CyGrid
The Cyprus Grid Initiative

Marios D. Dikaiakos
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Nicosia, Cyprus

http://cygrid.org.cy

The Grid in a nutshell: sharing computing resources

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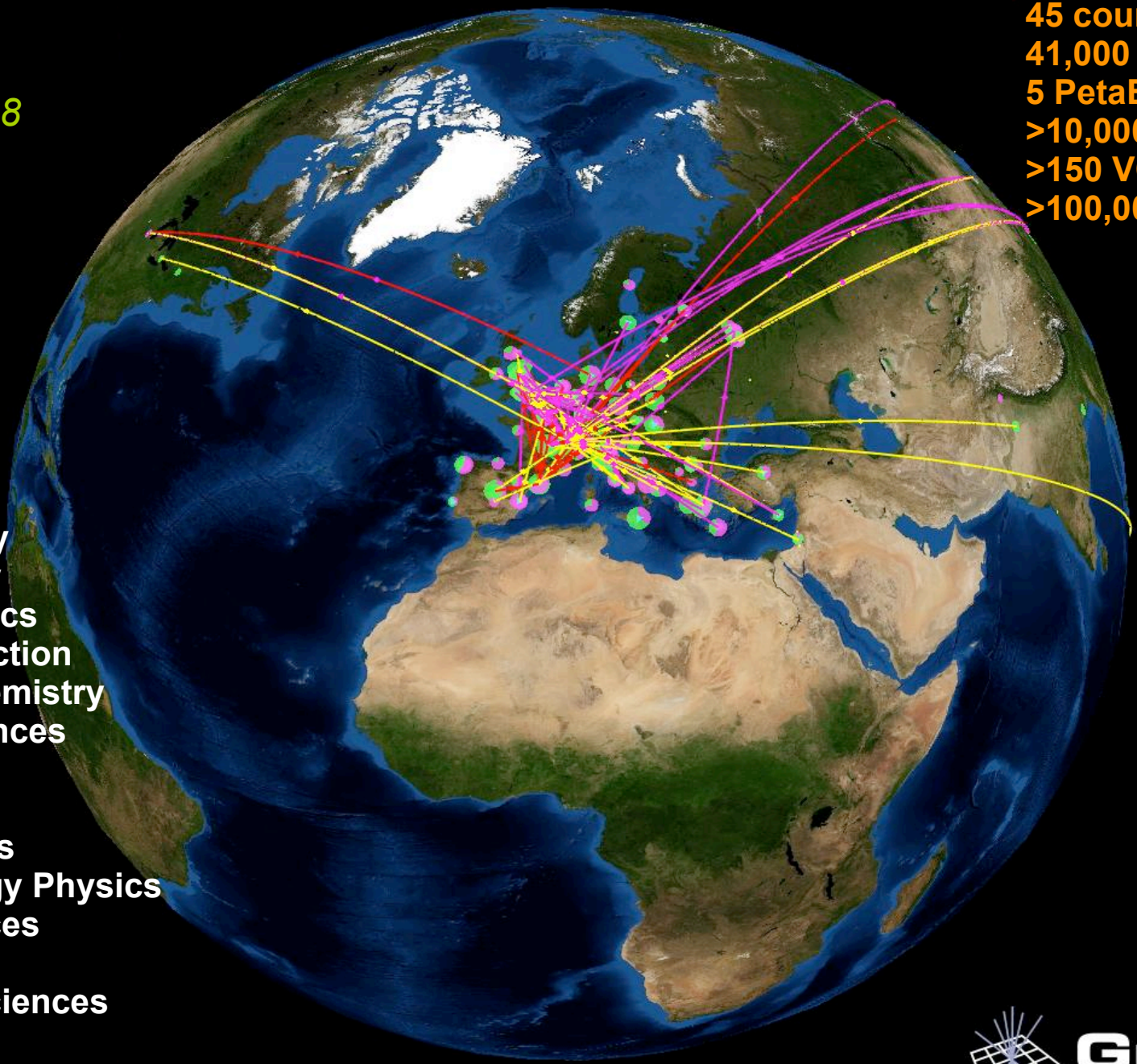
eGee
Enabling Grids
for E-sciencE

2004-2008



240 sites
45 countries
41,000 CPUs
5 PetaBytes
>10,000 users
>150 VOs
>100,000 jobs/day

Archeology
Astronomy
Astrophysics
Civil Protection
Comp. Chemistry
Earth Sciences
Finance
Fusion
Geophysics
High Energy Physics
Life Sciences
Multimedia
Material Sciences
…

GridPP
UK Computing for Particle Physics

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  - Ministry of Health (Nicosia General Hospital)
  - Cyprus Research and Education Network (CYNET)
- Funding received from the E.U. and the Republic of Cyprus through participation to competitive calls of proposals plus institutional contributions.

