



Enabling Grids for E-science

# Technical Overview

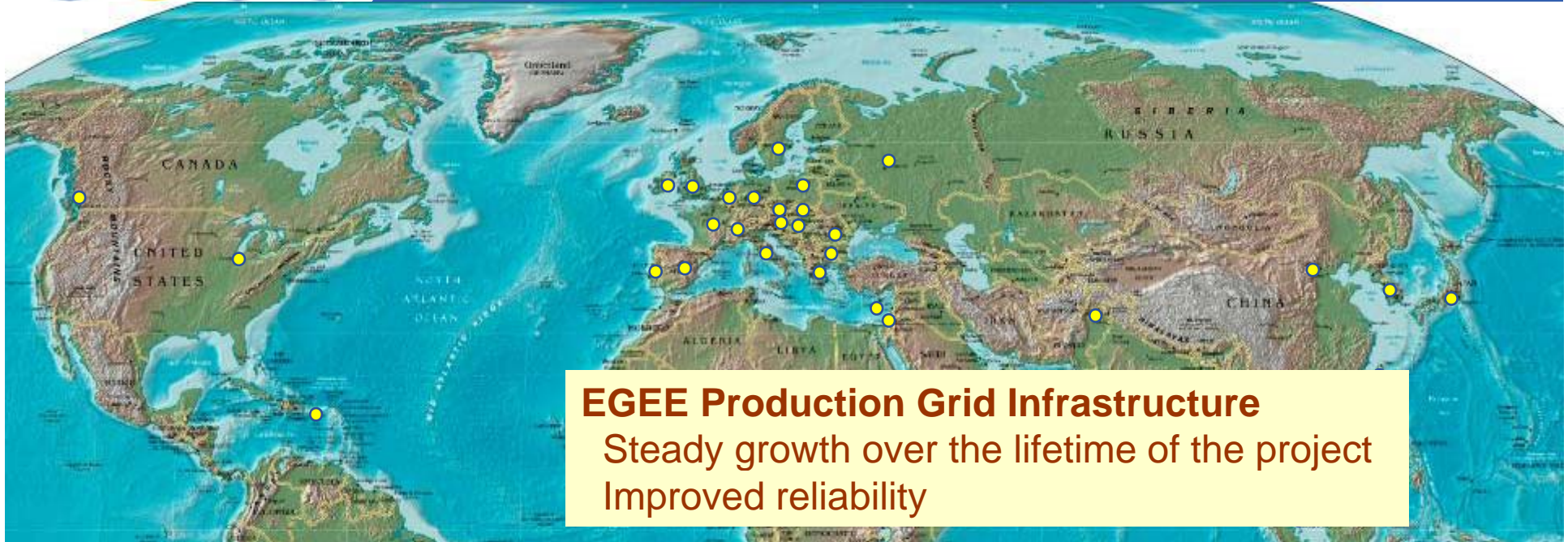
## EGEE-II's achievements in the first year

*Erwin Laure  
EGEE Technical Director, CERN*

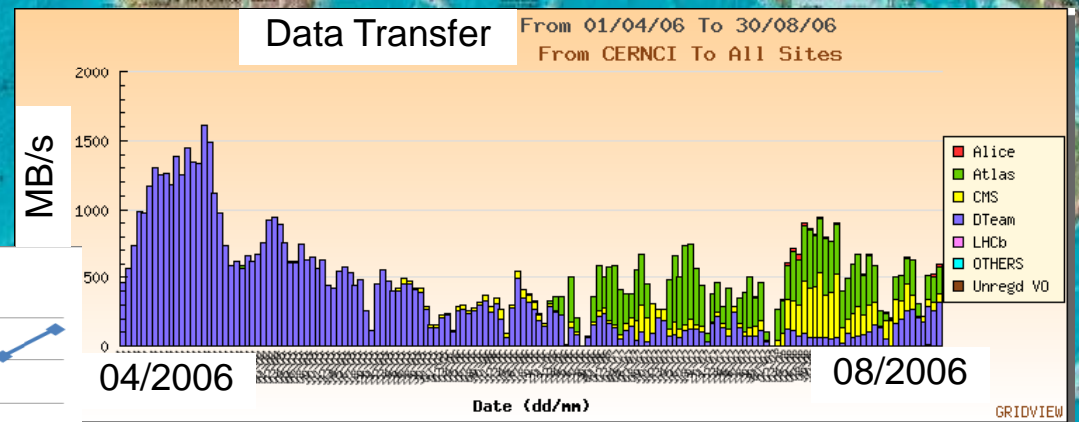
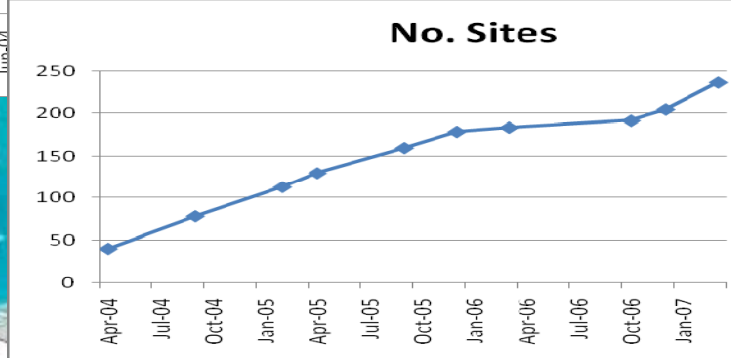
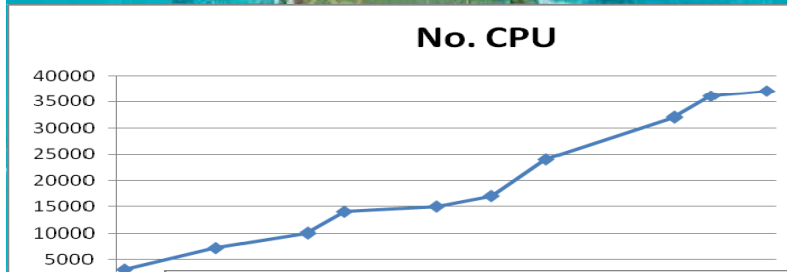
*EGEE-II 1<sup>st</sup> EU Review (CERN)  
15-16 May 2007*

[www.eu-egee.org](http://www.eu-egee.org)

