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EGEE

Enabling Grids for
E-science in Europe

Status of the EGEE Project

Prof. Manuel Delfino
EGEE Southwest Europe Coordinator

Last slide from report in April 2003

GRIDs use Research
Networks infrastructure



Research Networks
profit from technological
innovation.
GRIDs empowered
Research Networks

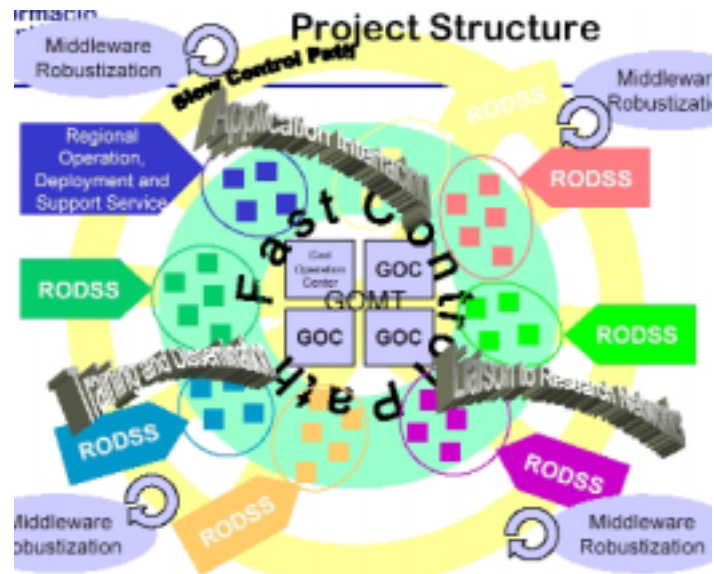
Grids in support of
various subjects



International
dimension

R&D on GRIDs

From an idea....



...to a concrete Grid Infrastructure project

Thanks for your support over more than one year.

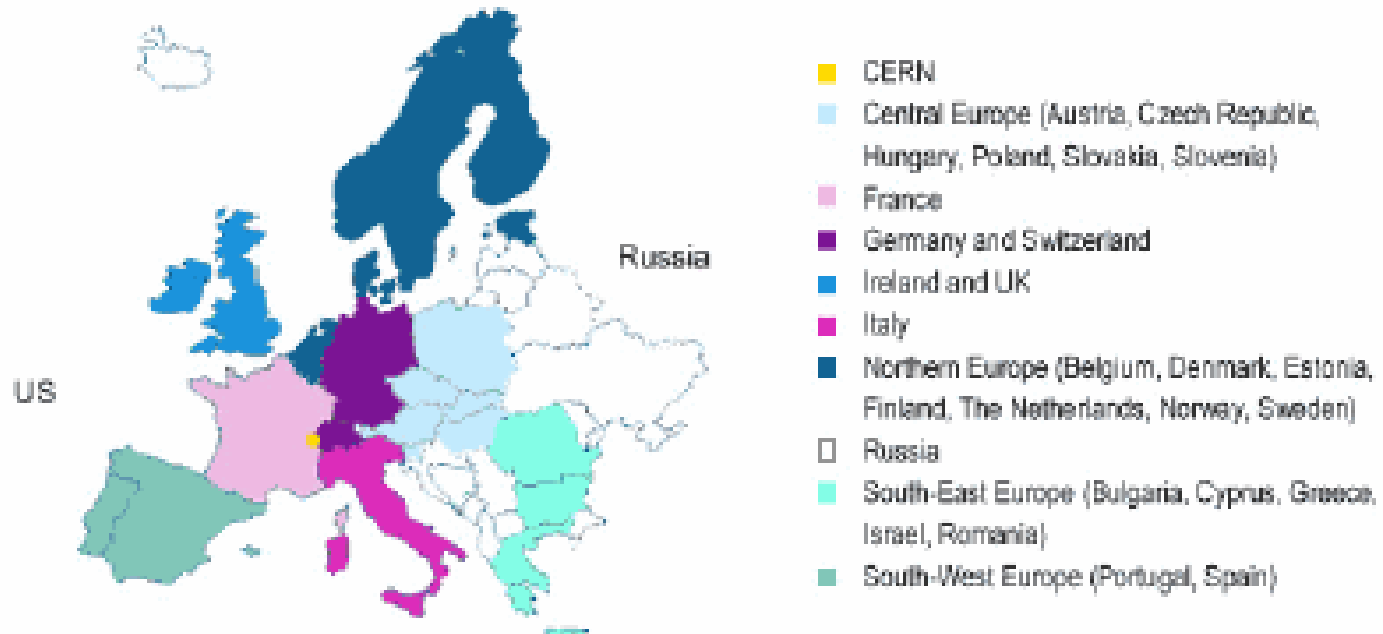
We hope you will continue this support by:

