, biology and more. The project benefits from a funding of over 30 million Euros for the first phase by the European Commission.

The following conference will be held in Greece early May 2005 and concluded by the final conference in the UK in November 2005.

For more information on EGEE see www.eu-egee.org.
Fabrizio Gagliardi, CERN (Fabrizio.Gagliardi@cern.ch) *and Robert Jones, CERN* (Robert.Jones @cern.ch)

EGAAP-deployment of three very interesting applications recommended

The most important success criterion for EGEE is the number of applications from as many fields as possible smoothly deployed on its infrastructure.
The EGEE Generic Applications Advisory Panel plays a very important role in that process since it is charged with the evaluation of all proposals from external groups, to make prioritzed recommendations to the NA4 and EGEE management. EGAAP is composed, in addition to some EGEE members, by 5 external experts , all holding key positions in similar scientific panels in their respective regions, thus providing a direct link with potential applicants. The chair of the industry Forum is an also ex officio member, in order to guarantee a good sensitivity to industrial applications. The first EGAAP session , hold at CERN on June 14, was very positive, since EGEE had received 4 very interesting requests, from four very different large communities: Earth Sciences, Astrophysics, Computational Chemistry and Engineering sciences in automotive industry. A letter of intent for the next EGAAP session, to be hold in November has also been received from the cosmology community. EGAAP recommended approval for the deployment of the first three applications, because of the very large scientifc added value that EGEE can bring , identified within each project the first tasks to be addressed and selected the level of manpower to be allocated to each task. A formal short document specifiyng the rights and obligations of the community joining EGEE and EGEE , with

approved plan of work, schedule and milestones will be issued shortly and signed by the partners. The next challenge for EGAAP is to prepare for its next session, through a wide dissemination process, to keep receiving such high quality requests for deployment
Guy Wormser, In2p3 (wormser@lal.in2p3.fr*).*

The first EGEE conference kick-off in Ireland

The first Enabling Grids for E-science in Europe (EGEE) conference got underway on Sunday 18 April 2004 in Cork, Ireland. More than 300 project delegates attended many meetings and presentations about all aspects of the project.
The conference lasted four days and the tightly packed schedule allowed delegates to discuss the overall mission of the project, present their progress so far and deliberate about how this computing grid will be built and used.
The conference also gave the delegates the chance to get to know their colleagues face-to-face, after months of email and telephone contact.
Project Director, Fabrizio Gagliardi, said:
"For one of the most important projects with the ambition to develop and deploy a very large distributed computing infrastructure, it is vital to be able to define in detail the programme of work of each technical and scientific activitity within the project."
Once in place, the grid will be the largest in the world.

News from the Industry Forum

The first EGEE Industry Forum Meeting took place on Tuesday 7 October 2003 at CERN in Geneva, Switzerland
Programme :
Presentation of EGEE Objectives and Organisation by Fabrizio Gagliardi.
Presentation of Industry Forum Objectives by Christian Saguez.
How the EGEE Industry Forum is Organised by Guy Wormser. Steering Committee, communication tools, meetings, working groups (potential topics, who should participate).
Conclusions.

The Second EGEE Industry Forum Meeting took place on Wednesday 21 April at Cork, Ireland, during the first EGEE project conference.
Programme :
European Union Presentation by Kiryakos Baxevanidis
From Datagrid to EGEE - LCG Demonstration by Mark Pearson
Industry Forum Presentation by Guy Wormser
Round-table 1: Grid Providers
Participants: Y. Guerin / IBM, M. Benard / HP, F. Rossi / DATAMAT, B. Ugolotti / Nice, M. Gilbert / Microsoft
Round-table 2: End Users: Examples and Expectations
Participants: D. Thomas / CGG, D. Saccone / ST Microelectronics, J-F. Musso / CS, S. Lung / Gridxpert.

News from members : HP, IBM and GridXpert

HP : first commercial member of LCG

In January 2004, HP has announced that it would be the first commercial member of LCG (Large Hadron Collider Computing Grid), contributing computing resources from its HP Labs locations in Palo Alto and Bristol, as well as from HP computing centres in Brazil and Puerto Rico. In total, over 150HP servers are expected to contribute to LCG, and the CERN openlab technical team has been active in assisting HP with the initial deployment of the necessary Grid middleware, including a site visit to Puerto Rico. Commenting on HP's decision, Dick Lampman, senior vice president of research and director, HP Labs said that « *[the] opportunity to participate in the LCG will provide us with unique insight into the functionality and complexity of large-scale Grid environments.*
Ultimately HP's customers around the world will reap the benefit of this collaboration »
Michel Benard, HP (michel.benard@hp.com)

IBM and EGEE Industry Forum

IBM provides a wide range of Grid products and services and dedicated Grid professionals to assist it's clients in designing and deploying Grid projects for business advantage. IBM has a long and thorough involvement with both the technology and the business issues that have

led to the grid computing evolution. "Virtualisation" — the driving force behind grid computing — has been a key factor since the earliest days of electronic business computing.
Grid computing development is largely dependant on the progresses that the worldwide academic and research community will accomplish. EGEE is one of the key European Grid initiatives and by being an active participant in it's Industry Forum, IBM hopes to help establish a bridge between the Research and Business communities.
Philippe Bricard / Grid Computing Executive, IBM EMEA

Recent IBM Grid news and industry references

- **IBM brings Grid Computing to leading application developers**

Seven leading application software developers, including Citrix, Cognos, and Engineous Software, have recently completed work with IBM to ready their applications for Grid Computing. These companies are targeting what is expected to be a $12 billion Grid market opportunity by 2007.