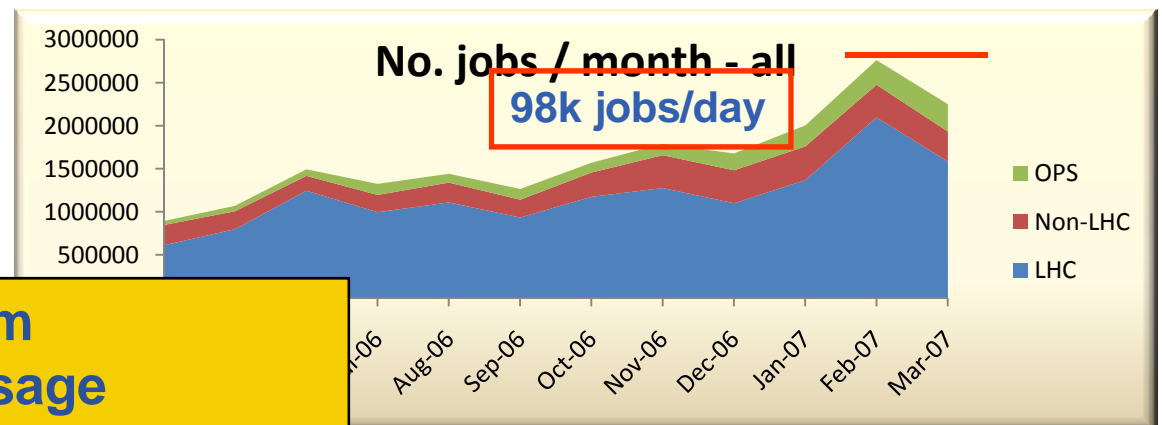
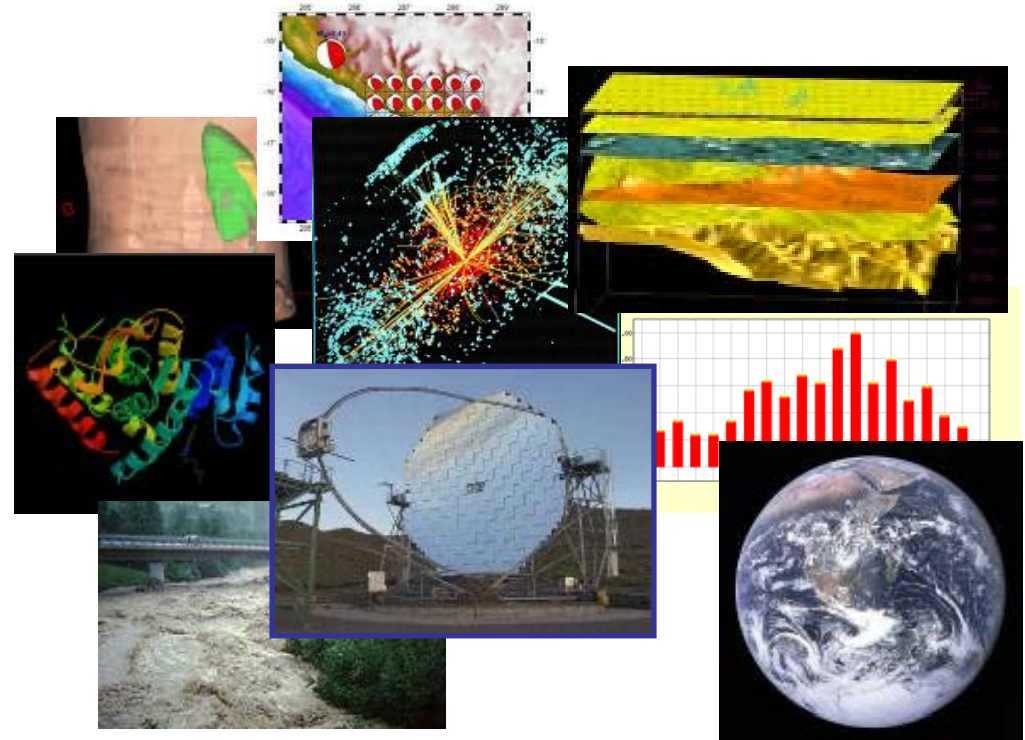




**EGEE Production Grid Infrastructure**  
 Steady growth over the lifetime of the project  
 Improved reliability



- >200 VOs from several scientific domains
  - Astronomy & Astrophysics
  - Civil Protection
  - Computational Chemistry
  - Comp. Fluid Dynamics
  - Computer Science/Tools
  - Condensed Matter Physics
  - Earth Sciences
  - Fusion
  - High Energy Physics
  - Life Sciences
- Further applications under evaluation



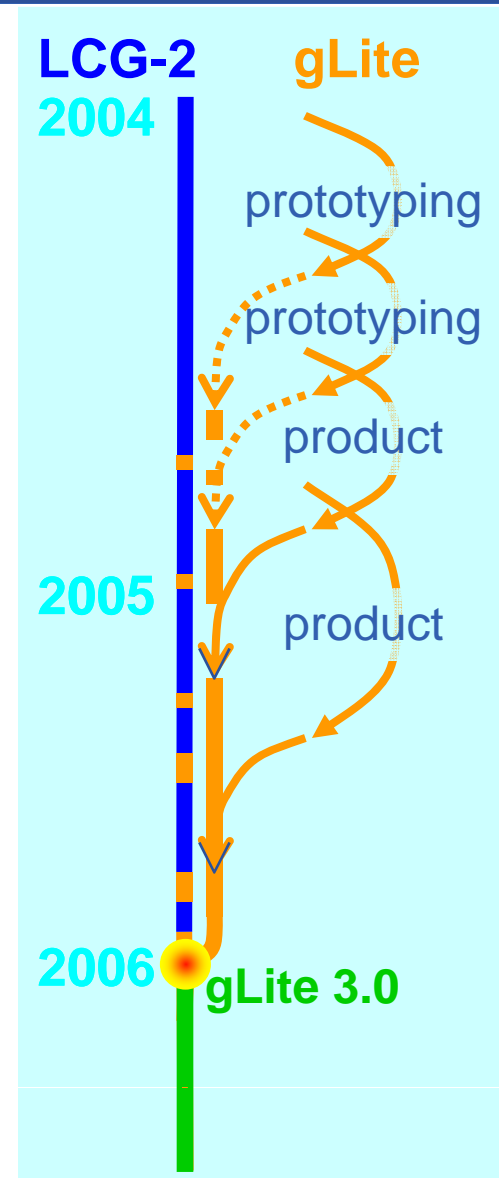
**Applications have moved from testing to routine and daily usage**

**~80-90% efficiency**

- Maintained and improved the gLite middleware distribution
- **gLite 3.0**
  - Publicly released on May 4, 2006
  - Achieved planned convergence with LCG-2 (distribution existing at the start of EGEE)
  - 2 further full releases made
    - gLite 3.0.1 (June 2006)
    - gLite 3.0.2 (August)
- **Since then: component-based releases**
  - > 150 updates released