Main Goals

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- To support research in Grid and Global Computing.
- To integrate institutional computing resources, for the establishment of a multidisciplinary and collaborative National Grid Infrastructure (NGI) with appropriate regulations.

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- Organize National and Regional Dissemination Activities.
- Provide Cypriot Researchers with access to the European Grid Infrastructure of EGEE.
- Encourage national Academic and Research organizations to participate in the initiative.

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  - **SysAdmin Forum**, comprising system administrators of Cypriot resource centers.

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- Shaping the future of Grid infrastructures in Cyprus through participation to CyGrid Committees.

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- Training and Dissemination

CyGrid Infrastructure

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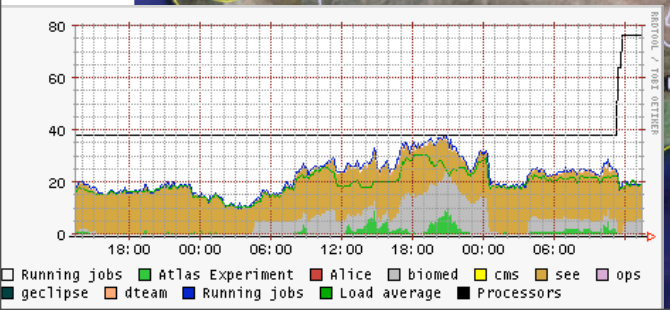

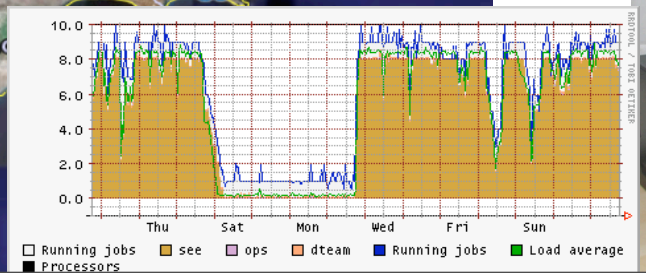

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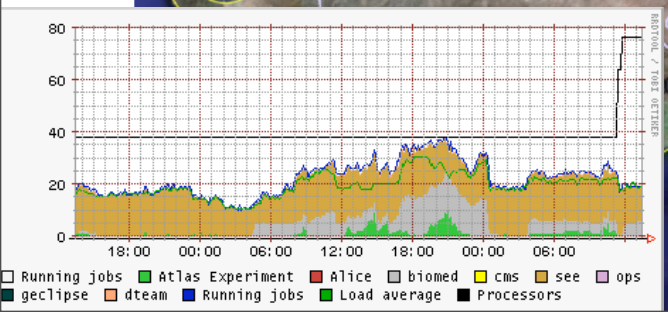

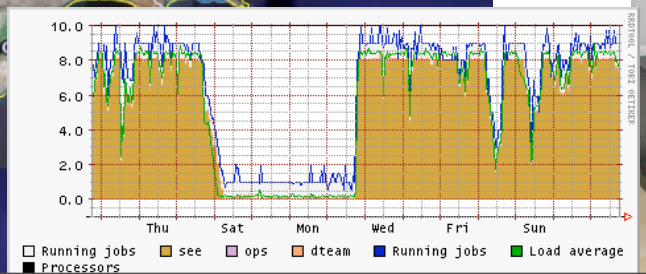

the KIMON cluster

- The KIMON cluster:
  - 35 computing nodes with
    - 80 CPUs (2.6 GHz Opteron, 2GB RAM per node)
  - 3 TB Storage Server (FiberChannel)
  - 1 Gbps switched ethernet
- Funding from the Research Promotion Foundation of Cyprus (infrastructure project)

