Enabling Grids for E-sciencE

Newsletter

January 2006

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MESSAGE FROM THE DIRECTOR

Dear Colleagues,
As we come back from our holidays, it is worth taking a look back at what has been achieved over the past year and ahead to what we will do in the year to come.

We started last year full of questions about the infrastructure, middleware and engagement of the applications but our successful first EU review in February helped focus the discussion and provided useful recommendations for all activities. The points raised by the reviewers were addressed at the third conference in Athens, and the work started in earnest to improve the quality of the services offered by the project and help the user communities to get a broad range of applications up and running.

During the summer a lot of time and energy went into agreeing and producing the EGEE-II proposal, the scale of which has never been dealt with by the EU before.

The creation of a number of related projects in the areas of infrastructure extension, applications and support has shown the prominent role of EGEE as a leading project in the field, as well as the federating effect the project has produced in the Grid domain.

The extent of the interest in EGEE was evident at the fourth project conference in Pisa where 14 related projects were present. The progress made throughout the year was visible at the 2nd EU review in December where the results impressed the reviewers. The acceptance of the EGEE-II proposal and budget by the EU just before the December break crowned the year by assuring the medium-term future.

Looking to 2006 it will be a very exciting year during which we have to complete EGEE while continuing to expand the infrastructure and increase the number of applications deployed from both research and industry.The first User Forum event will be held in March, and the final EGEE review will be held at CERN on 23-24 May followed by an EGEE-II transition meeting on 25-26 May.

The European Grid Organisation (EGO) concept has generated a great deal of interest and we are charged with developing it into a concrete plan by April 2006 so that the EU can take it into account for their preparation of the 7th Framework Programme. This should take the form of national or regional Grid initiatives federated through an umbrella organisation, currently referred to as the EGO. The first EGEE-II conference during September 2006 will be a key European Grid event bringing together all EU Grid related projects, industry and European political leaders.

It is likely we will have an intermediate, focused review covering the first 6 months of EGEE-II during the last quarter of 2006, to end the year and prepare us for 2007 which will be a landmark for Grids with the switching-on of the LHC accelerator and its 4 physics experiments that rely on the EGEE infrastructure for their computing needs.

Happy new year to you and your families.

Bob Jones
EGEE Project Director

EGEE-II INVITED FOR NEGOTIATIONS

Following the submission of the EGEE II proposal in September this year, the EGEE II consortium received the Evaluation Summary Report on 6 December, which remarked favourably on the proposal.

The ESR stated that the proposal is highly relevant to the aims and objectives of the Research Infrastructures unit, with a proven and well conceived management structure. The technology and infrastructure that the project will build is seen as state of the art and of vital European interest, with a high potential impact on the development of an integrated European research infrastructure.

Following this, the project was invited to an informal pre-negotiation meeting in Brussels on 19 December. A group representing the project management, the activities, the Project Management Board and the Federations attended the meeting with the proposed EGEE-II project officer and the head of the Research Infrastructures unit. The EGEE II representatives were questioned on a number of issues, clarifying the issues raised in the Evaluation Summary Report, as well as some areas where the situation has changed since the proposal was submitted. The EGEE II representatives felt the meeting went very well and were pleased to receive a formal invitation to negotiations for the EGEE-II project, beginning early next year to ensure that EGEE-II is able to start as planned on 1 April 2006.

SECOND EU REVIEW

On the 6 and 7 December, EGEE underwent its second EU review, held at CERN, Switzerland. At this event, five external reviewers nominated by the European Commission (EC) examined the work of the project over the past nine months. The reviewers, all experts in Grid technology with a variety of academic and industrial backgrounds, were accompanied by EC Project Officer Kyriakos Baxevanidis.

All activities gave presentations to the reviewers, presenting their progress with a particular emphasis on how they had responded to the recommendations from the first review, held in February 2005. The reviewers then had time to question the representatives of each activity in detail about their work, leading to many interesting and profitable discussions. Plans for the future of the project and the EGEE infrastructure in the proposed EGEE-II project and beyond were also discussed, with Mr Baxevanidis and the reviewers both expressing pleasure at plans for long-term sustainability presented during the review.