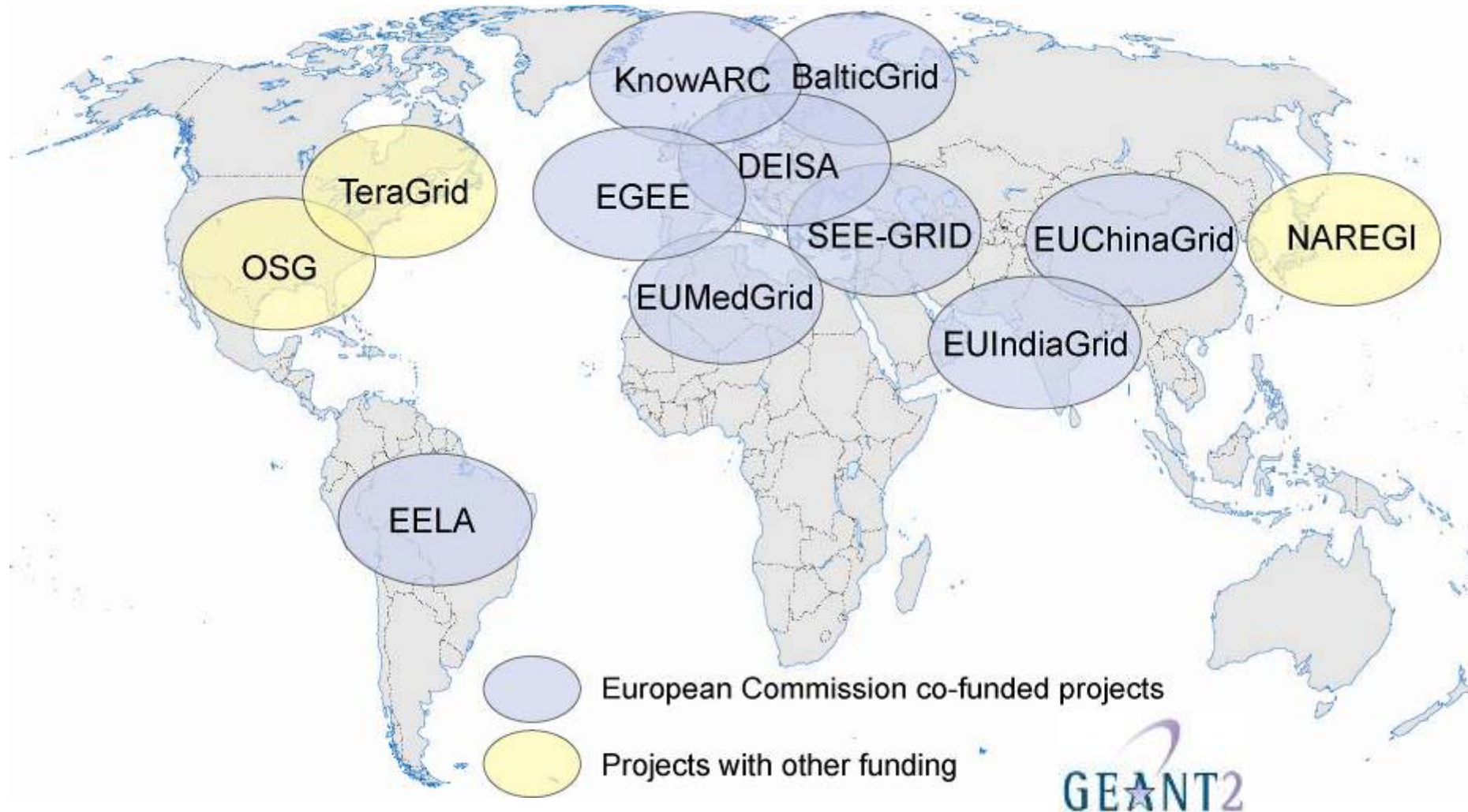


- **Currently working on gLite 3.1**
  - Major updates
  - Support for Scientific Linux 4, GT4



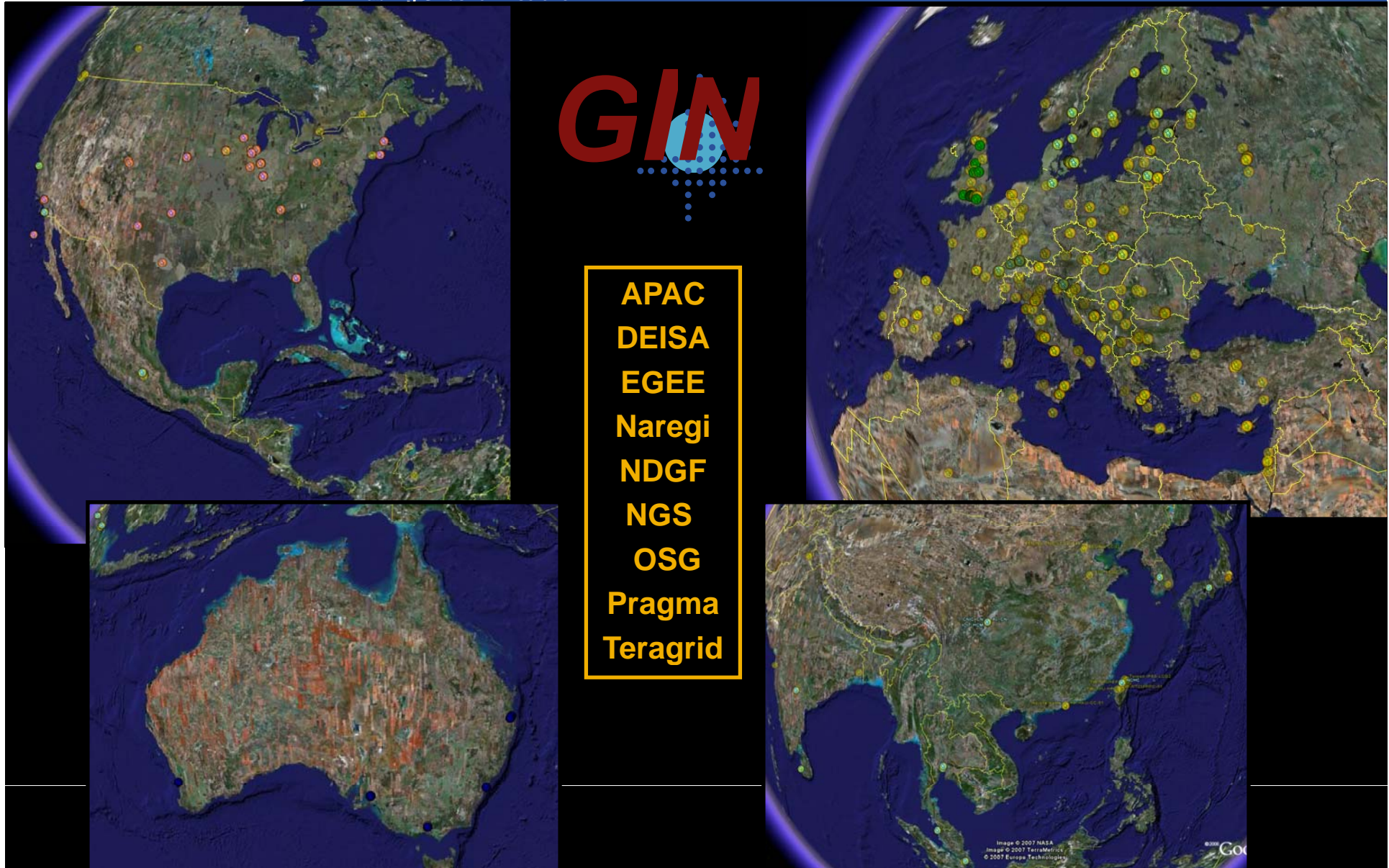
- **Incubator for new Grid efforts world-wide**
  - Infrastructure and application efforts
  - **New:** Related Project Office to keep close links
  