CyGrid in International Testbeds

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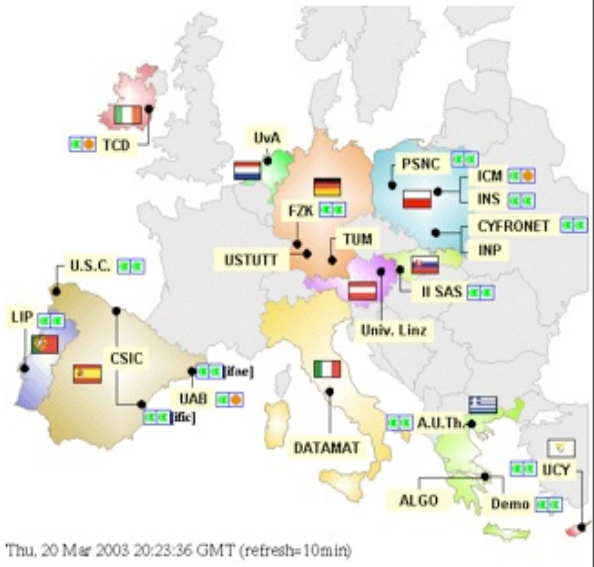
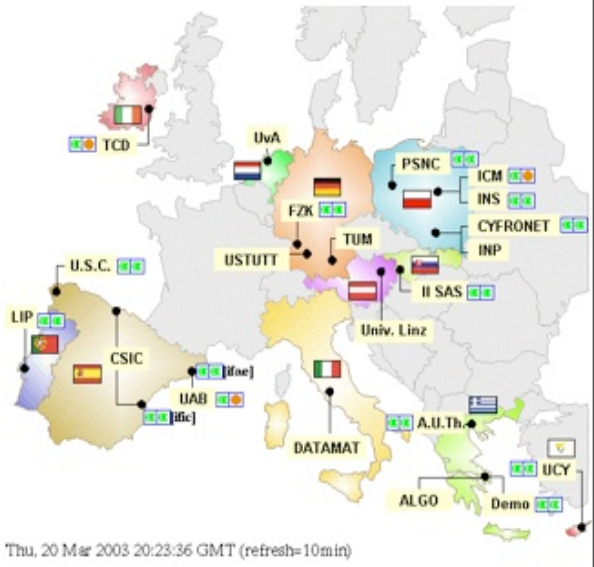
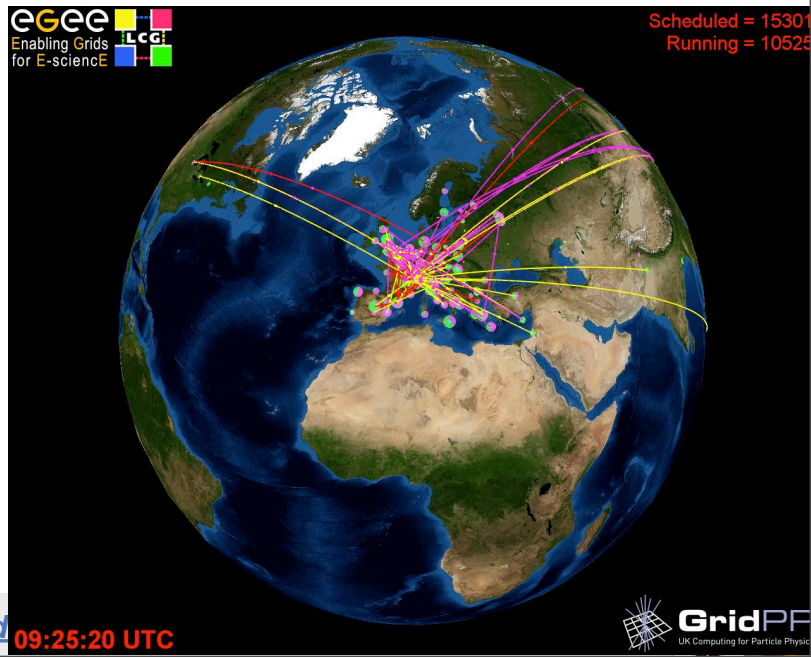
- CrossGrid (2002-2006)



CyGrid in International Testbeds

- CrossGrid (2002-2006)
- EGEE & EGEE-II (2004-2008)
- Hosts the Resource Broker and Information Index of the South-East Europe VO of EGEE