- Including the use of EGEE Infrastructure in your research proposals
- Connecting your clusters as EGEE matures
- Interfacing your applications as EGEE matures
- Continuing development of better and more robust middleware

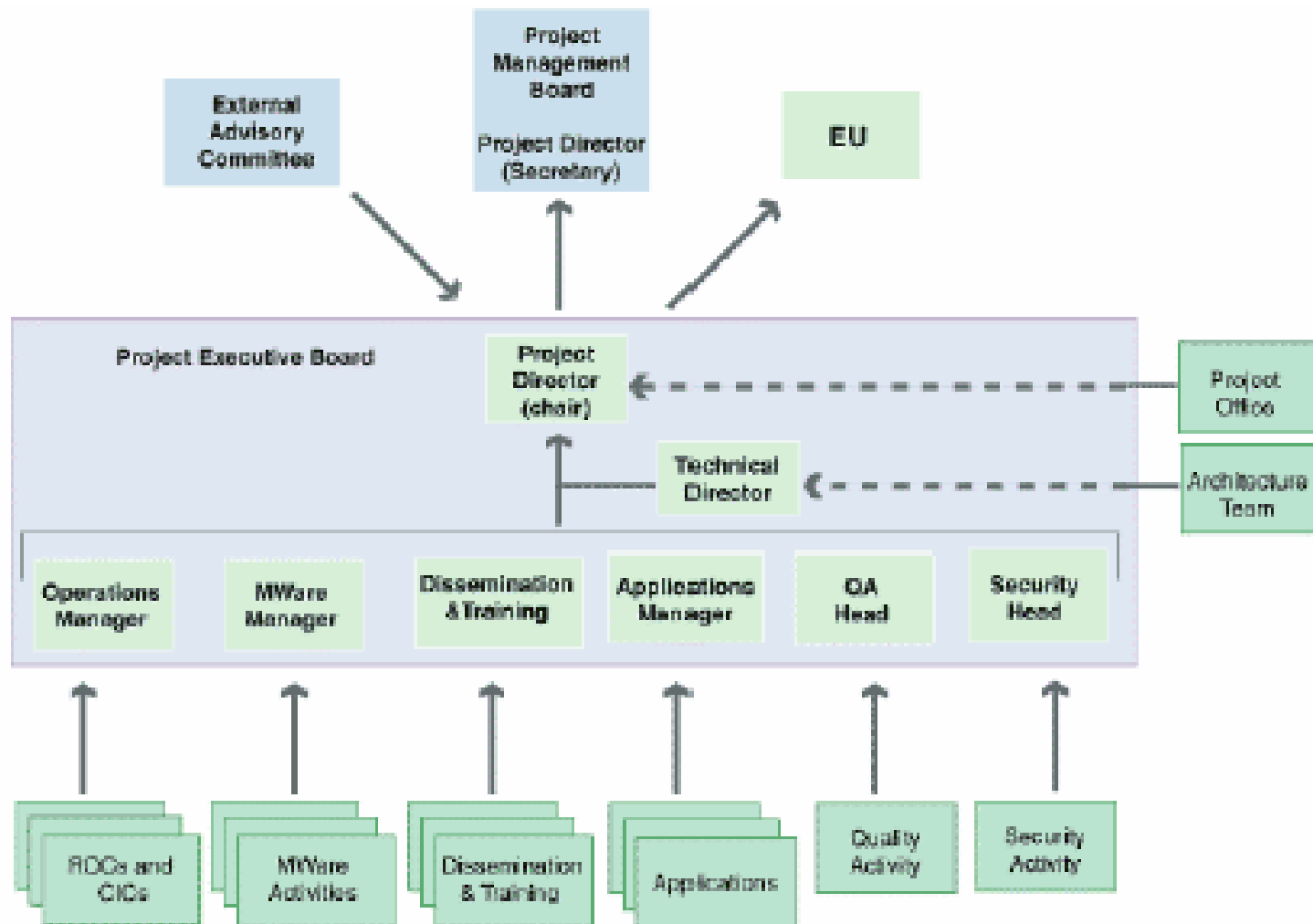
- **EGEE reviewed favourably and invited to negotiate contract with EU (July)**
 - Ceiling on EU contribution to budget set to ~32 M€ (original request was ~39 M€). Main argument was 365x24 operation not achievable in Year 1. EGEE disagrees: LCG-1 operational now
 - Ceiling on EU contribution to Russia: 1 M€
 - Encouragement to collaborate with the U.S. but no EU contribution to budget
- **EU has directed EGEE to be “the” Grid Infrastructure in Europe**
- **Technical Annex draft written (August)**
- **Consortium Agreement draft soon (September)**
- **End negotiation (hard deadline October 31)**
- **Contract signature (January-February 2004)**
- **Official start of EGEE activities foreseen 1 April 2004**