- **Leading role in building world-wide Grids through interoperation efforts**
  - Bilateral: EGEE/OSG, EGEE/NDGF, EGEE/NAREGI, EGEE/Unicore/DEISA
  - Multilateral: Grid Interoperability Now (GIN)
  
- **Experiences and requirements fed back into standardization process (OGF)**
  - Many EGEE members are area directors, WG chairs, WG members
  
- **Contacts with industry strengthened**
  - Industry Days, Industry Task Force, Business Associates Programme
  - See specific presentation tomorrow





**Potential for linking ~80 countries by 2008**

# Worldwide Grid Infrastructures



**GIN**

- APAC
- DEISA
- EGEE
- Naregi
- NDGF
- NGS
- OSG
- Pragma
- Teragrid



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# Coordination

[www.eu-egee.org](http://www.eu-egee.org)

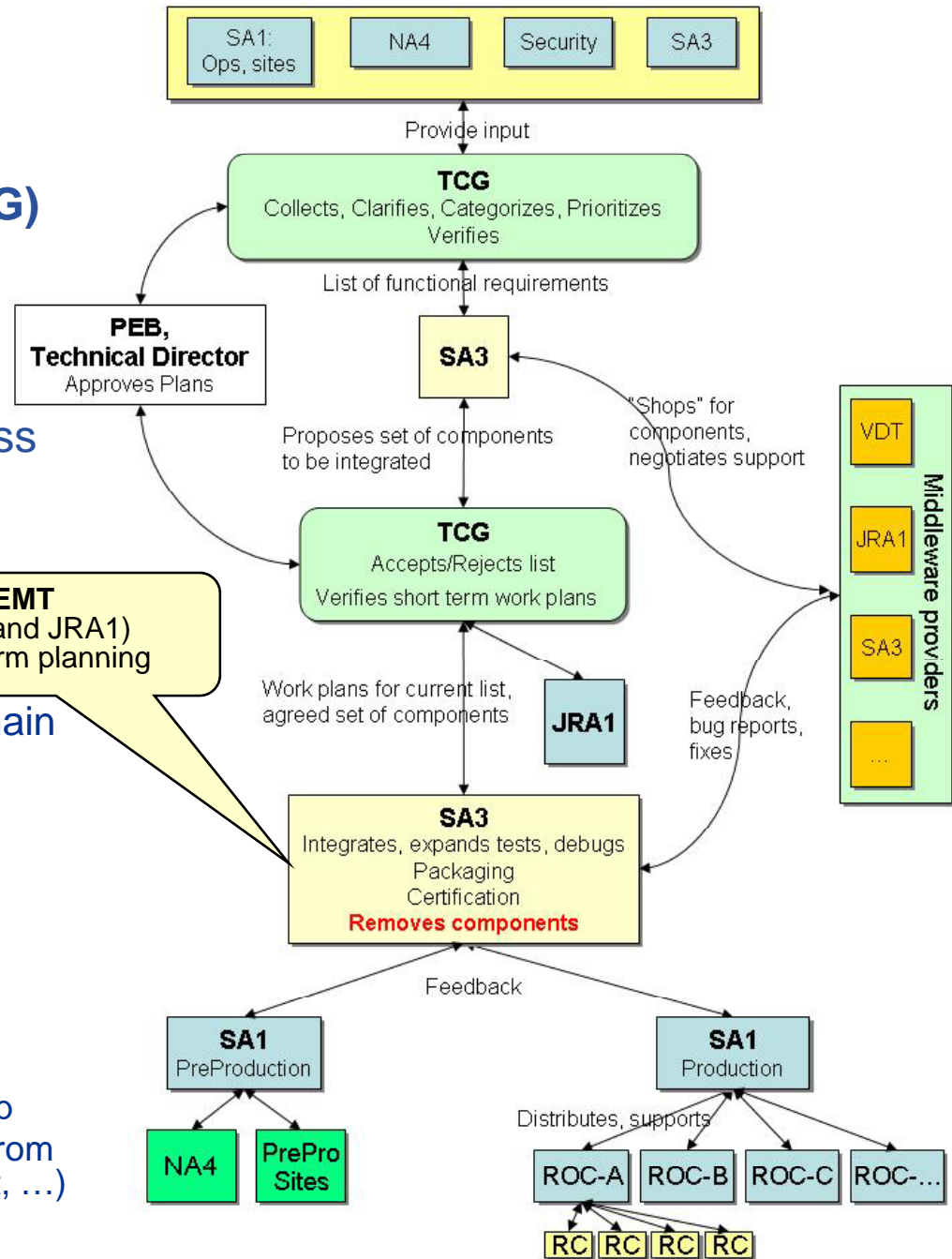




## Technical Coordination Group (TCG)

- Coordinates PoW of technical activities
- Makes decision process clearer
- Ensures application driven progress
- Started: November 2005
- Main accomplishments
  - Definition of gLite 3.0
  - Clarification and prioritization of main application requirements
  - Definition of workplans for MW development and integration
  - Working groups on specific topics
    - MPI
    - Short deadline jobs
    - Job priorities
    - Medical Data Management
    - Portals and VO mgmt being set up
    - In many cases with participation from other projects (int.eu.grid, Diligent, ...)

**EMT**  
(SA3 and JRA1)  
short term planning



- **Security Coordination Group**
  - Coordination of project wide (and inter-project) security issues
    - Security Policies (Joint Security Policy Group)
    - Operational Security (Operational Security Coordination Team)
    - Trust Anchor (EUGridPMA, IGTF)
    - Middleware Security (gLite security tasks and Middleware Security Group)
    - Vulnerabilities (Grid Security Vulnerability Group)
  
- **Operations Advisory Group (OAG)**
  - Platform for negotiating VO resource allocation and operational support (running of services etc)
  
- **User Information Group (UIG)**
  - Make user documentation easily accessible
  
- **Quality Group**
  - Define and monitor the quality status of the project

- **gLite supports many more applications and sites than originally anticipated – and the trend is growing**
- **Long term maintenance of gLite needs to be assured**
  - Standard and/or commercial solutions not widely available, yet
- **Support for new platforms is essential in this strategy**
  - Planned milestone to port user interface and worker node stack to Scientific Linux 4 in December 2006 was missed, mainly because of the complexity of the gLite stack that evolved over several years
  - Impact on community minimal as fallback solutions have been devised well in advance
  - Migration to ETICS build system took longer than planned
    - ETICS started in January 2006, EGEE started using ETICS tools in Autumn 2006
    - The tools are new, yet essential, and show the usual limitations of rapidly changing software
    - Still requires significant effort
    - Strong collaboration with the ETICS team to improve the situation