Reviewer Leandros Tassiulas from the University of Thessaly, Greece, with EGEE Technical Director Erwin Laure

The reviewers also saw the project's applications in action, with two demonstrations chosen from the many that featured at the Fourth EGEE Conference in Pisa. The first was in the field of Pharmacokinetics, where the Grid is used to perform 'virtual biopsies' on cancer patients. The second demo was of a flooding simulation system, an application of considerable interest in developing areas where flooding is a regular occurrence with a heavy impact on people's lives.

The project received the official report from the reviewers on Friday 16 December, where they stated that the overall performance of the project continues to be very good. They also remarked that the change in the leadership was smooth and the transition period was well managed. They accepted all the deliverables and approved the plans for the remaining months of the project.

The reviewers emphasised the importance of the human factor in such a large project, so that synergies can be exploited across the project activities and to ensure that the project can adapt quickly to changing requirements. They added that some of

these came from the new user communities that have become involved during the project ramp-up due to the extensive dissemination and training activities. To maintain the momentum, the reviewers made several recommendations about refining the process of passing application requirements into the gLite development process.

The final EGEE EU review iwill be held at CERN on 23-24 May 2006.

EVENT: DISTRIBUTED COMPUTING FOR NEGLECTED DISEASES, CERN, 8 DEC 2005.

"First Tuesday" is an inter-personal networking forum for Venture Capitalists, putting on events across the globe on a large range of topics. CERN has been involved with the Geneva branch of First Tuesday for some time, putting on several IT related events, most recently "Distributed Computing for Global Health". This event, organised by EGEE and the CERN openlab, saw speakers ranging from the Grid world to the international health community discussing how distributed computing systems could be used to combat some of the major health challenges affecting the world today, such as tuberculosis, malaria and HIV/AIDS.

Vincent Breton, Head of Application Support for EGEE (NA4), opened the evening with an explanation of Grid computing and EGEE. In particular, he focused on the WISDOM application, which uses the EGEE Grid to look for new treatments for malaria, a disease which kills more than one million people a year, and affects many millions more. In a data challenge earlier on this year, the WISDOM application used 80 CPU years in just 6 weeks, running on just under ten percent of the EGEE Grid's computing resources.

The evening also saw a number of other speakers working in similar domains, such as volunteer, or '@home' computing. In these systems members of the public can donate spare resources on their own machines to good causes through a distributed computing system. Tom Smith from the Swiss Tropical Institute spoke about a new project, Africa@home, which uses donated computer power to study the epidemiology of malaria and the effectiveness of

Some of the potential beneficiaries of distributed computing projects such as EGEE and Africa@home.

new treatments. This new project is based on the increasingly popular BOINC system, an open source platform for volunteer computing developed at the University of California at Berkeley.

Another volunteer computing project was also presented during the evening, IBM's World Community Grid. This philanthropic effort, based on technology from BOINC and commercial provider United Devices, runs a number of different volunteer efforts. Initially these were in the biomedical domain (working on AIDS and human proteomics) but the project plans to expand to other fields.

Other perspectives on distributed computing were provided by representatives of the Swiss Bio Grid, a collaboration between academic and commercial groups. This consortium has recently been carrying out a proof of concept on Grid computing trying to find potential treatments for Dengue fever. They stressed that such distributed efforts cannot replace traditional lab work in finding new drug treatments, but have the potential to considerably improve the processes for selecting potential compounds for lab testing.

Finally, a medical view was provided by Brian Williams of the World Health Organization, an epidemiologist working on Tuberculosis and one of the founders of the South African Centre for Epidemiological Modelling and Analysis (SACEMA). Dr Williams provided valuable insights into the overall aims of such health related research, and their potential impact on the African continent and develop-

ing world.
The event was also web cast live, and the video has been archived at http://agenda.cern.ch/fullAgenda.php?ida=a057951#2005-12-08. Many of the same speakers also presented at the WISDOM open day held in Bonn on the 16 of December.

EGEE COORDINATOR RECEIVES AWARD FOR PUBLIC AWARENESS IN HPC

EGEE coordinator CERN received the High Performance Computing (HPC) Public Awareness Award at a ceremony at Supercomputing 2005 in Seattle. Supercomputing 2005 is the foremost international conference for HPC. The award was presented by HPCwire, the leading HPC publication, as one of their 2005 Editors' Choice Awards, a category where the winner is determined by a panel of recognized HPC luminaries and contributing editors from industry. The award citation is for 'Outstanding Achievement in Creating Public Awareness for the Contributions of High Performance Computing', and reflects CERN's high visibility in scientific computing through its lead role in some of the world's largest and most ambitious international Grid projects such as EGEE.