EGEE is organized by “Federations”

- **70 legal entities participating in total. Some legal entities encompass several participants (CNRS, CSIC, INFN, etc)**
- **To achieve coordination scalability, organize in “8+1+1”**
 - France
 - Germany + Switzerland
 - Italy
 - United Kingdom + Ireland
 - Central Europe
 - Northern Europe
 - Southeast Europe
 - Southwest Europe
 - Russia
 - CERN (coordinator)

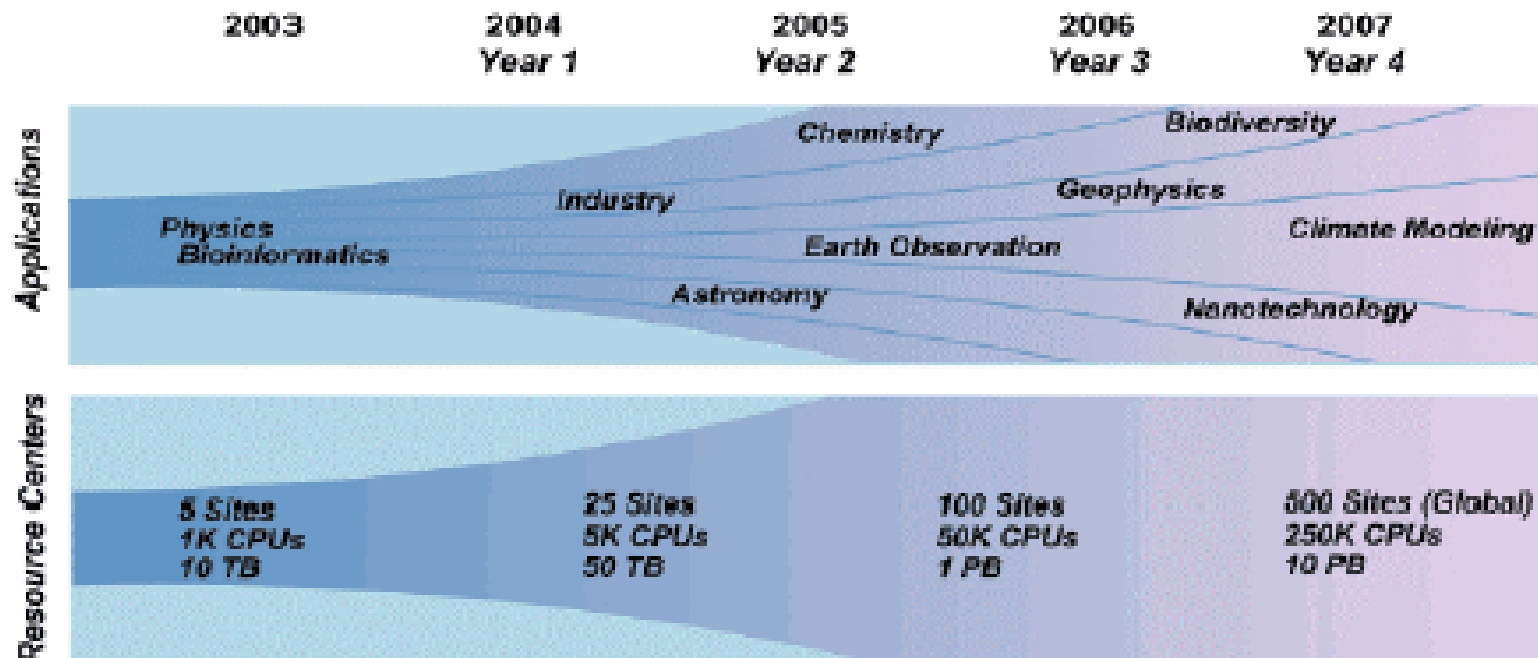


EGEE Project Management Structure

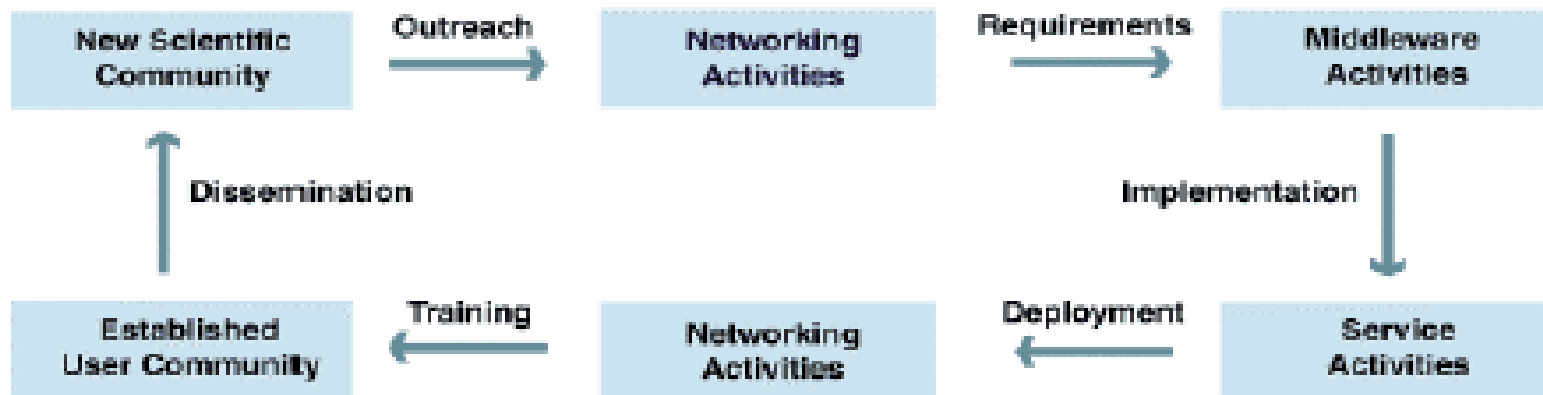


- **Portugal**
 - **Laboratório de Instrumentação e Física Experimental de Partículas (LIP, Lisboa)**
- **Spain**
 - **S.A.X. Centro de Supercomputación de Galicia (CESGA, Santiago de Compostela)**
 - **Consejo Superior de Investigaciones Científicas**
 - **Centro Nacional de Biotecnología (CNB, Madrid)**
 - **Instituto de Física de Cantabria (IFCA, Santander)**
 - **Instituto de Física Corpuscular (IFIC, Valencia)**
 - **RedIRIS**
 - **Institut de Física d'Altes Energies (coordinator)**
 - **Port d'Informació Científica (PIC, Barcelona)**
 - **Instituto Nacional de Técnica Aeroespacial**
 - **Centro de Astrobiología (CAB, Madrid)**
 - **Universidad Politécnica de Valencia (UPV)**

The EGEE "Vision"



The EGEE “Virtuous Cycle”



