e-Science grids: where does Europe stand?

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Mário Campolargo
European Commission - DG INFSO
Director, Emerging Technologies and Infrastructures

a new vision for Science

- Global challenges with high societal impact
- Big Science and the role of "empowered" citizens
- Data deluge... born digital material... virtual-labs
- Cross-disciplinarity
- Spread of skills and competences

ICT infrastructures for e-Science

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a staged approach

Linking the ideas at the speed of the light:
GÉANT

Sharing the best resources:
e-Science grid

Accessing knowledge:
scientific data

e-infrastructure

Innovating the scientific process:
global virtual research communities

Designing future facilities:
novel e-Infrastructures

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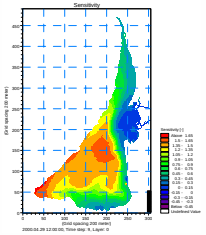
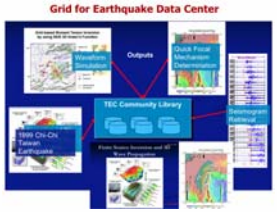
e-Science grid perspective

Grid infrastructure in Baltic region, making gLite, UNICORE and ARC resources interoperable



High capacity, production-quality, scalable e-Science grid facility for Europe and Latin American

Disseminate/train EGEE middle-ware in Asia, support scientific applications and creation of VOs



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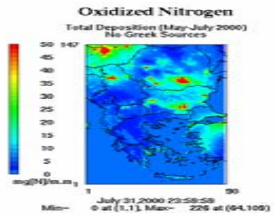
e-Science grid perspective

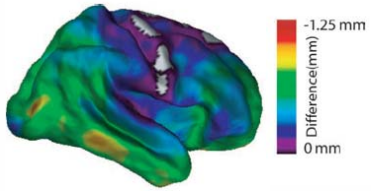
SEE-GRID-SCI
SEE-GRID eInfrastructure for regional eScience

VOs on seismology, meteorology and environment, supported by south-eastern Europe grids



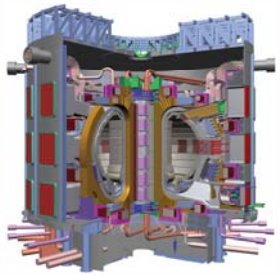
neuGRID

Grid for European neuroscientists working in the field of imaging of Alzheimer's disease



EUFORIA

Modelling capabilities for ITER and future fusion devices using parallel Grid computing and HPC



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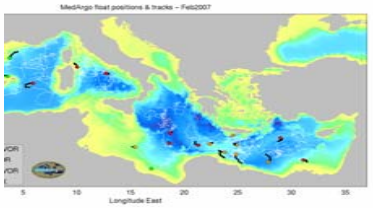
e-Science grid perspective

DORII
Deployment of Remote Instrumentation Infrastructure

Remote instrumentation infra-structure for various communities (earthquake, environment,...)

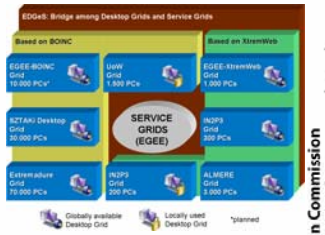


eTICS
The Grid Quality Process

Expand availability, flexibility and efficiency of services for grid and distributed software quality

EDGeS

Integrate Service and Desktop grids, identify new users/resource providers, favour collaborations



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e-Science grid perspective

OpenGridForum Europe

Foster Grid adoption (science and enterprise), articulate European requirements towards standards

Grid TALK

Report success stories to policy makers in government/business, to scientific community/public

EGI

Establish long-term sustainability of grid infrastructures in Europe (new organisational model)

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time to evaluate

- **Achievements**...

  positioning in the world scene

- **Sustainability**...

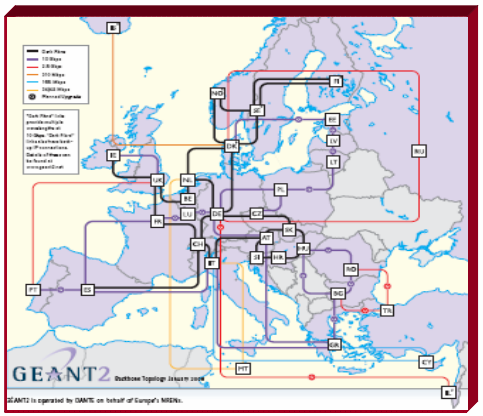
  organisational models and governance

- **Challenges and responses**...

  European Commission, Member States, sector actors

GÉANT network

- World leading network with global footprint
- Governance model progressively consolidated
  - European approach builds on NRENs
  - Service provided to all communities
- Important to reinforce coordination



- **Consolidate world leadership**

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e-Science grid

- EGEE: world's largest multi-science grid
  Multiple complementary (EU + global) projects

- Need to evolve organisation model
  - Depart from funding e-Infrastructures on a project basis
  - Openness to all communities
  - Build European strategy on top of National ones

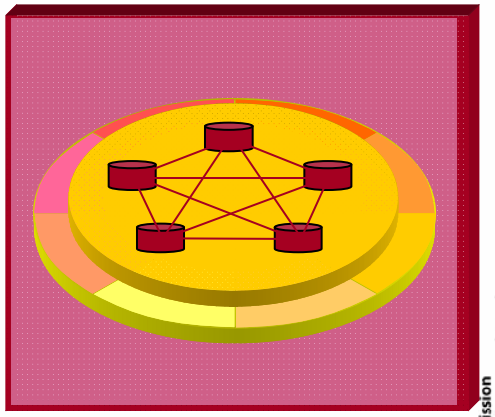
- Reinforce National Grid Initiatives, investments and coordination
- **Structure the e-Science grids landscape**

European HPC service

- DEISA: grid of 11 supercomputers
  - PRACE investing in new capabilities
  - User communities very knowledgeable
- Need to develop organisation model at European level
- Scale-up and pool investments,
  develop a strategic agenda,
  identify industrial impacts
- **Build the new generation of supercomputing facilities**

scientific data

- Only 28% of the research output is available in digital repositories
  - several projects providing early results
  - “EU Open Access Pilot” announced
- Need to consolidate organisation models
- Ramp-up investments and share best practices



- **Enhance access to scientific data**

global virtual research communities

- Europe has to capitalise on the maturity level reached by e-Infrastructures
- Investments in heavy “physical” infrastructures are to be e-Infrastructures aware
- Sector actors need to ensure that Europe embraces the e-Science paradigm

- **Host global virtual research communities**

consolidating e-Science grid efforts

- EGEE (and complementary projects) was instrumental in federating disciplines and coordinating strategies
- Important to consolidate, deepen and enlarge
- e-Science grid governance model needs to evolve:

  - building upon the emerging National Grid Initiatives

  - towards an inclusive European Grid Initiative

further information

www.cordis.europa.eu/fp7/ict/e-infrastructure/

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