

Future of EGEE and European Grid Initiative (EGI)

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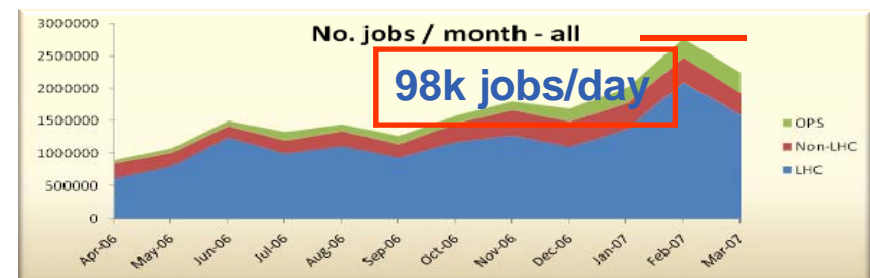
EGEE & SEE-GRID Summer School

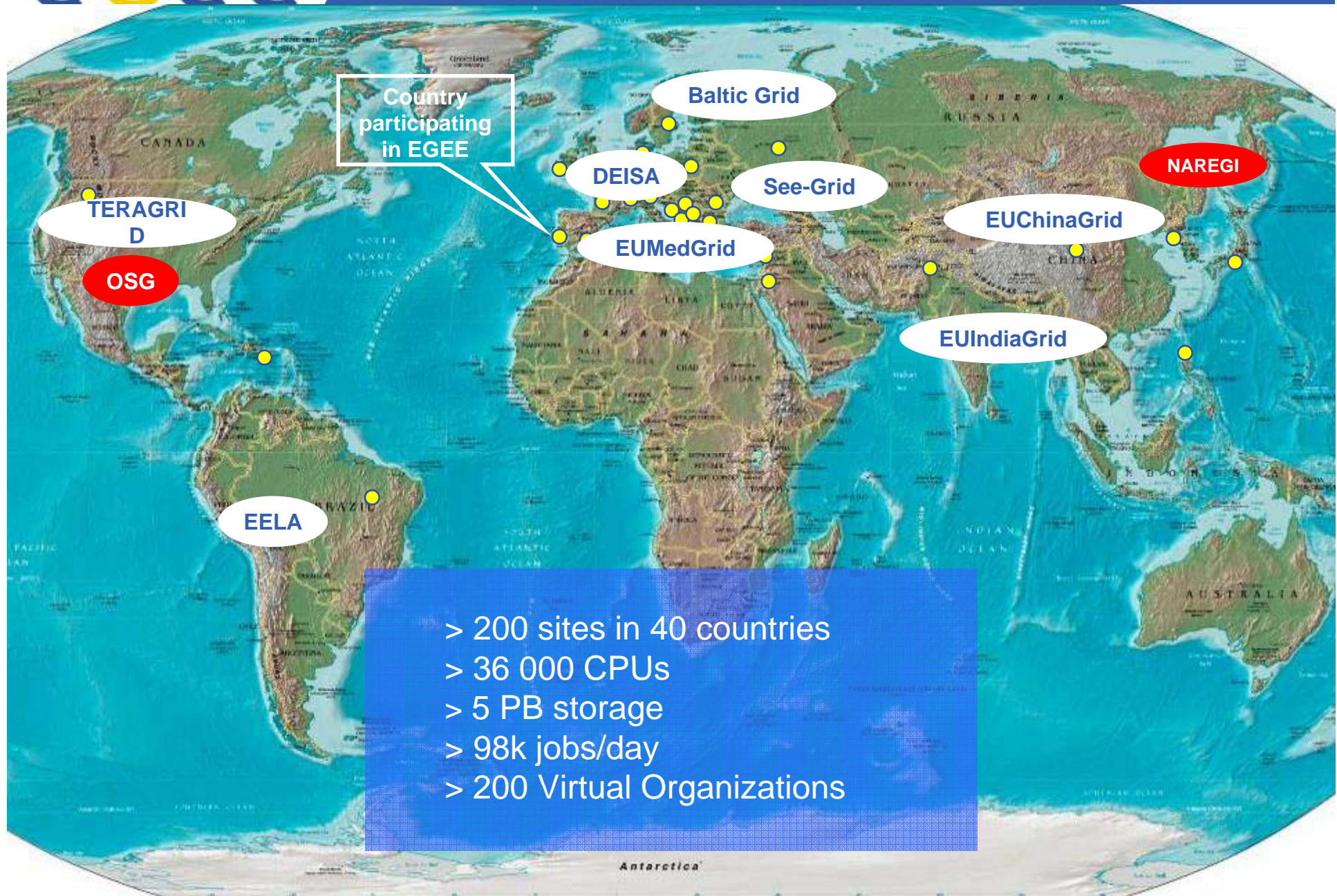
Budapest, Hungary

www.eu-egee.org

