

Status of the EGEE II Project

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www.eu-egee.org

EGEE-II INFSO-RI-031688

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Enabling Grids for E-sciencE

Flagship European grid infrastructure project
Now in 2nd phase with 91 partners in 32 countries

Objectives

- Large-scale, production-quality grid infrastructure for e-Science
- Attracting new resources and users from industry as well as science
- Maintain and further improve gLite Grid middleware





Applications



Enabling Grids for E-sciencE

- Astrophysics
- Computational Chemistry
- Earth Sciences
- Financial Simulation
- Fusion

eGee

- Geophysics
- High Energy Physics
- Life Sciences
- Multimedia
- Material Sciences
- > 165 Virtual Organisations



Applications have moved from testing to routine and daily usage ~80-90% efficiency

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Enabling Grids for E-science

3 layered model to support access to heterogeneous information and connect resources through common shared services

Grids can offer:

- Sharing of resources
- Secure Access Control
- Data management
- Execution of computationally demanding applications (e.g. multimedia content)





egee

EGEE Middleware Distribution

- gLite
 - Exploit experience and existing components from VDT (Condor, Globus), EDG/LCG, and others

Enabling Grids for E-sciencE



- Develop a lightweight stack of generic middleware useful to EGEE applications (HEP and Biomedics are pilot applications).
 - Pluggable components cater for different implementations
 - Follow SOA approach, WS-I compliant where possible
- Focus is on re-engineering and hardening
- Business friendly open source license
 - Plan to switch to Apache-2



Grid Middleware

Enabling Grids for E-sciencE



- Applications have access both to Higher-level Grid Services and to Foundation Grid Middleware
- Higher-Level Grid Services are supposed to help the users building their computing infrastructure but should not be mandatory
- Foundation Grid Middleware will be deployed on the EGEE infrastructure
 - Must be complete and robust
 - Should allow interoperation with other major grid infrastructures
 - Should not assume the use of Higher-Level Grid Services



Overview paper http://doc.cern.ch//archive/electronic/egee/tr/egee-tr-2006-001.pdf

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Middleware Concepts

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Slide by Dave Snelling

Status Summary

Concept	OGSI	WSRF	WS-M	RW-RT	OGSA-*
Resource		\checkmark	\checkmark	\checkmark	\checkmark
Properties	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark
Notification	\checkmark	\checkmark	\checkmark		\checkmark
Lifecycle	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark
Composition	\checkmark	\checkmark	\checkmark	\checkmark	\checkmark
Faults	\checkmark	\checkmark			\checkmark
Collections	\checkmark	\checkmark	\checkmark		\checkmark
Naming	\checkmark				\checkmark

Orange = Historical, Blue = Evolving, Green = Standard

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Middleware Standards

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OGSA Status September 2006



Collaborating e-infrastructures

Colla Enabling Grids for E-science



Potential for linking ~80 countries by 2008

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Inter-operability

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- Inter-operability between grids is essential to provide services to the user communities
- EGEE works with national grid projects and ۲ peer projects around the world
- Further work needed and the Grid-Interoperability-Now group within the **OpenGridForum is providing a good** environment for this

EGEE working on inter-operability with OSG, **UNICORE, ARC and NAREGI**



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- Need to prepare for permanent Grid infrastructure
 - Ensure a reliable and adaptive support for all sciences
 - Independent of short project funding cycles
 - Infrastructure managed in collaboration with national grid initiatives







- New scientific collaborations have been formed thanks to the Grid infrastructure
 - E.g. WISDOM (<u>http://wisdom.healthgrid.org</u>)
- Business and Industry are getting very interested but need a long term perspective
 - E.g. over 20 companies were present at the Business Track during the EGEE'06 conference, September, 2006



Structure

 Federated model bringing together National Grid Initiatives (NGIs) to build a European organisation (EGI)



- Each NGI is a national body
 - Recognised at the national level
 - Mobilises national funding and resources
 - Contributes and adheres to international standards and policies
 - Operates the national e-Infrastructure
 - Is application independent, open to new user communities and resource providers



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1st meeting of collaborating EU grid infrastructure project leaders





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- Grids are all about sharing they are an excellent means of working with groups around the world
- EGEE operates the world's largest multi-disciplinary grid infrastructure for scientific research
 - In constant and significant production use
 - Regional and national grids are part of this production infrastructure
- We have gained significant experience in what it takes to deploy, operate and manage a large distributed infrastructure
- This work has shown the importance of interoperability/interoperations with collaborating projects
- Need to prepare the long-term
 - EGEE, collaborating EU projects, national grid initiatives and user communities are working to define a model for a sustainable grid infrastructure