- **Project assessed the situation at All Activity Meeting in January 2007**
  - Strategic decision to launch gLite restructuring effort taken by project and endorsed by PMB
  - Cleanup of code-base and dependencies for gLite 3.1 now being pursued with high priority at expense of adding new functionality
    - Support for existing applications and services continues unaffected
- **This will allow to maintain and evolve gLite in the long term**

- **Allocation of resources, in particular to new VOs**
  - OAG doesn't involve resource owners directly
  - New structures being designed for second year and follow-up
- **Improvements in usability by scientists needed**
  - Good documentation still difficult to find
  - UIG started the process for user documentation but is lacking dedicated effort
    - Try to allocate ½ FTE in the second year to speed up the process
  - Similar efforts for system documentation needed



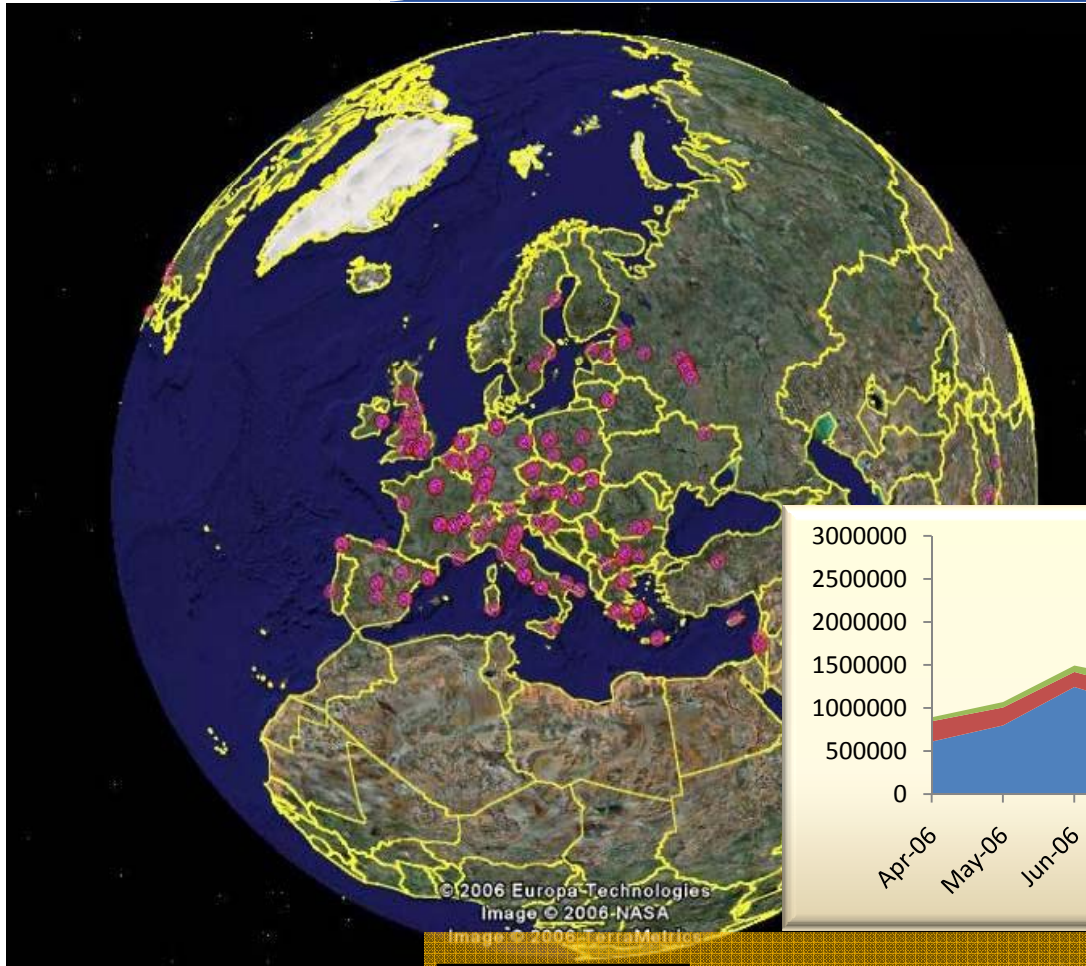
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## Summary of Activity Achievements

[www.eu-egee.org](http://www.eu-egee.org)

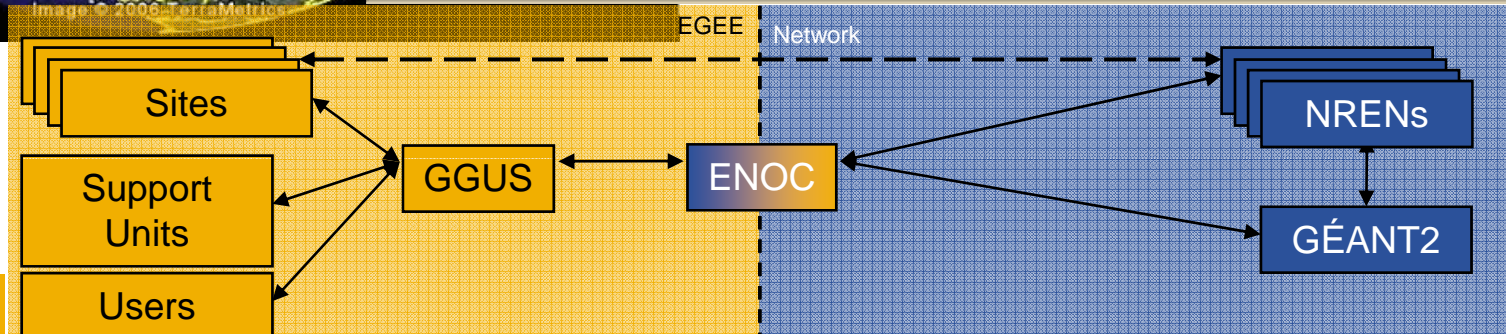
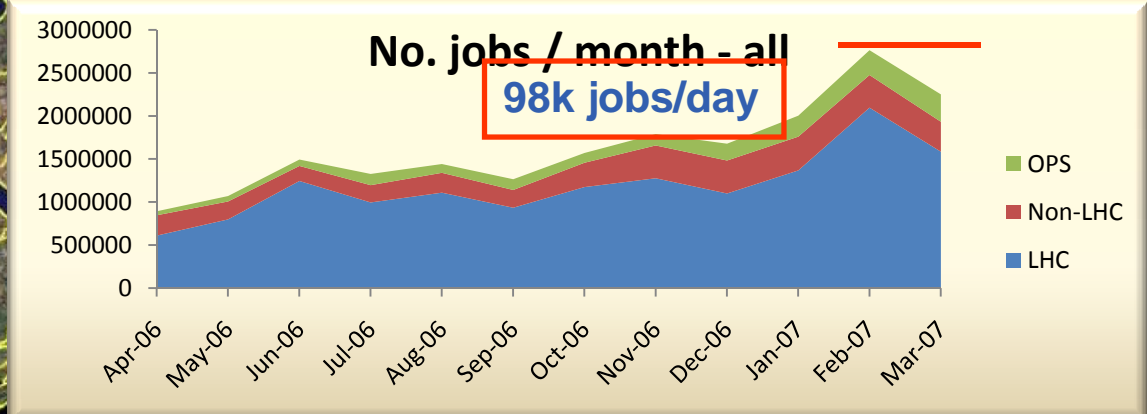