NA4: Application Identification and Support

Application domain	Partner	FTE per Task			
		Application Identification	Common Layer	Migration Support	Feedback
Bio	CNRS (22)	0,33	0,33	3	0,33
	CSIC (56)	0,7	0	1,3	0
	UPV (59)	0,6	0	1,2	0,2
	RRB(42)	0	0,3	0,3	0
HEP	CERN (1)	0	0,5	6,5	1
	IHEP(41)	0	0	0,4	0,4
	ITEP(43)	0	0,5	0,5	0
	JINR(44)	0	0	0,4	0,4
	PNPI(46)	0	0	0,5	0,5
	RRC(47)	0	1	0	0
	SINP48)	0	0	1	0
Generic	INFN (31)	0,7	1,3	1,3	0,7
	CESNET(4)	0,4	0	1,2	0
	MTA(8)	0	0	0,4	0
	DKFZ(26)	0	0	0,5	0,5
	FhG(27)	0,5	0,5	0	0
	FOM(36)	0,5	0,5	0,5	0,5

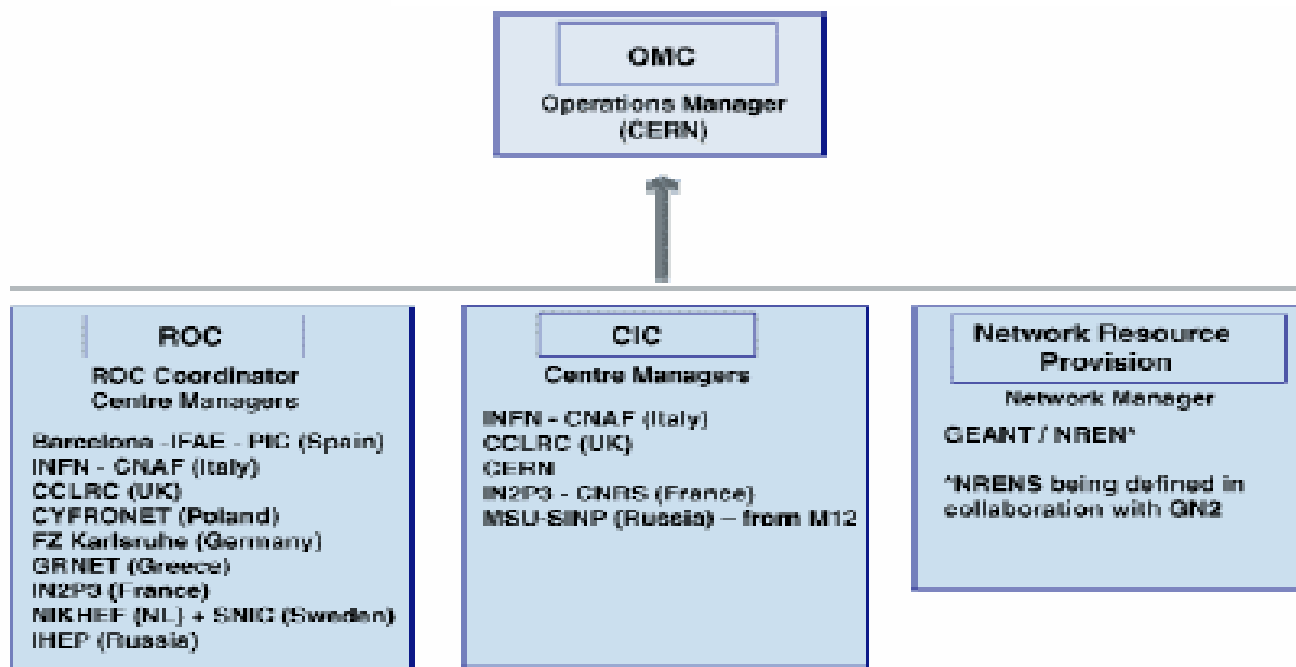
Table I Effort per task for each NA4 partner

Activities SA1 + SA2

“Operations”



- Operations Management Centre
- Core Infrastructure Centre
- Regional Operations Centre