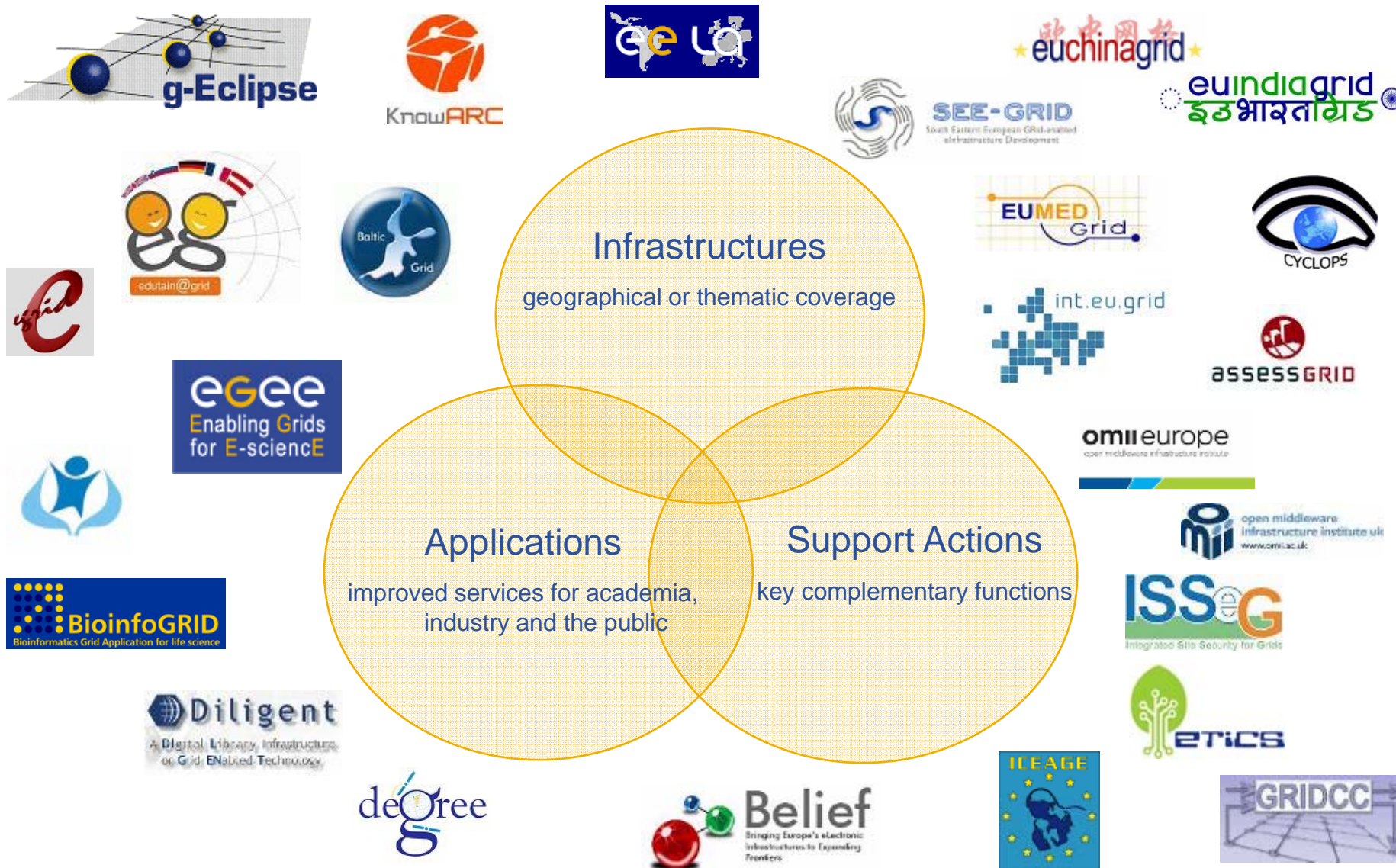
- **EGEE-II recapitulation**
- **EGEE-III**
 - Vision
 - Partners
 - Proposed activities
- **EGI**
 - National Grid Initiatives
- **EGI Design Study**
 - Vision
 - Partners
 - Workpackages
- **Summary**