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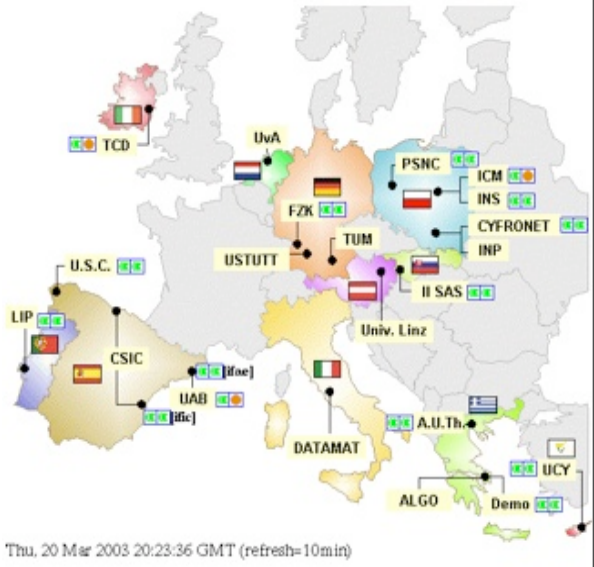
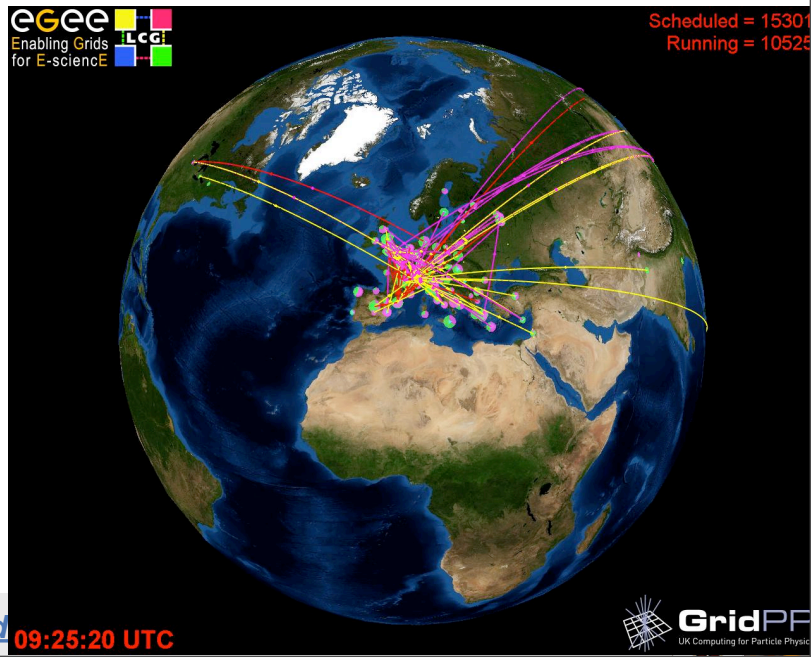
- PlanetLab (joined 2006)





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- Top level certification authority for Grids in Cyprus:
  - **certified by EUgridPMA**, the European Grid Policy Management Authority
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  - Access to computing resources of the South-East Europe Virtual Organization
  - Consulting and support on joining other Virtual Organizations (Biomed, Chem, etc)

Applications from Cyprus on EGEE: Computer Architecture

- Research on modern multi-core microprocessors - prof. Y. Sazeides group, Computer Science Dept, Univ. of Cyprus:
  - **SimpleScalar Simulator**: a tool-set primarily used for hardware-software co-verification, and for building detailed micro-architectural modeling.
  - **Trace Caching**: an emerging solution for achieving high-bandwidth instruction supply, studied through large-scale simulations on EGEE.
  - **Microprocessor simulations** using sim-alpha simulator and spec2000 and spec2006 CPU benchmarks used to study memory hierarchy optimizations, speculation techniques, reliability methods and mechanisms to reduce temperature problems on multi-cores.

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- Research on Artificial Intelligence - Local search techniques - prof. Y. Dimopoulos, Computer Science Dept, Univ. of Cyprus:
  - Deployment to the Grid of a **fully-automated domain-independent planner** for PDDL2.2 domains.The system can solve both plan generation and plan adaptation problems.

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- Research on Conformal Prediction in Medical Diagnosis - prof. H. Papadopoulos, Frederick University:
  - Development of new **Conformal Prediction Methods** with Applications in Medical Diagnosis using Neural Networks.