# Operations (SA1 & SA2)

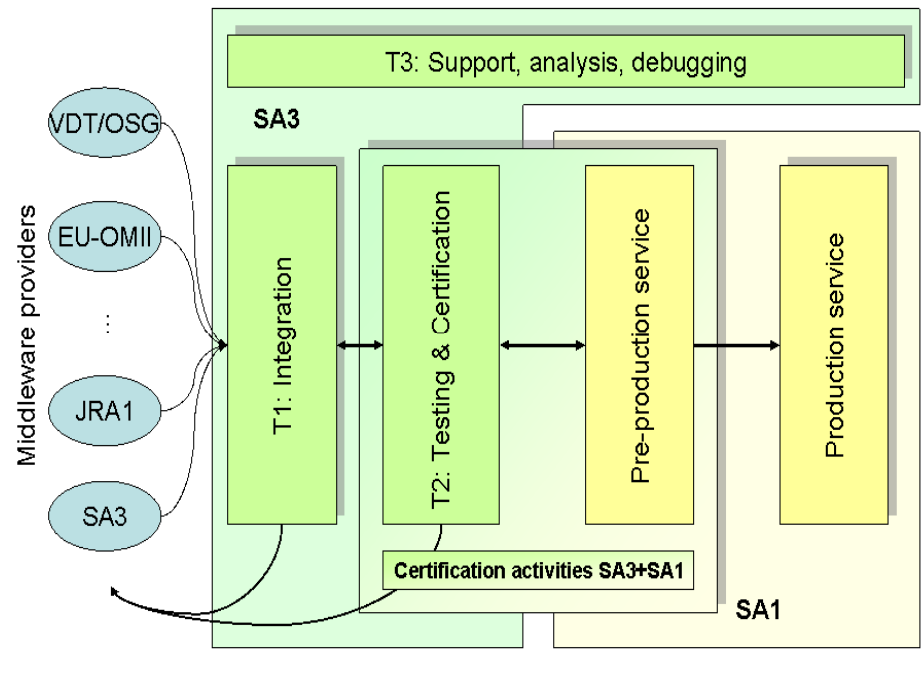
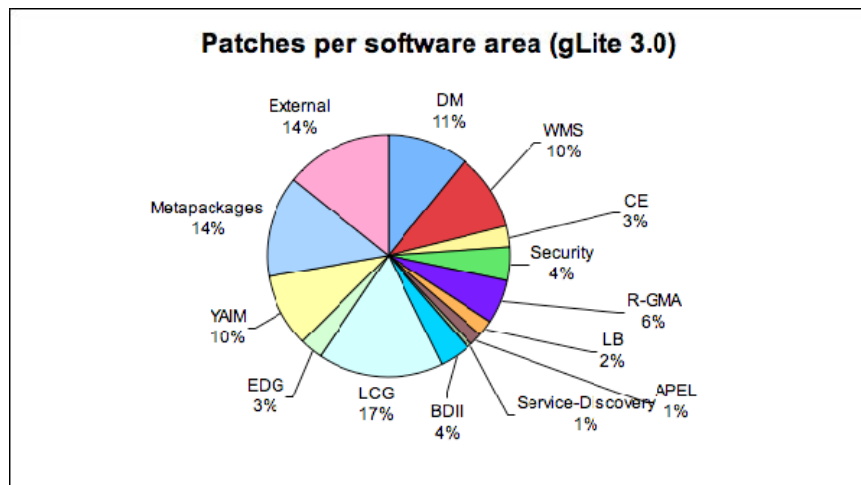


## Size of the infrastructure today:

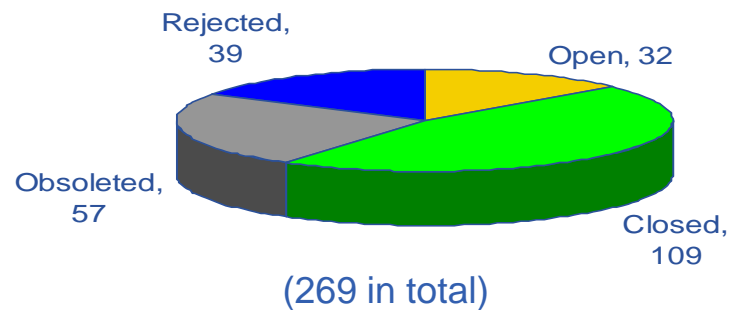
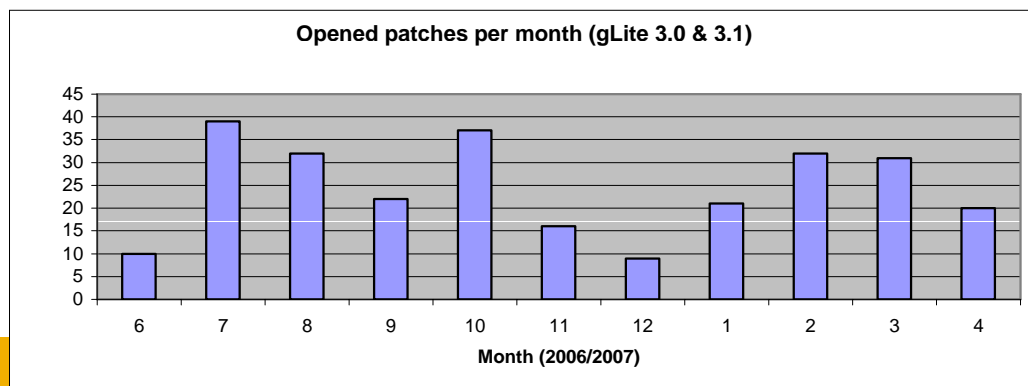
- 237 sites in 45 countries
- ~36 000 CPU
- ~ 5 PB disk, + tape MSS
- distributed operations
- copes well with increase in size and usage