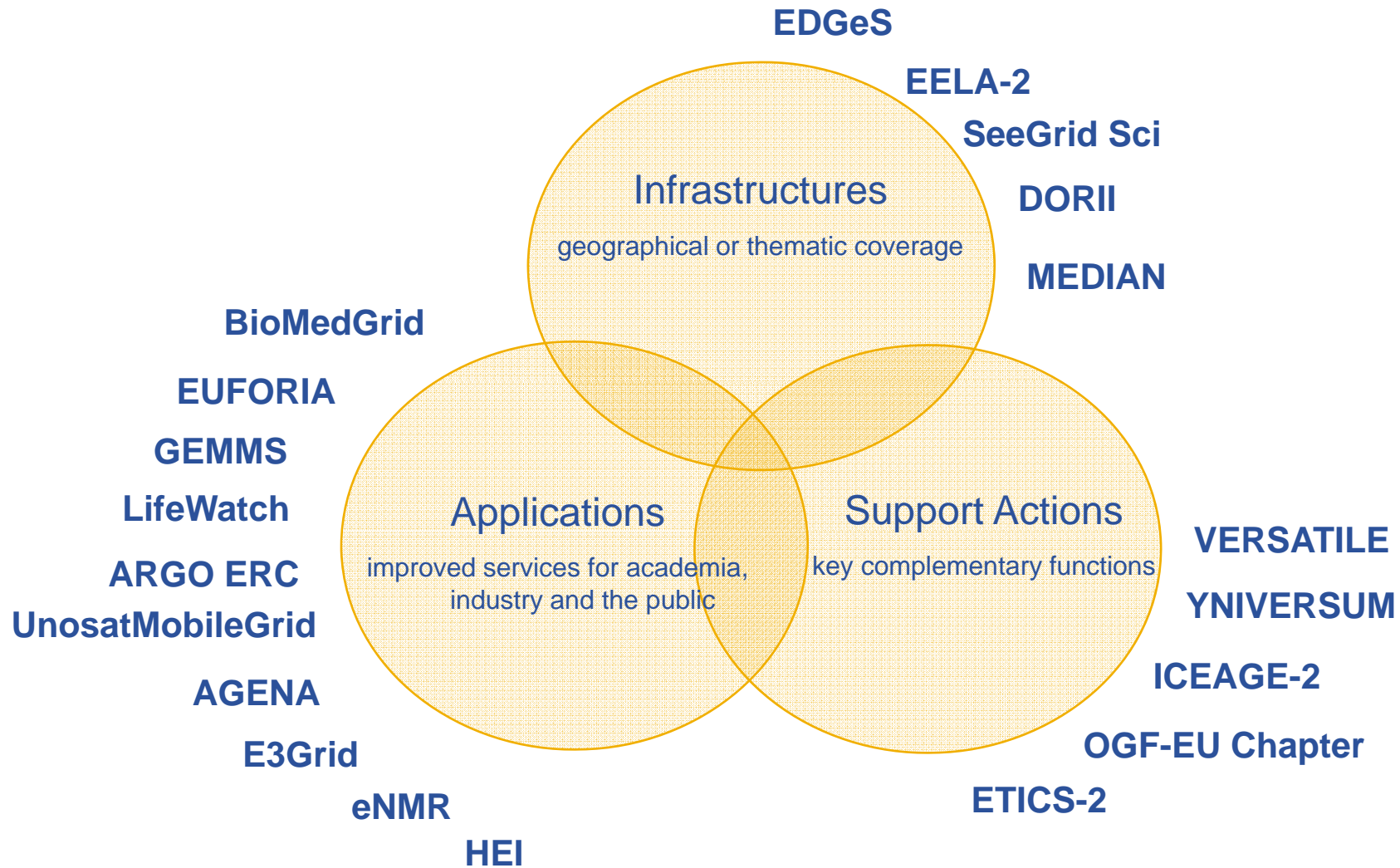
- **Large scale production infrastructure**
- **Large number of Virtual Organizations**
 - More than 200 registered
- **Many differing application domains**
 - High Energy Physics still dominant
 - Strong bio- and life-sciences
 - Astronomy and astrophysics
 - Computational chemistry
 - Material science and many more
- **Own middleware stack – gLite**
 - Basic components (WMS, Data management, Information systems, Job tracking, ...)