Applications from Cyprus running on the EGEE Grid

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- Theoretical Mechanistic Studies of the Water-Gas Shift Reaction - Dr C. Zeinalipour, Chemistry Dept, Univ. of Cyprus
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- Material-Ultrafast Laser Interaction - Mr L. Loumakos, Physics Dept, Univ. of Cyprus
  - Simulation of a modified Boltzmann model describing the carrier dynamics developed in a semiconductor following an excitation by an ultra-short laser pulse.

Applications from Cyprus running on the EGEE Grid

- Intensive Care Grid (ICGrid): A Data Grid application for Intensive Care Medicine and Research - M. Dikaiakos, N. Stylianides, H. Gjermundrod (Computer Sci. Dept, Univ. of Cyprus); D. Zeinalipour-Yazti (Open Univ. of Cyprus); T. Kyprianou, G. Panayi (Nicosia General Hospital)
  - More on this - presentation in the afternoon.

Dissemination and Outreach

Dissemination and Outreach

CyGrid Site

http://cygrid.org.cy/

iCal Exchange | Tenacious Search | Listserv | mdd | UCY | Mobility Portal | HPCL | Library | teleterm | Helpdesk | Merriam-Webster Online | Apple (123) | News (850) | Amazon

CyGrid

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- Join Cygrid
- Infrastructure
- Certification Authority
- Activities
- Applications
- Projects
- Resources
- Meetings
- HPCL

Funding Agencies:

Information Society Technologies

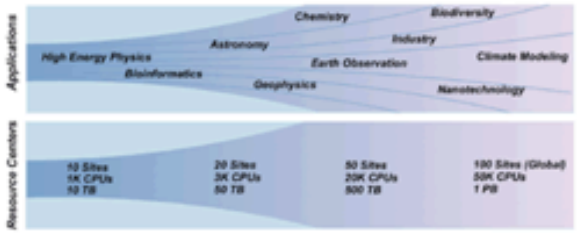
W3C HTML 4.01

W3C CSS

The Cyprus Grid Collaboration

One of the main objectives of CyGrid is to facilitate access to the massive Grid infrastructure of EGEE (Enabling Grids for E-sciencE) deployed around the world. The Grid offers access to powerful processing facilities and large storage capabilities. Such facilities may be utilised by users by running their computationally intensive or large data processing applications. It is important to note that applications may originate from Scientific, Educational and even Industrial disciplines. If you are located in Cyprus, you can join EGEE as a software application user through CyGrid, the Cyprus Grid Collaboration.

In parallel to the user-centric efforts, CyGrid is also active in taking steps towards expanding the existing infrastructure with the addition of new resource centres Detailed information is made available to assist prospective users as well as resource centres in joining the largest production Grid worldwide.



The monifarm monitoring web page provides a live status of the UCY testbed. For a live update on the grid infrastructure, visit the LCG2 Real Time Monitor site and start the applet.

News

21 January, 2008: Cyprus Grid Day: Research and Industrial Perspectives

12-13 December, 2007:

EGEE "Early Steps" - CyGrid User Forum

More in the News Archive
More in the Events Archive

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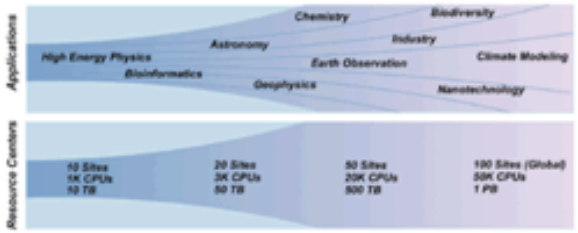

