Prof. Dr. Wolfgang Gentzsch, D-Grid general co-ordinator, in interview with Primeur/EntertheGrid

Munich 19 September 2005 In Primeur/EntertheGrid's last week issue, the news about the German Ministry of Education and Research granting 17 million euro to set up the national D-Grid infrastructure was announced. Primeur/EntertheGrid had the opportunity to have an exclusive interview with Prof. Dr. Wolfgang Gentzsch, the general co-ordinator of D-Grid, to ask him about his views and plans for the D-Grid initiative.

Primeur: Can you tell a bit about the philosophy behind D-Grid and the goals it wants to reach?

Prof. Dr. Wolfgang Gentzsch: D-Grid is a national Grid initiative in Germany, bringing together more than 100 research organisations to jointly develop a single, nationwide distributed networked IT infrastructure. The initiative will accelerate and enhance research by all scientists in Germany, and open new research frontiers through the collaboration enabled by Grid technology.

The German scientific community started the initiative in early 2003 by forming several working groups for infrastructure and application technologies, resulting in a strategic proposal to the German Government.

Based on this proposal, the Ministry for Education and Research announced a broader 100 million euro German e-Science Initiative focused on three areas of e-Science: Grid computing (D-Grid), e-learning, and knowledge management.

The primary goal of the e-Science Initiative is to provide a next-generation digital infrastructure for German researchers enabling global connectivity, international collaborations, ongoing exchange of experience, and instantaneous publication of research results.

Primeur: There are six projects starting. What are they and how were they chosen?

Prof. Dr. Wolfgang Gentzsch: We have one generic Grid infrastructure project in D-Grid, developing fundamental Grid services based on middleware for access to computing resources and large amounts of data, management of virtual organisations, authentication and authorization, security, metadata catalogues, resource brokerage, network technologies, monitoring and accounting.

In addition, there are five community grids. HEP-Grid focuses on high-energy physics and is closely collaborating with the CERN Hadron Collider Grid community.

The Astro-Grid is bringing together astrophysical and astronomical scientists within a virtual, distributed, collaborative laboratory with integrated data archives, and access to scientific experiments and instruments.

Medi-Grid represents the German medical-bioinformatics community collaborating on image processing, bioinformatics and clinical research, and their intercommunication.

C3 stands for Collaborative Climate Community. The C3-Grid's goal is to develop a highly productive Grid-based research platform for the effective scientific analysis of high-volume Earth modelling and observation data.

In-Grid is developing a Grid environment for modelling, simulation and optimization of engineering applications in the areas of foundry technology, metal forming, groundwater flows, turbine simulation, and fluid and structural mechanics.

The D-Grid infrastructure project provides a horizontal platform for these other (vertical) community Grid projects. Because all projects are dedicated to using standard Grid interfaces, the foundation is being developed to easily integrate future community projects and applications.

Primeur: The German D-Grid started on September 1st. Of course, a lot of preparatory work has already been done. But compared to the UK eScience projects and, for instance several large Dutch eScience projects, like VI-E and Lofar, is this not a bit late? Or is there an advantage of not being the first here?

Prof. Dr. Wolfgang Gentzsch: While the D-Grid initiative itself started in 2003, some earlier Grid projects such as Unicore, Autobench, Arts, and others started already in the 1990s.

It is much easier today to build Grids than it was a few years ago. In the meantime, the community has agreed upon a set of standard interfaces, and there are Grid technology components available off the shelf.

The German government made a strategic decision to learn from early deployments and wait until Grid technology and standards matured before launching this aggressive roadmap for national Grid development. This approach has enabled Germany to learn from early deployments, reduce risks and be more efficient.

Primeur: The projects start with a total of 17 million euro of funding. If I am correct, this is the first funding for D-Grid projects. Are there plans for a next wave of projects?

Prof. Dr. Wolfgang Gentzsch: Yes. The first round of funding is for two to three years. After that, another round will follow which will take the current projects from prototype to production level, and also include new community Grid projects.

Primeur: Could you provide a break-down per project of the funding?

Prof. Dr. Wolfgang Gentzsch: The infrastructure project is about 5 million euro, and the community projects are getting about 2.5 million euro each.

Primeur: The five approved application projects all look "traditional". Does this mean that in the German view these are still the best candidates where Grid computing can make a difference?

Prof. Dr. Wolfgang Gentzsch: The reviewers have selected the "usual suspects" (except Medi-Grid), primarily because these research areas have been the early Grid technology adopters with the highest demand for computing and data-intensive processing. Researchers in these areas are very experienced and already are collaborating internationally. However, in the next phase, we expect to have another 5 to 10 new Grid application communities which will make use of the generic Grid infrastructure.

Primeur: The application projects will be supported by an integration project that will supply the core services. Could you elaborate a bit on that? For instance is there already a choice of Grid middleware? Will there be special D-Grid support? etc.

Prof. Dr. Wolfgang Gentzsch: Indeed, the D-Grid infrastructure project has several tasks: it will evaluate and provide the Grid services and higher-level tools required by the community Grids. There are requests for Globus, Unicore, GridSphere, g-Lite from the EGEE project, the GAT Grid Application Toolbox, Ganglia Monitoring, Grid-MPI, and others. In addition, the infrastructure project is responsible for support, maintenance, bundling and documentation of the core services as well as developing a lasting production and business oriented service infrastructure available at the finger tips of researchers throughout the country.

Primeur: The European Commission is very active in supporting eScience, through the e-Infrastructures initiative for instance and the related funding for Grid infrastructure for eScience. There is also support for projects in the development and uptake of the advanced Grid software and systems. How do you envision the relation between the D-Grid and the developments on a European scale?

Prof. Dr. Wolfgang Gentzsch: Many of the partners in D-Grid are already part of the European projects you are mentioning, thus guaranteeing a natural collaboration on a national and international scale. It is indeed a valid concern of the European Commission

that the many national Grid projects in Europe, 15 or more, may drift apart and develop national infrastructures which will not be interoperable. Therefore, strong co-ordination and collaboration is absolutely mandatory, which is the objective of the European Commission�s GridCoord project, for example.

Recently, the Global Grid Forum re-structured its Steering Committee, the Grid Forum Steering Group, by adding a new group of community directors to augment the existing directors for Grid standards. The new Director for Major Grid Projects, for example, will definitely contribute to the co-ordination and collaboration of the large national and international Grid projects. This focus will specifically address the requirement for collaboration and interoperability, helping pave the way towards THE GRID � the global advanced network of resources enabled through Grid technology.

Primeur: Thank you very much for this enlightening interview, Prof. Dr. Gentzsch.

Ad Emmen

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