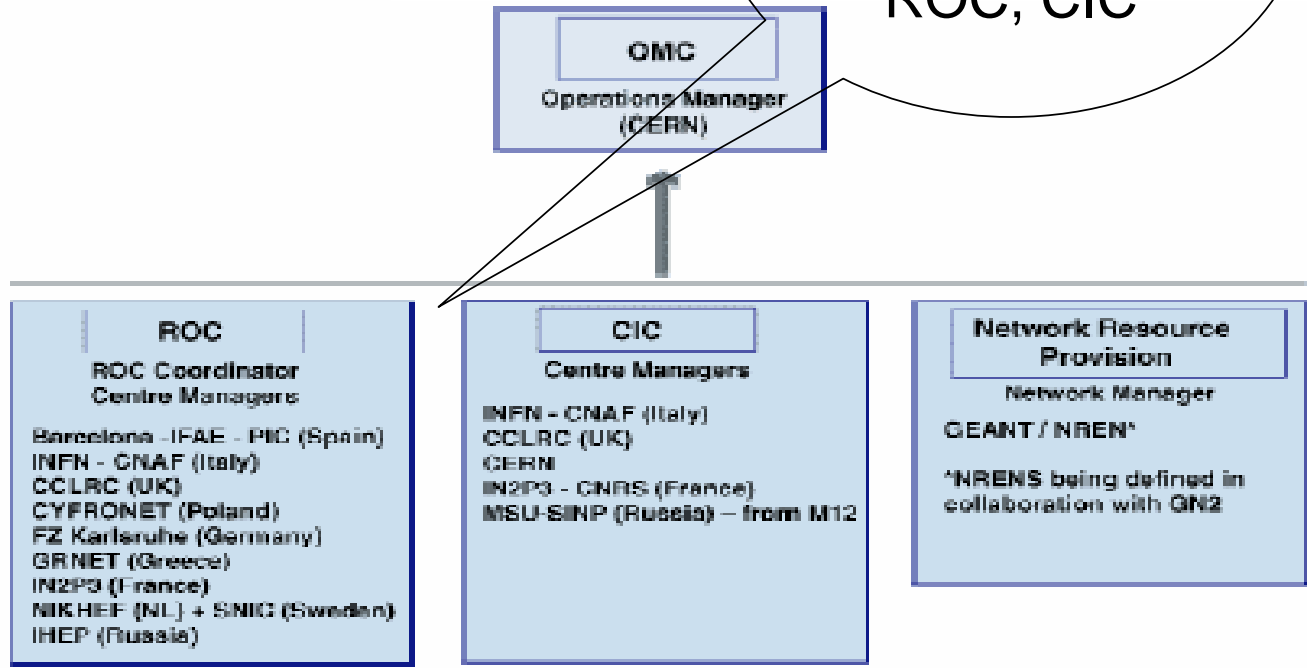
Activities SA1 + SA2

“Operations”

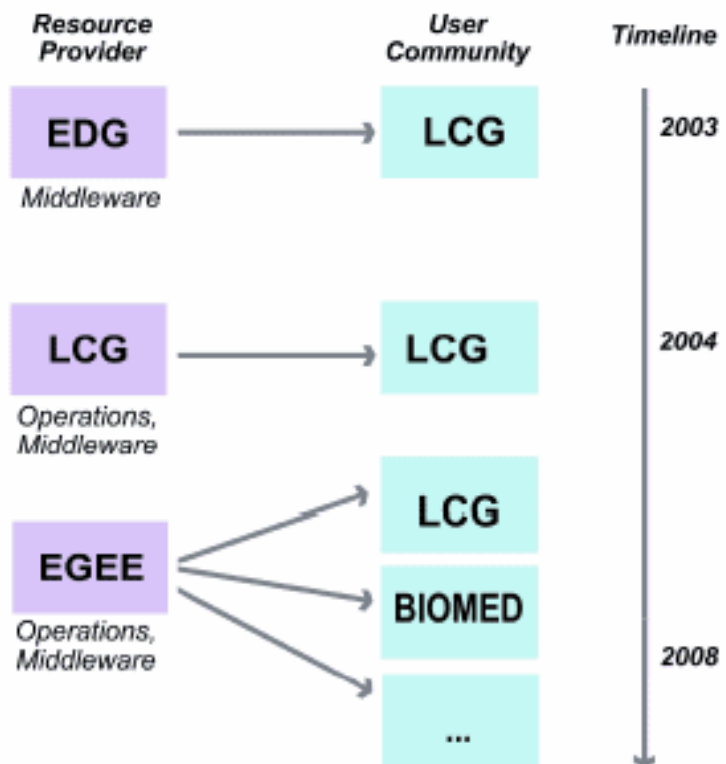


- Operations Management Centre
- Core Infrastructure Centre
- Regional Operations Centre