24 projects have registered as on February 2007





- **Still project based funding**
- **Many scientific activities are becoming dependent on the existence of EGEE Grid**
 - LHC starting in some 6 months
 - Large scale collaboration formed in other disciplines, too
 - People are using EGEE Grid regularly for their scientific work
- **EGEE II project will end in March 2008**
 - What will happen after this date?
 - Is it safe to depend on EGEE (and in general, Grid) infrastructure?
- **The community needs a longer term perspective**

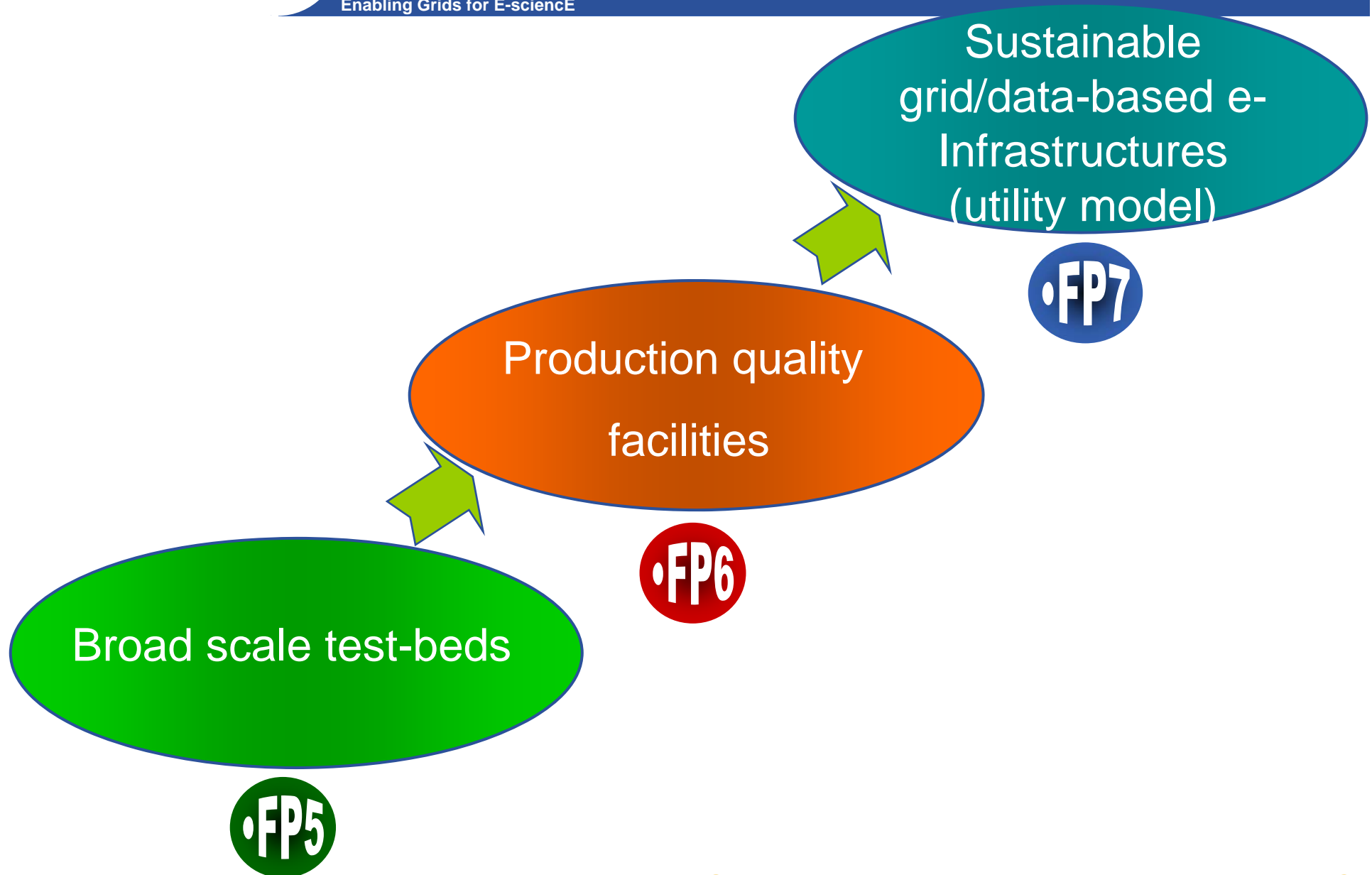
“...for Grids we would like to see the move towards long-term sustainable initiatives less dependent upon EU-funded project cycles”

