

The new Distributed Computing Landscape

"We need to provide a high quality service to the scientific communities, integrating clouds, grids and software as needed to respond to their needs. The new Distributed Computing Infrastructure projects will make a contribution to this direction, providing resources for computation and data-intensive research in a sustainable manner. They will also work together in close coordination so as to achieve coherence in their actions and maximum return on investment."



Kostas Glinos, Head of GÉANT & e-Infrastructures Unit, DG Information Society & Media, European Commission

The European project SIENA (Standards & Interoperability for e-Infrastructure Implementation Initiative: 2010-2012), which is currently under negotiation with the European Commission, works closely with six newly funded Distributed Computing Infrastructures and the European Commission, as well as Standardisation Development Organisations, European Union policy groups and technology innovators from enterprise and research in Europe and globally to ensure a strong voice for Europe in the distributed computing standards arena.

Through close engagement with these groups, SIENA will drive forward interoperability standards by demonstrating tangible

benefits for enterprise, government and research and by exploring top-level challenges, ranging from implementation barriers to legal and policy issues. By doing so, SIENA will deliver insights into distributed computing technology developments, now and in the years ahead.

An important step towards engagement with the six new Distributed Computing Infrastructure projects took place on 1 June 2010 at the Engaging European DCIs Together Workshop in Brussels. The Workshop spotlighted not only the main focus on each of the new projects but also initial steps taken to define a co-operation strategy and understand how this co-operation will develop and deepen over the next two years.

"I am very pleased to hear that the SIENA project has been successfully launched. Pursuing the efforts engaged by OGF-Europe previously to promote the development and use of open standards and to enable further interoperability for many of the rising e-infrastructures is a very important mission for both European research and industries. This is a great opportunity that I surely want to support and help in the next 2 years."



Vincent Franceschini, CTO Distributed Data Storage Solutions, Chairman Emeritus, SNIA, HITACHI DATA SYSTEMS

Spotlight: Europe's New Initiatives on Distributing Computing Infrastructures



EGI-InSPIRE (*Integrated Sustainable Pan-European Infrastructure for Researchers in Europe*) draws on the achievements of earlier European initiatives with the support of National Grid Initiatives in Europe. The central organisation, EGI.eu, provides a co-ordinating hub, working to bring existing technologies into a single, integrated production e-Infrastructure for researchers in Europe.

"During the 4-year EGI-InSPIRE project we will establish a secure reliable sustainable production infrastructure across Europe by bringing new technologies into production to meet the needs of our user communities."



Steven Newhouse, Director of EGI-InSPIRE



EDGI (*European Desktop Grid Initiative*) is aimed at deploying Desktop Grid and Cloud Computing services for the European Grid Initiative (EGI) research user communities that require large-scale distributed computing resources for multi-national projects.

"EDGI will develop middleware for extending Service Grids (ARC, gLite, Unicore) with Desktop Grids (BOINC, XtremWeb) enhanced by Academic Clouds (Eucalyptus and OpenNebula). The aim is to support the European Grid Initiative (EGI) and National Grid Initiative (NGI) user communities that are heavy users of Distributed Computing Infrastructures (DCIs) and require an extremely large number of CPUs and cores."



Peter Kacsuk, Co-ordinator of EDGI



EMI (*European Middleware Initiative*) is a close collaboration between major European distributed middleware providers, ARC, gLite, UNICORE and dCache.

"The main focus of EMI is to simplify the existing middleware and make it more user-friendly, stable and standard. At the same time adding new functionalities needed by the ever growing research infrastructures and user communities. The major outcome of EMI will be a streamlined set of well-maintained standard services making use of emerging technologies without compromising on stability and security."



Alberto Di Meglio, Co-ordinator of EMI



IGE (*Initiative for Globus in Europe*) aims to support and enhance the provision of Globus Grid software to European e- Infrastructures.

"IGE will serve as the central point of contact for Globus developers, operators, and users in Europe and will help coordinate the widespread European Globus activities. IGE will also integrate European requirements into Globus for the benefit of European scientists depending on this open source middleware."