- Released and maintained gLite 3 middleware distribution

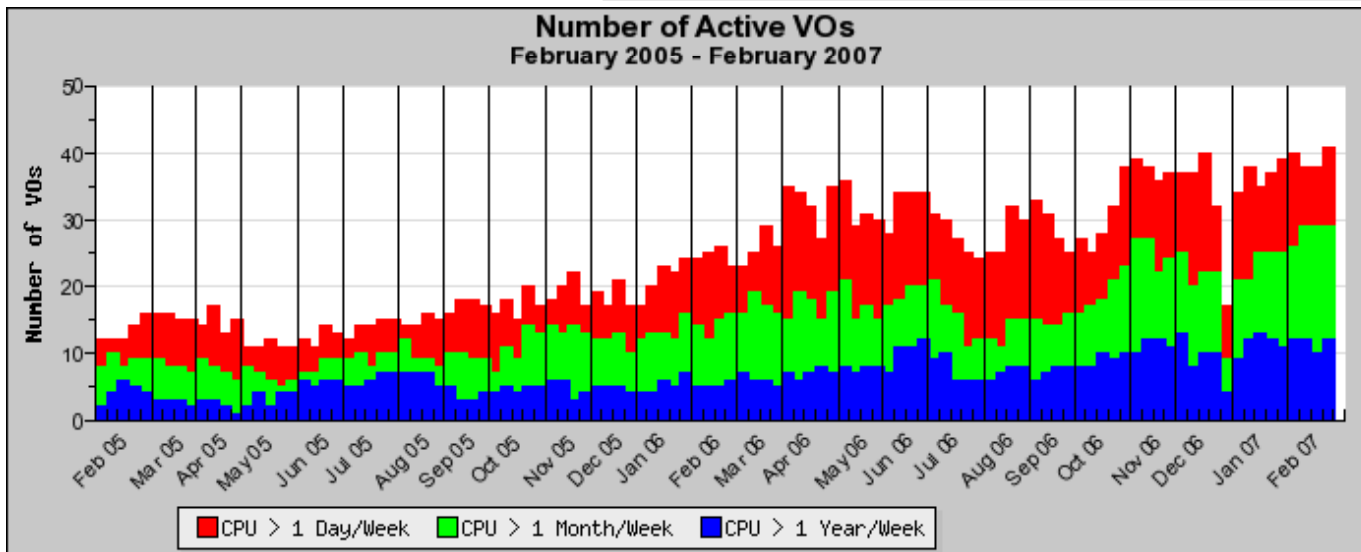
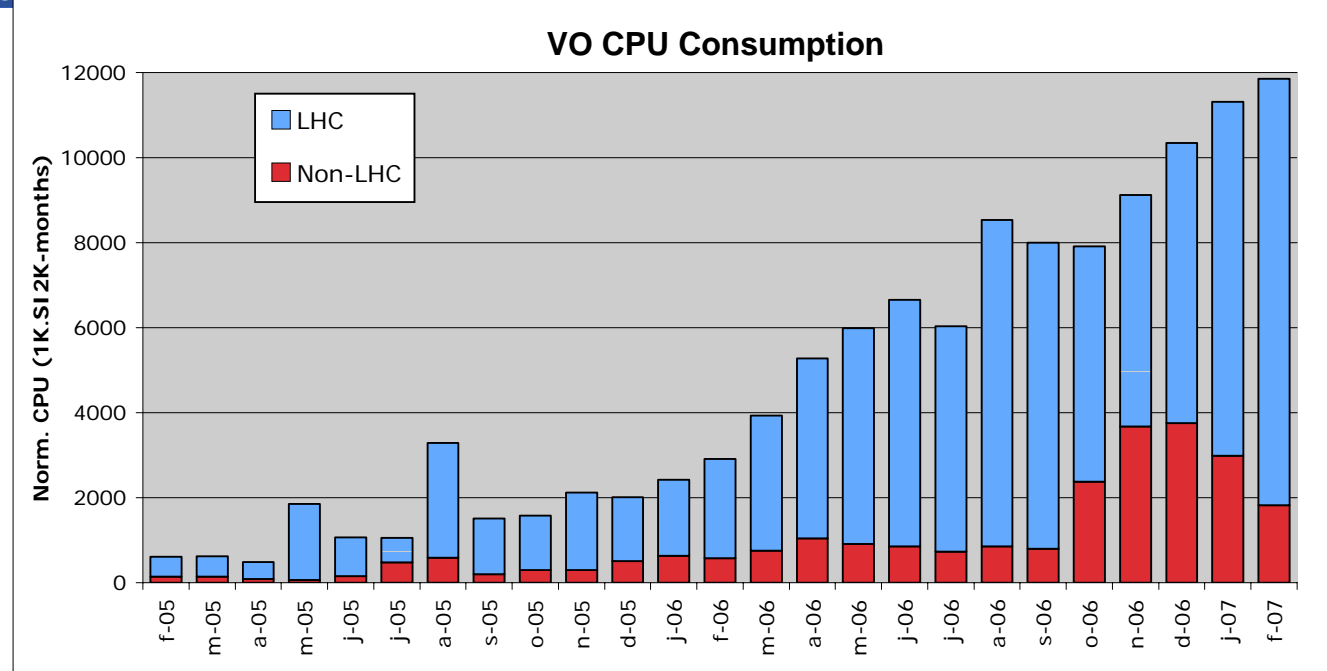


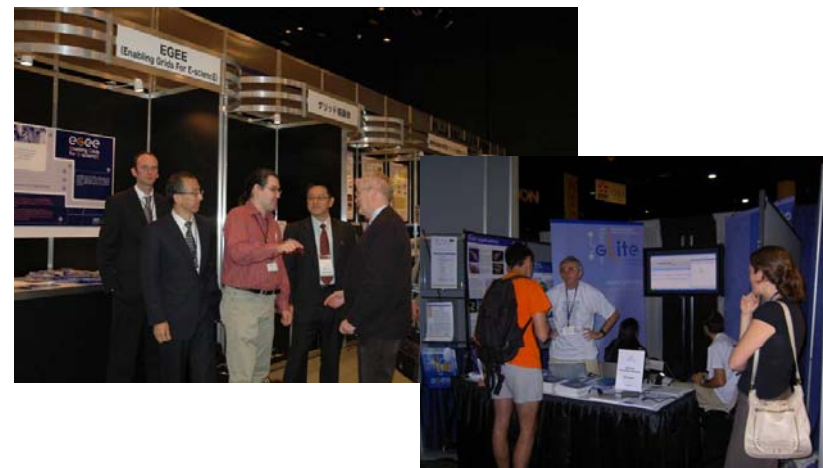
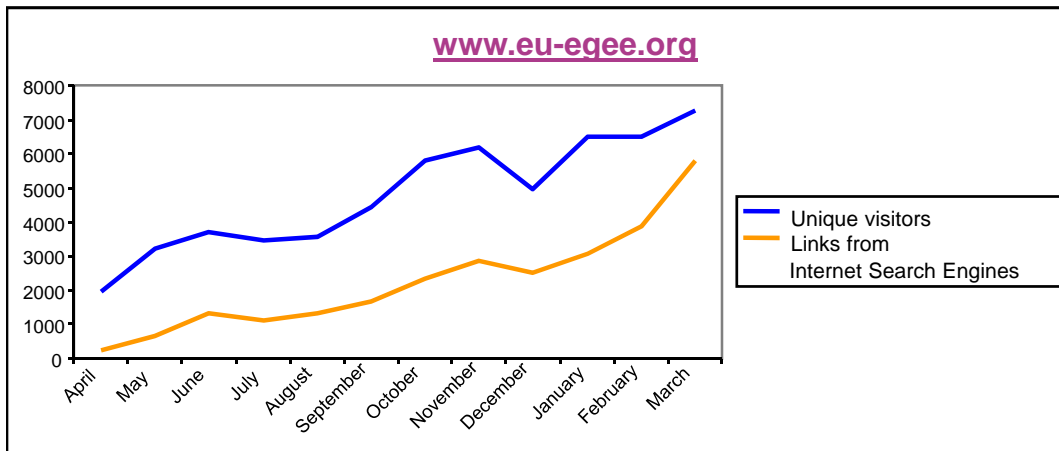
237 gLite 3.0 Patches (since June '06)