Receiving the prize on behalf of CERN, David Foster, head of CERN's network and communications group, said: "This is a significant honour for CERN, and I really feel that all our institutional and industrial partners in LCG, EGEE and CERN openlab deserve to share the credit for this. The Grid technology that is being deployed for the LHC is inevitably something that spans many institutions, all of whom are contributing to the broader public awareness concerning this new approach to high performance computing."

Tom Tabor, publisher of HPCwire, said: "HPCwire's Editors' Choice Awards indicate where those on the front lines of both commercial and academic high performance computing believe the cutting edge of technology lies. An overwhelming number of responses selected CERN for the Public Awareness category. This reflects CERN's outstanding image as an organisation that pushes the boundaries of scientific computing."

RELATED PROJECTS NEWS

AN INTRODUCTION TO EGEE RELATED PROJECTS

One of EGEE's primary goals is to integrate thematic and national Grid projects to support the European Research Area and the rapidly emerging European Grid infrastructure. To this end, EGEE has always had close relations with other Grid initiatives such as DEISA, SEE-GRID and DILIGENT.

Over recent months, the EU has funded many new projects in areas closely related to the work of EGEE, which the project will support and interact with to further advance our shared goals of developing Grid technology into an invaluable tool for modern science.

These efforts, termed 'Related Projects' can be considered as falling into three broad categories: Infrastructure, Application and Support projects (see figure).

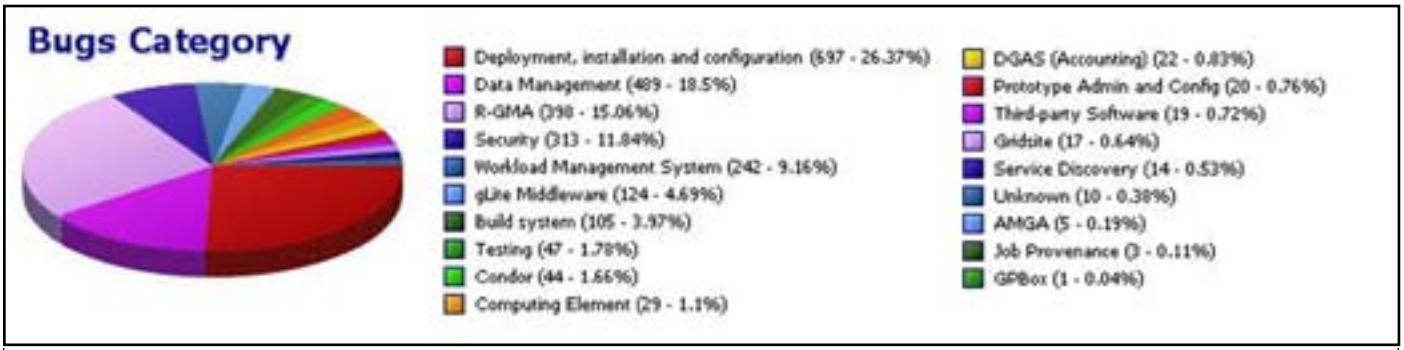
Infrastructure projects work in two ways: either they provide specialised infrastructure (such as the DEISA supercomputer Grid), or they extend the existing Grid infrastructure and network capacity to new geographical regions, often through integration with the EGEE infrastructure. Efforts such as SEE-GRID, a project dedicated to enabling the South-Eastern European region to participate in pan-European and worldwide Grid initiatives, have already shown the success of this regional model for infrastructure extension. This strategy is now being adopted in other areas, with infrastructure projects covering China, the Mediterranean area, the Baltic States and Latin America either just beginning or due to commence early in 2006. DEISA and GÉANT2 are already well known to the EGEE community, and the existing, fruitful relationships will be continued and extended in 2006.