Viviane Reding, Commissioner, European Commission, at the EGEE'06 Conference, September 25, 2006

A universal e-Infrastructure for research⁽¹⁾

“An environment where research resources (H/W, S/W & content) can be readily shared and accessed wherever this is necessary to promote better and more effective research”

(1) Malcolm Read (Ed.) http://www.e-irg.org/meetings/2005-UK/A_European_vision_for_a_Universal_e-Infrastructure_for_Research.pdf





- **Solution based on a combination of**
 - A project: EGEE III
 - A study: EGI Design Study
- **EGEE III**
 - Extension of EGEE II for two year (till March 2010)
 - Taking care of immediate future
 - Guarantees continuation of production and development
- **EGI Design Study**
 - Answer to: What and how [to do] after EGEE III?
- **Both are expected to run in parallel**
- **EGI_DS will prepare a transition**
- **And EGEE III will initialize it**

- Preparation started in December 2006
- Work initiated and lead by the current EGEE II consortium
- The main vision of EGEE-III is to make a *strong move towards a sustainable world-wide production quality Grid infrastructure* by appropriate technical and organisational evolutions
 - No sharp edges between EGEE II and EGEE III
 - LHC will be active during the EGEE III
 - Higher reliability required
 - Other application areas must not be endangered
 - The goal is exactly opposite – to increase substantially other application presence on the EGEE III Grid
 - Important as many resources will be permanently used by HEP

- The main vision of EGEE-III is to make a *strong move towards a sustainable world-wide production quality Grid infrastructure* by appropriate technical and organisational evolutions.
- The e-Infrastructure operated by EGEE-III must be capable of *providing services to a rapidly increasing number of application areas*, and make Grid technology easily accessible and usable for these communities.

- **Proposal to be submitted in September 2007**
- **Currently draft project proposal available**
 - Discussed within EGEE II PEB and PMB
 - Partners are biding against the project proposal
- **Basic concepts:**
 - National organization (JRUs)
 - Cluster of competence in some activities

<i>Networking activities</i>	<i>Specific Service Activities</i>	<i>Joint Research Activities</i>
NA1: Management	SA1: Operations	JRA1: Mware re-engineering
NA2: Dissemination	SA2: Networking Support	
NA3: Training	SA3: Integration, testing & Cert.	
NA4: Applications	SA4: t-infrastructure 	
NA5: International Coop. & Policy		
NA6: Business 		

- **EGEE II has some 91 contractual partners**
 - Plus additional 48 members through JRUs
- **Better organization necessary**
 - Elimination of majority of partners against the vision
 - Organization must open door to sustainability
- **Taking into account National Grid Initiatives (NGI)**
 - New basic organization structure on countries
 - All academic institutions from a single country are expected to be represented by one “organization”
 - The JRU (Joint Research Unit) concept

Austria	Denmark	Ireland	Portugal	Spain
Belgium	Finland	Israel	Romania	Sweden
Bulgaria	France	Italy	Russia	Switzerland
Croatia	Germany	Netherland s	Serbia	Turkey
Cyprus	Greece	Norway	Slovakia	UK
Czech republic	Hungary	Poland	Slovenia	

-  Countries in which a JRU is in place
-  Countries in which a JRU is planned and in progress
-  Countries in which no JRU is planned (one partner)

- **27+ countries still to many for a direct management**
 - Adopting modified **Federation structure from EGEE II**
- **Federations:**
 - 13 different federations
 - All representing a geographic area

Asia	Benelux 	Central Europe	CERN	France
Germany/ Switzerland	Italy	Nordic countries 	South East Europe	South West Europe
Russia	U.K./Ireland	US	NREN	Northern Europe

Note: Dashed arrows point from 'NEW!' starbursts to 'Central Europe' and 'South East Europe'. 'NREN' and 'Northern Europe' are crossed out with orange X's.