Total VOs: 204  
 Total Users: 5034  
 Affected People: 10200





**ISGTW INTERNATIONAL SCIENCE GRID THIS WEEK**

Home > 4 April 2007  
Current Issue: 04.04.2007

**EGEE-II: Grid for Research**

Enabling Grids for E-science is a major European initiative to develop a grid for researchers. EGEE-II is the second phase of a four-year program, and includes 91 partners in 32 countries, with many other groups contributing to the project's work.

EGEE was originally developed to make grid resources available to European researchers, but is rapidly expanding to work with the global grid community. EGEE-II works closely with other grid initiatives such as DEISA, the European supercomputing grid, Japan's NAGGCI, and the Open Science Grid in the United States.

*Image courtesy of EGEE*

**Feature - Science**

**NYS Grid: Spreading the Word**  
Last summer, a collection of universities and labs in New York State gathered with the goal of creating a cyberinfrastructure initiative that will make it easy for regional scientists to manage data and use imaging software.

**Feature - Event**

**Open Science Grid Workshop in Argentina**  
For some Latin American students, a recent workshop held in Santa Fe, Argentina, may be an important step towards a lifetime of working with grids.

**Calendar/Meetings**

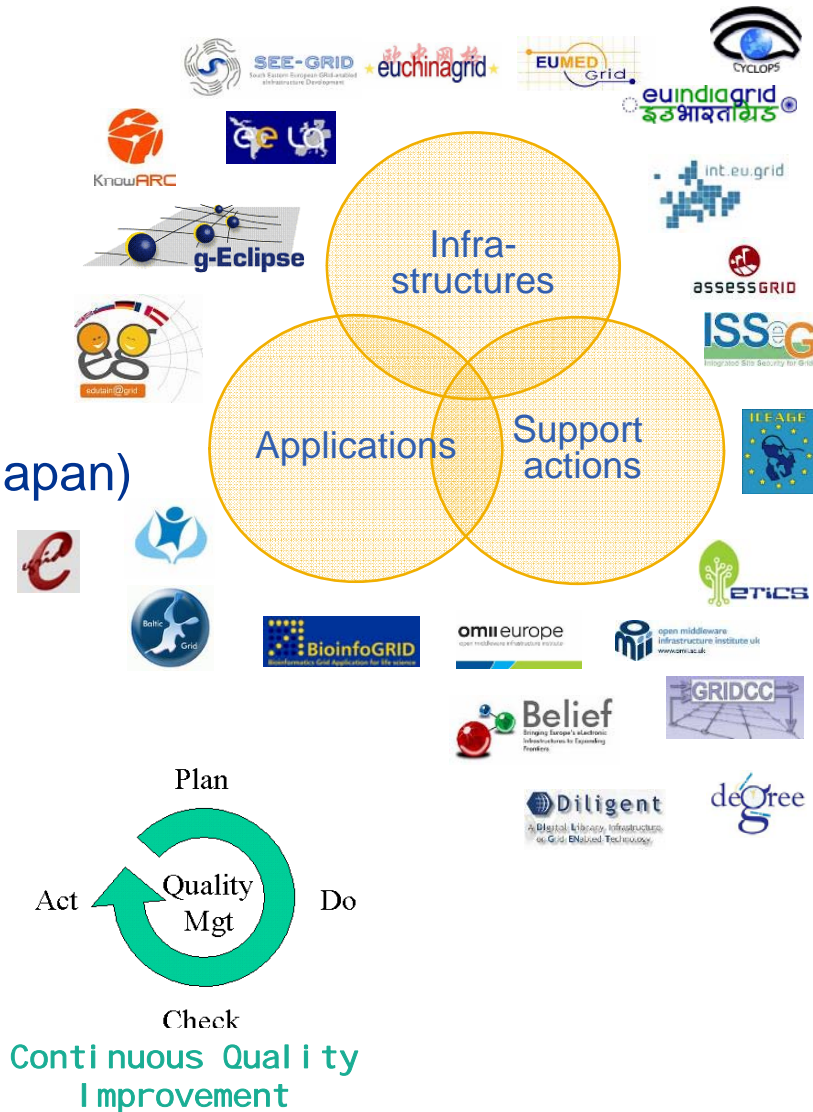
**April**  
24-27, **HealthGrid 2007**, Geneva, Switzerland  
24-27, **International EchoGRID & ECHOGRID Conference**, Beijing, China  
26-27, **ProActive Tutorial**, Supercomputing Centre, CAS, Beijing, China  
30-May 2, **BioIT World Conference & Expo**, Boston, MA, USA  
**May**  
2-4, **German e-Science Conference 2007**, Baden-Baden, Germany  
2-4, **GPC 2007: International Conference on Grid and Pervasive Computing**, Paris, France  
7-11, **The 20th Open Grid Forum**, Manchester, UK

**Statistic of the Week**  
1.000

**Image of the Week**  
LHC Exhibit at London's Science Museum



- **Policy related activities**
  - e-IRG
  - **New:** Sustainability
- **International cooperation**
  - EU projects and concertation efforts
  - Workshops, conferences, standardisation bodies
  - Other geographical areas (e.g. US, Japan)
- **QA organisation in place**
  - QA in active use across all activities
  - Each activity has a Quality Plan and Measurement Plan
- **Main procedures foreseen in the Quality Plan implemented**
- **Main metrics defined and progressively implemented**





- **EGEE is the largest multi-disciplinary, managed production Grid infrastructure in the world supporting more than 200 VOs from 10 domains – many of them in production mode**
- **Continued improvements:**
  - reliability, fault-tolerance, deployability, usability
- **EGEE is working towards a sustainable world-wide Grid infrastructure through international collaborations, standardization, and industry**