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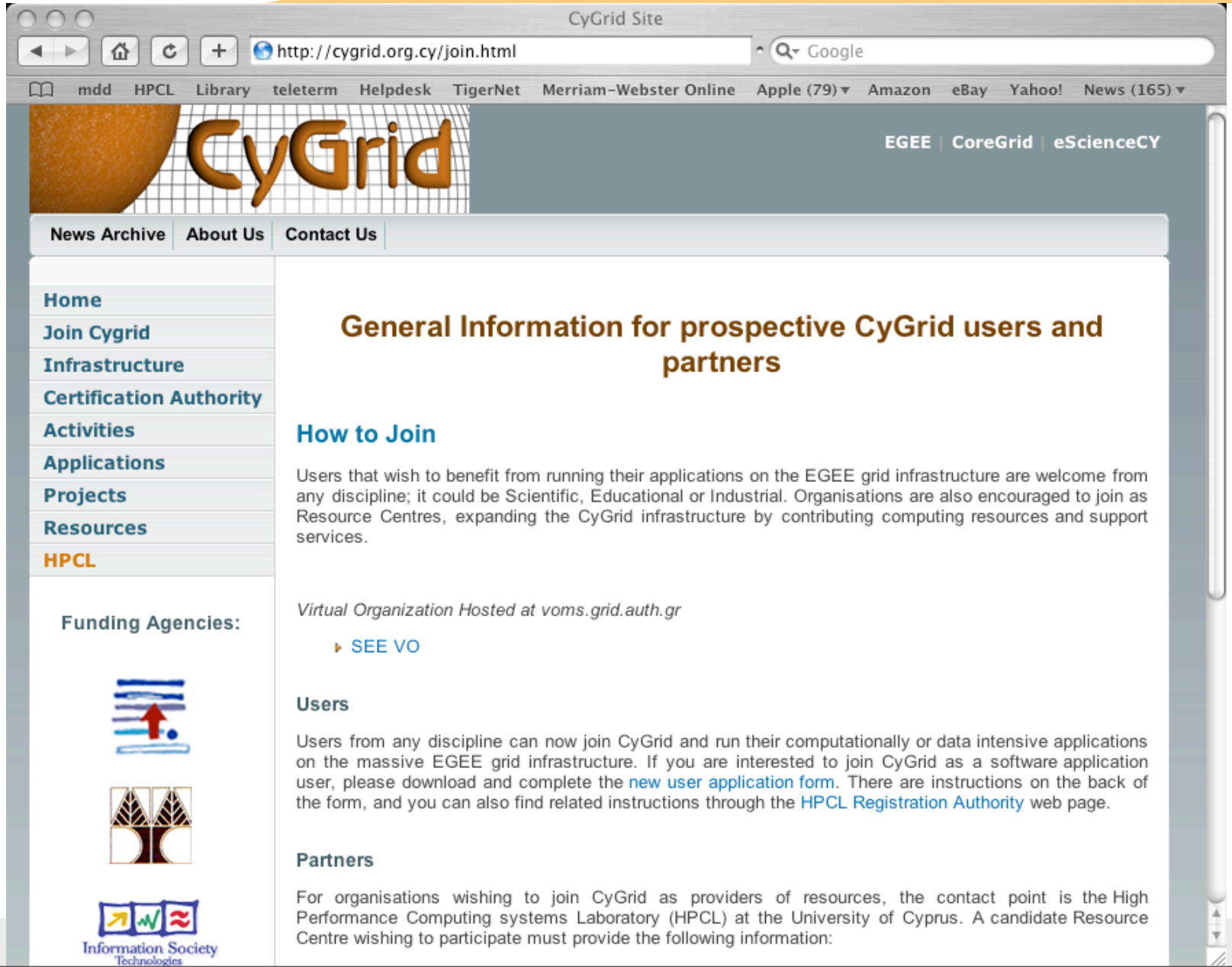
How to Join?