Applications projects use the Grid infrastructure to serve various goals. For EGEE they are important both in making use of the infrastructure and helping us to understand the requirements of user and feed these back into the development work of the project. Two applications projects, DILIGENT (digital libraries) and GRIDCC (remote instrumentation for scientific measurements), have already been up and

running for some time. They will soon be joined by BIOINFOGRID (bioinformatics) and Health-e-Child (computationally intensive research in paediatrics).

Support projects include a variety of initiatives to contribute to Grid development, enhancing the impact and effectiveness of infrastructure and application projects. The e-IRG (e-Infrastructures Reflection Group) receives dedicated support in the form of the e-IRGSP (the e-IRG Support Project). ISSeG will work in the area of site security for Grid computing. BELIEF will help European Grid projects to develop contacts worldwide with industry, while the ICEAGE project aims to advance Grid education and will be closely related to EGEE's training activities. A fifth project, ETICS, will bring together facilities for software configuration, integration, testing and benchmarking to enable developers to ensure the quality and compatibility of their products.

This issue of the EGEE newsletter features the first two of a series of articles introducing these projects, beginning with ETICS and BalticGrid.



Outstanding bugs by category in the gLite middleware. This and other work currently undertaken as part of JRA1 will soon be taken over by the ETICS project, due to start early in 2006.

ETICS ASSURES QUALITY ON THE GRID

On 1 January 2006, a new EU-funded project will be launched that will help to improve the coherence and quality of Grid software. The ETICS project (e-Infrastructure for Testing, Integration and Configuration of Software) will integrate existing procedures, tools and resources to create a facility where distributed research projects can integrate their code, libraries and applications, validate the code against standard guidelines, run extensive automated tests and benchmarks, produce reports and improve the overall quality and interoperability of the software.

Scientific software today is often the product of large-scale, distributed collaborations and increasingly uses new technologies like the Grid to solve complex, compute-intensive problems. Due to the large variety of tools, programming languages, platforms etc. available, these software stacks risk to suffer from a lack of coherence and quality. Limited timescales, manpower and funding often prohibit creating a dedicated build and test infrastructure for each new project.

ETICS will provide such a capability for software configuration, integration, testing and benchmarking for the scientific community, including software engineering tools and support infrastructures developed by other projects (such as EGEE, LCG and NMI), and to open-source or industrial entities. To promote international collaboration and facilitate interoperability analysis already at early stages of development and implementation, ETICS will collect, organise and publish middleware and application configuration information as well as common quality guidelines and principles.

The ETICS project is a spin-off from the EGEE project, whose Grid middleware gLite is based on existing middleware developed by many different projects world-wide and therefore inherits code from many different sources and in many different languages. The software quality assurance activity within EGEE has developed measures and procedures to monitor code development and quantify adherence to standards. ETICS will make these as well as a dedicated testing infrastructure, available to Grid middleware and application software developers worldwide.

START OF THE BALTICGRID PROJECT

The BalticGrid Project is funded by the European Commission and started 1 November 2005. It will last for 30 months with a budget of three million Euros. The concept of the project, whose aim is to establish a production Grid in the Baltic countries, was conceived two years ago in Krakow, Poland, during one of the many Grid conferences held there.

Gathering key institutions from the three new EU member states Estonia, Latvia and Lithuania and a number of institutions with experience from previous and ongoing Grid projects, from Poland, Switzerland and Sweden, the project has the mix of partners

Members of BalticGrid at the kick-off meeting and first conference, held in Krakow, Poland.

necessary to successfully deploy a Grid infrastructure in the region. Building on the experience from participation in other European Grid projects such as DataGrid, CrossGrid and EGEE, the partners will together develop the Grid infrastructure, care for software installation and integration with the EGEE information system. The Grid infrastructure of the BalticGrid project will initially be used for applications from the fields of the biological and medical sciences, material engineering and high energy physics.

The BalticGrid consortium organised the First BalticGrid kick-off conference (24-25 Nov) which was held in Krakow at the Institute of Nuclear Physics (PAN) – the partner responsible for dissemination and education in the project. The conference brought together all the partners from the project for the first time, with 49 participants representing all 10 participating partners' institutions. The opening talk was given by the Project Director Per Öster, PDC KTH in Stockholm, who presented a general overview of the project. This was followed by a plenary session in which all activity leaders presented their plans for the upcoming months. All BalticGrid Activity members then had the opportunity to meet in parallel sessions.