- **Silicon Reality report shows Grid as key technology**

IBM Business Consulting Services is launching an industry report called Pharma 2010: Silicon Reality, which shows how the application of seven key technologies -the first of which is Grid- will drive innovation and increase shareholder value in the pharmaceutical industry.

- **Grid offering for Auto and Aerospace design analysis**

IBM Grid Offering for Design Collaboration helps automotive and aerospace companies speed time to market and improve the quality of their products through a more rapid and comprehensive engineering design analysis. MAGNA STEYR is one of the world's leading suppliers of niche vehicle production, assembly and concept development, as well as a leading supplier of powertrain modules and all-wheel-drive systems. "Grid technology from IBM and Platform Computing reduced the time required for our clash testing from 72 hours to 4 hours and contributed significantly to enhancing our design quality," said Dr. Heinz Mayer, MAGNA STEYR.
For more information about IBM's Grid computing business, visit www.ibm.com/grid.

GridXpert: selected for the development of *a* virtual computing laboratory for Professional Manufacturing Tools (OME)

Supported by the French Ministry of Economics, Finances and Industry, 13 structural mechanics companies, the professional syndicate GIMEF, the Ecole des Mines of Albi and CETIM have signed a partnership to develop a virtual computing laboratory for Professional Manufacturing Tools (OME), which will provide first French ASP Grid computing system for Structural Mechanics Industry.
This programme aims to create different tools: the generation of programming tools to support in each stage the conception and generation of structural mechanics products; the creation of an integrated environment providing numerical simulation tools; the creation of aiding tools for the interpretation and solving of simulation results; the generation of a database for structural mechanics products.
The proposed solution integrates an IBM eServer Linux xSeries cluster, a database IBM DB2, PAM-STAMP 2G provided by ESI Group and GridXpert Synergy. Grid computing constitutes a distributed system in which the computing resources of the network are distributed and federated. The Grid allows in a dynamical way the identification, supervision and distribution of computing resources between multiple applications to benefit different entities spread across different geographical regions.

GridXpert is a French solutions provider of security Grids. Its GridXpert Synergy solution, selected for this project, enables to model and optimize the industrial Grid resources including hardware, networks and applications. GridXpert Synergy is based on the concept of "On Demand Resource Management", which aims at optimizing the computing resources according to the needs in order to support the peak performances at the lowest cost.
Accessible through a simple and secure web connection, the resources will be available as ASP services on demand. Billing will be performed real-time and on demand using

accounting technologies integrated in the GridXpert Synergy solution.
"Working with IBM and GridXpert in implementing a grid means that we'll be able to offer our clients a flexible, On Demand, environment for running simulations so that they can make use of the infrastructure when they need it and only get billed for what they use", comments Claude Bouhêlier, OME project coordinator, Cetim.
For more information, see www.gridXpert.com

Manifestations to come about GRID

- EGEE talk at the 2004 UKUUG Linux developers conference in Leeds, on 5th August 2004

See http://www.ukuug.org

- The Global Grid Forum (GGF) will be holding its next event (GGF12) in Brussels Belgium on 20-23 September, 2004.

From mid-morning Monday through lunch on Tuesday, GGF will offer a special enterprise-focused plenary program entitled "Grids Deployed in the Enterprise" at the Crowne Plaza hotel in downtown Brussels. Keynotes for this program include Manuel Peitsch from Novartis, Mark Cates from Wachovia Bank, and Guru Bhatia from Intel's Semiconductor design division.
Additionally, the program will offer a broad spectrum of panelists speaking from their commercial grid deployment experience.
For more details on the program, please visit http://www.ggf.org

- IST 2004, 15-17 November 2004, in The Hague, Netherlands : Participate in your future.

IST is the annual 'networking' event for research and development in information society technologies (IST). It is organised by the European Commission in cooperation with the Dutch Presidency of the European Union. Attendance is 'a must' for researchers and industrialists planning to propose projects for the IST priority within the EU's Sixth Framework Programme for Research and Technological Development. The title of IST 2004 is: "Participate in your future", with "People" and "Economy" as the main themes.
IST 2004 will include a conference, networking facilities, an exhibition of research results and the IST Prize Village. Calls for conference and exhibition ideas are closed since 4 June.
For details on these calls and full information, consult :
http://europa.eu.int/information_society/istevent/2004

- Next Industry Forum Meeting

It should take place during the IST 2004 event, 15-17 November 2004, in The Hague, Netherlands.
To be confirmed.

Call for proposals

Anyone interested in joining EGEE Industry Forum should contact either Christian Saguez (christian.saguez@ecp.fr) or Guy Wormser (wormser@lal.in2p3.fr).

Enabling Grids for E-science in Europe