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- **EGEE-III will aim at a *total* effort of 10,000 Person Months and a duration of 2 years**
 - Compared to 11,165 for EGEE-II with ~37 Million € EU funding
- **EU contribution expected around 35 Million €**
 - **INFRA-2007-1.2.3 e-Science Grid infrastructures is likely to be ~50 Million €**
- **Partners will have to provide substantial co-financing (or other form of direct involvement)**

- **EGEE III still “just” a project**
- **More sustainable approach must be put in place**
- **As *Grids* are based on *Networks*, an organizational structure of networks in Europe has been examined**
 - National Structure – NREN (National Research and Educational Networks)
 - International Organization – Dante
 - NRENs are “shareholders”
- **National Grid Initiatives (NGI)**
 - Basic building blocks
 - Expected to operate national grid infrastructure
- **EGI – collaboration among NGIs**
 - How to?

- **Ensure the long-term sustainability of the European e-infrastructure**
- **Coordinate the integration and interaction between National Grid Infrastructures**
- **Operate the European level of the production Grid infrastructure for a wide range of scientific disciplines to link National Grid Infrastructures**

- **Expected (and already forming) national organizations to develop and manage the grid infrastructure at the national level**
 - The ownership of resources much more complicated than in networks
- **Not a single (prescribed) organizational and legal structure**
 - However, NGI is expected to have official endorsement to be able to represent the country in Grid related activities
 - Just one per a country
 - Based on an assumption of a “shared infrastructure”
- **Currently forming as JRUs in many countries to fit the EGEE III requirements**
 - But must go beyond the EGEE III participation

- **Project Proposal, submitted to the European Commission for funding within FP7-INFRASTRUCTURES-2007-1, 1.2.1 Design Studies (May 2, 2007)**
- **Partners (9):**

GUP	Austria, leading partner (Dieter Kranzmueller)
GRNET	Greece, NREN
INFN	Italy
CSC	Finland
CESNET	Czech Republic, NREN
CERN	Switzerland
DFN	Germany, NREN
STFC UK	
CNRS	France
- **Collaboration with and contribution from all the NGIs and other organizations is expected (in fact, necessary)**

- **Project for the conceptual setup and operation of a new organizational model of a sustainable pan-European grid infrastructure**
- **Federated model bringing together NGIs to build a European organisation**
- **Responsibilities between NGIs and EGI are split to be federated and complimentary**

To find how to organize sustainable international Grid, how to ensure funding, operation and further development



- Austria
- Belgium
- Bulgaria
- Croatia
- Cyprus
- Czech Republic
- Denmark
- Estonia
- Finland
- France
- Germany
- Greece
- Hungary
- Ireland
- Israel
- Italy
- Latvia
- Lithuania
- Luxembourg
- Malta
- Netherlands
- Norway
- Poland
- Portugal
- Romania
- Russia
- Serbia
- Slovakia
- Slovenia
- Spain
- Sweden
- Switzerland
- Turkey
- UK
- Ukraine