The conference was preceded by a EGEE gLite tutorial. Some 20 project members from the Baltic States participated in this tutorial, designed for potential users of EGEE infrastructure interested in the concept of Grid computing.

ENDNOTES

FIRST CONFERENCE OF EGEE-II ANNOUNCED

In preparation for the proposed start of EGEE-II in April, plans have already begun for the first conference of the project. This will be held in Geneva, Switzerland, at the International Conference Centre Geneva (CICG), from 25-29 September 2006. The CICG is a newly refurbished conference centre able to hold up to 2500 attendees, with ample space for exhibitions, smaller meeting and conferences. This event will be larger than previous conferences, and is planned to host other small events concurrent with the main EGEE-II conference, as well as having increased participation from related projects and industry.

ORDER FORM FOR DISSEMINATION MATERIAL

All project members are encouraged to use EGEE publicity material when hosting or attending events. This material is easily available through an online web form, which allows project members to have material shipped to either their institute or directly to the event where appropriate. Material available includes a wide range of information sheets that are regularly updated with the latest information, glossy brochures for executive audiences, posters, stickers and other branded material. The order form can be found at http://public.eu-egee.org/feedback/materials.php.

NEW APPLICATION AREA OF EGEE PUBLIC WEBSITE

The EGEE dissemination team have recently added a new section to the public website, which explains the many applications running on the infrastructure. These range from the pilot areas of HEP and bio-medical science to the newer areas such as finance, fusion and geophysics. You can find the new section at http://public.eu-egee.org/applications/ .

CALL FOR ABSTRACTS FOR FIRST USER FORUM EVENT

The first EGEE User Forum will be held on 1-3 March 2006 at CERN, Geneva, Switzerland. It will provide an important opportunity for innovative applications to establish contacts with EGEE and with other user communities, to plan for the future usage of the EGEE grid infrastructure, to learn about the latest advances, and to discuss the future evolution of Grid middleware. It also provides an opportunity for dialogue with industrial parties having an interest in EGEE Grid technology.

For this event we solicit community contributions in four areas:

- EGEE Applications (extended abstracts of around 1,000 words)
- Grid Computing Techniques (extended abstracts of around 1,000 words)
- On-line Demonstrations
- Posters

Abstracts must be submitted by 29 January 2006, and the chosen authors will be informed by 6 February 2006. More information on the event and the call for abstracts can be found at http://indico.cern.ch/conferenceDisplay.py?confId=286.

FORTHCOMING EVENTS

16-17 January 2006, Edinburgh, UK
Installing a User Interface for the National Grid Service
More information: http://www.nesc.ac.uk/esi/events/651/

25-27 January 2006, Vienna, Austria
6th EUGridPMA meeting
More information: http://ca.austriangridca.at/EUGridPMA_Vienna_meeting/

13-16 February 2006, Athens, Greece
GGF16
More information: http://www.gridforum.org/GGF16/ggf_events_ggf16.htm

13-17 February 2006, Mumbai, India
CHEP 2006
More information: http://www.tifr.res.in/~chep06/

27-28 February 2006, Geneva, Switzerland
EGEE User Forum Training event
More information: http://agenda.cern.ch/fullAgenda.php?ida=a058079
Registration: http://www.nesc.ac.uk/action/registration/egee/index.cfm?id=652

1-3 March 2006, Geneva, Switzerland
EGEE User Forum
More information: http://indico.cern.ch/conferenceDisplay.py?confId=286

25-29 September 2006, Geneva, Switzerland
EGEE-II first conference
More details to follow

TRAINING MATERIAL

For full training event listings, see http://www.egee.nesc.ac.uk and for trainign material see http://www.egee.nesc.ac.uk/trgmat/index.html .
Current course material is available in:

- EGEE Induction
- Globus Toolkit
- LCG2 Install and Admin
- UML for developing web services
- gLite
- LCG2 APIs
- Web Services

Thanks for reading this newly redesigned newsletter. While the format has changed, it will still keep you up to date on events within the project and the European Grid community in general.

You are receiving this newsletter as you have expressed an interest in the EGEE project. If you have any questions, comments or suggestions for the next issue, please feel free to contact owen.appleton@cern.ch .