Helmut Heller, Co-ordinator of IGE



StratusLab (*Enhancing Grid Infrastructures with Virtualization and Cloud Technologies*) aims to enhance Grid infrastructures with Cloud Computing by incorporating virtualisation and cloud technologies into existing Grid infrastructures in Europe while improving the usability of distributed computing resources.

"The StratusLab participants are looking forward to creating a comprehensive, open-source private cloud distribution while working closely with scientists, system administrators, and other DCI projects for the broad adoption of cloud technologies."



Charles Loomis, Co-ordinator of StratusLab



VENUS-C (*Virtual multidisciplinary Environments Using Cloud Infrastructures*) aims to develop and deploy an industry-quality cloud computing service for research and industry communities in Europe.

"VENUS-C brings into sharp relief the benefits of cloud computing in the context of a Scientific Cloud for Europe, demonstrating the suitability of this model to reduce costs and increase opportunities for researchers across EU27. In doing so, VENUS-C brings together a compelling range of applications that will grow over time through an Open Call designed to broaden the geographic and scientific scope of the project."



Andrea Manieri, Co-ordinator of VENUS-C

Spotlight: Engaging European DCIs Together Workshop

The Workshop on 1 June 2010 in Brussels city centre brought together over 70 people from enterprise, government and research to gain insights into six new European initiatives to deploy Distributed Computing Infrastructures.



Engaging European DCIs

In addition to talks by each of the new initiatives, the European Commission explained how the current e-Infrastructure landscape will evolve over the next few years. Kostas Glinos, Head of GÉANT & e-Infrastructures Unit, DG Information Society & Media, European Commission, focused his talk on “e-Infrastructures: review and outlook”, while the talk by Enric Mitjana, Scientific Officer GÉANT & e-Infrastructures Unit, DG Information Society & Media, European Commission centred on “DCI projects: a strong team”.

A high-profile panel discussion was also a key feature of the event bringing together an international group of experts:

- ❖ *Kyriakos Baxevanidis*, Deputy Head of Unit, GÉANT & e-Infrastructures Unit, DG Information Society & Media, European Commission.
- ❖ *Ignacio Blanquer*, Universidad Politecnica de Valencia & VENUS-C.
- ❖ *Geoffrey Fox*, Indiana University & VENUS-C expert
- ❖ *Yannis Ioannidis*, University of Athens & VENUS-C expert
- ❖ *Paul Messina*, Argonne National Laboratory & VENUS-C expert
- ❖ *Bernard Schott*, Platform Computing

The main conclusions drawn from the panel were to work more closely on scientific challenges globally. If the question of delivering a unique middleware for the future is seen as ambitious then the discussion on an interoperable, middleware implementation has to be considered as key and taken forward to the future. Identifying commonalities and ensuring sustainability for the users can only be achieved with closer collaborations across the globe.



<http://www.sienainitiative.eu/>

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Web-based Resources on the current SIENA website

<http://www.sienainitiative.eu/>

VIRTUAL GOODY BAG - free digital resources from the Workshop.

VIDEOS – interviews with leading figures in the DCI landscape filmed during the Workshop.

SIENA LAUNCH MEDIA RELEASE

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The SIENA Initiative

The SIENA project is a seven-member, pan-European consortium representing industry, standards organisations, and academic institutions:

- Barcelona Supercomputing Center, Spain – Co-ordinator
- OGF.eeig (European Chapter Open Grid Forum – European Economic Interest Group, UK – Technical Co-ordinators
- University of Oxford - Oxford e-Research Centre , UK
- Atos Origin SAE, Spain
- National Institute for Nuclear Physics, Italy
- Ludwig-Maximilians-Universität München, Germany
- Storage Networking Industry Association Europe - SNIA Europe, UK

The main strategic objective of SIENA is to accelerate and co-ordinate the adoption and evolution of interoperable Distributed Computing Infrastructures through engagement with industry, standards development organisations and major stakeholders to forge community agreements on best practices and standards for distributed computing.