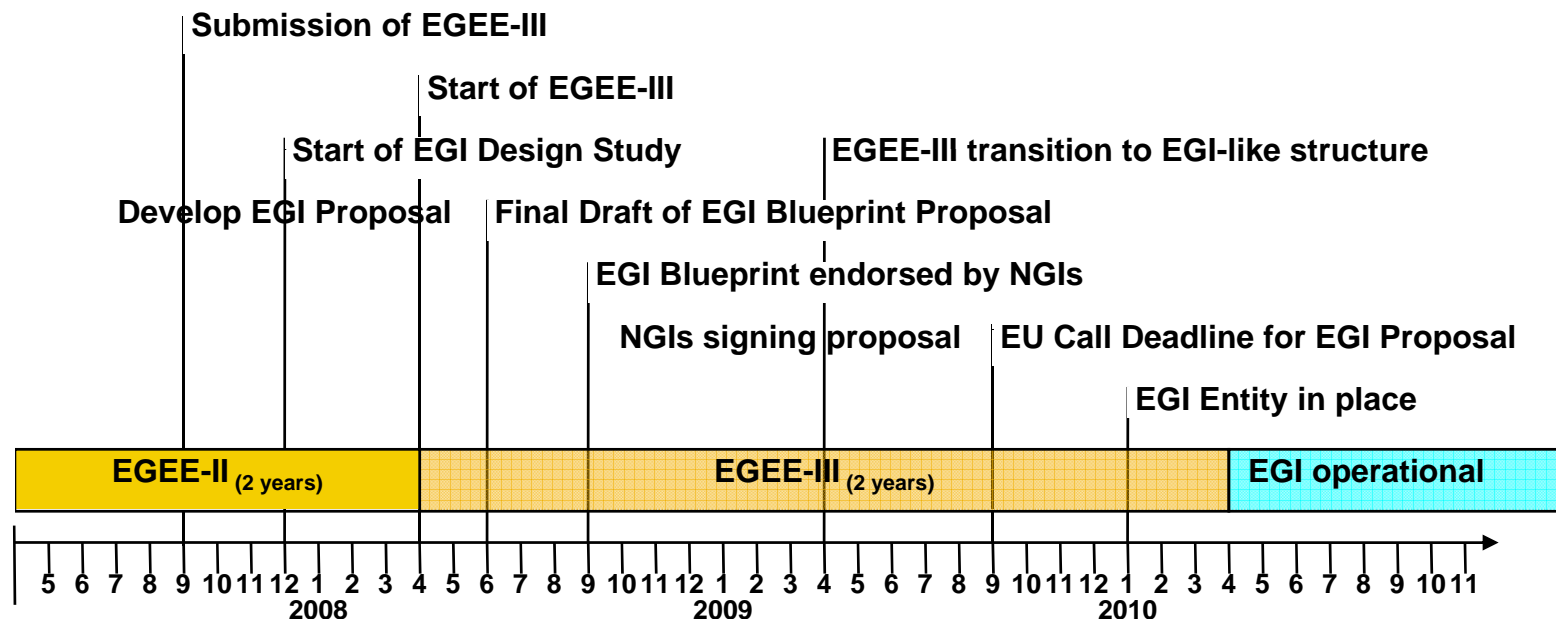
- **Letter of support from all major players**
 - 35 NGIs (27EU+8)
 - Asia
 - Latina America
 - USA
 - OGF-EU
 - PACE
 - ETICS
- **EGI_DS work already underway**

- **30-31 January 06, Thoiry (France) - EGEE Project Management Board;**
- **10 March 06, Kassel, (Germany)**
- **28 March 06, Barcelona (Spain)**
 - France, Portugal, Spain
- **19 April 06, Athens (Greece)**
 - Bulgaria, Cyprus, Greece, Israel, Romania, Serbia, Turkey;
- **26 April 06, Vilnius (Lithuania)**
 - Estonia, Finland, Latvia, Lithuania, Poland, Sweden
- **28 April 06, Paris (France)**
 - TERENA NREN-Grid workshop
- **29 April 06, Lisbon (Portugal)**
- **26 September 07, Geneva (Switzerland)**
 - NGI workshop @ EGEE06 conference
- **12 January 07, Oslo (Norway)**
 - Norway, Sweden, Finland, Denmark
- **19 January 07, Reading (UK)**
- **16 February 07, Amsterdam (Netherlands)**
 - Netherlands, Belgium, Luxemburg
- **27 February 07, Munich (Germany)**
 - EGI workshop

Presentations also made at European Commission events, eIRG workshops as well as in Asia (Taipei) and US (Seattle & San Diego),

- **27 months**
- **Expected starting date: September 1st, 2007**
 - However, contract probably signed in November
- **6 Workpackages**
 - Collection of requirements (GRNET)
 - Functional and organizational structure proposal (INFN)
 - Legal issues (CNRS)
 - EGI implementation (CERN)
 - Plus Management (GUP) and Relation with other partners and dissemination (CSC)
- **Initial work based on the EGEE II NA5 results**
 - 2nd round of use case collection under preparation

- One of the main goals of EGEE-III is to enable the *transition to EGI* by evolving the existing technical and organisational structures
 - This will be complex since EGEE-III must in parallel ensure the continuous availability of the production infrastructure to an ever increasing number of diverse user communities



- **EGEE III with two faces**
 - Continuation of EGEE II
 - Final step towards EGI
- **Project under preparation and discussion**
 - However, the discussions must converge quickly
 - Series of PEB and PMB meetings (next one July 5&6) to ensure the convergence
 - Lot of work *behind the scenes*
- **EGI_DS to look for sustainable organization of Grids**
- **EGI as the long term goal**
 - Hopefully no need for EGEE IV
- **Serious steps taken to make grid infrastructure permanent**