Note change:
RODSS, GOC
now
ROC, CIC



Cooperation/Transition LCG to EGEE



- **Coordination + Primary Operators Team (PIC)**
- **Secondary Operators Team (LIP)**
- **Middleware deployment and problem root-cause analysis (CAB)**
- **Certification Authority Operation (IFCA)**
- **Virtual Organization Service Operation (IFIC)**
- **Accounting and Monitoring (CESGA)**

- **Network Provision: RedIRIS (no EU funding)**

- **The current state-of-the-art in Grid Computing is dominated by research Grid projects that aim to deliver test Grid infrastructures providing proofs of concept and opening opportunities for new ideas, developments and further research. Examples are the Condor Project, CrossGrid, the EU DataGRID, the Globus Project, GridLab, Legion, NorduGrid, SDSC Storage Resource Broker, Unicore and many more. The Grid solutions provided by the industry are in a similar early stage, like the Sun Grid Engine and Avaki.**
- **Only a few of these solutions were deployed in a production-like environment, and a significant effort is necessary to scale up existing test-beds to production level facilities. This implies not only ensuring the middleware scalability on ever increasing numbers of resources, but also making sure that the entire infrastructure can accommodate thousands of users.**
- **The software developed in these projects generally lacks interoperability among different solutions. Only recently there has been an effort to agree on a unified Open Grid Service Infrastructure (OGSI). OGSI proposes a standard to enable Grid middleware provided by any of the projects to interoperate. Building Grid infrastructures based on components with well-defined interfaces rather than specific implementations should therefore become a reality. However, it will still take a considerable integration effort both in terms of making the existing components adhere to the new standards and deploying them in a production Grid environment.**

- **The objective of the Middleware Engineering and Integration Research Activity is to provide robust middleware components, deployable on several platforms and operating systems, corresponding to the core Grid services identified (cf. Table Z) and developed in earlier projects.**
- **This activity aims to do the minimum original implementation of middleware necessary to achieve this goal; instead, the originality of the activity lies in selecting, potentially re-engineering and integrating a set of reliable production-quality services that together form a dependable and scalable infrastructure that meets the needs of a large, diverse e-Science user community.**
- **The evolution of such a set of middleware components towards a Service Oriented Architecture (SOA) adopting emerging standards such as OGSI is an important goal of this activity.**

- **EGEE will start from the LCG-1 infrastructure, based on:**
 - **GLUE schema for Information Services**
 - **Globus and Condor as delivered by Virtual Data Toolkit**
 - **Resource Broker and Data Management Services as delivered by EU DataGrid**
 - **A number of “ad hoc” open source extras to**
 - **Supplement missing functionality in Grid middleware**
 - **Provide “transitional services” while users adapt their applications**

- **One of the objectives is:**
 - **Establish a Grid Policy Forum in Europe with active participation by a selected number of European NRENs (GRnet, CSIC/Rediris, DFN and GARR) in coordination and with guidance from the EU.**

Conclusions and next steps (1)

- **EGEE will be “the” production Grid Infrastructure in Europe**
- **Southwest Europe tasks in EGEE:**
 - (Distributed) Regional Operations Center
 - Application Interfacing
 - Health+Biology (EU funded)
 - LHC Physics (MCyT funded)
 - Others domains and funding to be identified
 - Network provision: RedIRIS+GEANT (IPv6?)
 - Grid Policy Forum
- **Distributed ROC should help to bring in many Resource Centers and Users smoothly**

Conclusions and next steps (2)

- **IRISGrid production infrast = EGEE Spain?**
- **It would be nice if MCyT would provide additional funding to complete regional coverage**
- **Grid is not a miracle cure for lack of funding for scientific computing**
- **Spain: Programa Nacional 2004-2007**
- **Key points (personal opinion):**
 - **Don't do Grid or e-Science for the sake of Grid or e-Science**
 - **Do good Science enhanced by Grid**
 - **This is reflected in structure of Programa Nacional 2004-2007**
 - **Thematic projects**
 - **Temporary "general" Grid "seed" money (how will this be implemented)**
 - **Gain support for e-Science from Medicine, Biology, and many other fields**
 - **EGEE is Grid Infrastructure, need to add Resource Centers and Users to make a full system**
 - **EGEE is production infrastructure, but also will need testbed for development and computer science research**