CyGrid Site
http://cygrid.org.cy/join.html
Google
mdd HPCL Library teleterm Helpdesk TigerNet Merriam-Webster Online Apple (79) Amazon eBay Yahoo! News (165)
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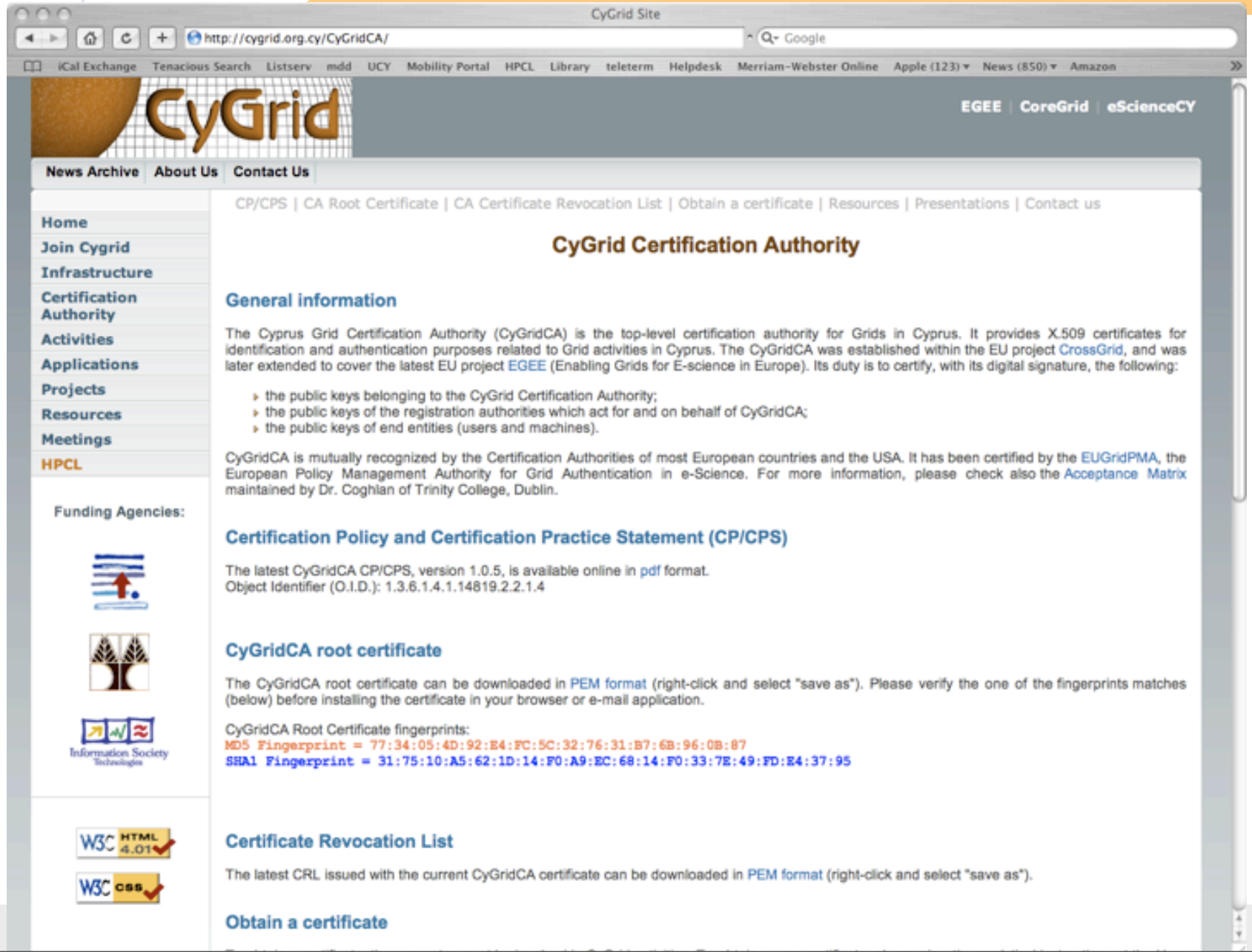
Activities
Applications
Projects
Resources
HPCL
Funding Agencies:
Information Society Technologies
General Information for prospective CyGrid users and partners
How to Join
Users that wish to benefit from running their applications on the EGEE grid infrastructure are welcome from any discipline; it could be Scientific, Educational or Industrial. Organisations are also encouraged to join as Resource Centres, expanding the CyGrid infrastructure by contributing computing resources and support services.
Virtual Organization Hosted at voms.grid.auth.gr
SEE VO
Users
Users from any discipline can now join CyGrid and run their computationally or data intensive applications on the massive EGEE grid infrastructure. If you are interested to join CyGrid as a software application user, please download and complete the new user application form. There are instructions on the back of the form, and you can also find related instructions through the HPCL Registration Authority web page.
Partners
For organisations wishing to join CyGrid as providers of resources, the contact point is the High Performance Computing systems Laboratory (HPCL) at the University of Cyprus. A candidate Resource Centre wishing to participate must provide the following information:

CyGrid Services

CyGrid Certification Authority



Site dedicated to EGEE

EGEE-II at UCY - Mozilla Firefox

File Edit View History Bookmarks Tools Help

http://grid.ucy.ac.cy/egee/

Red de autobuses E... Getting Started Latest Headlines PonsUni.pdf (applic... Unidad Didactica

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High Performance Computing Syste... EGEE-II at UCY

The EGEE Project at the UCY

Enabling Grids for E-sciencE

HPCL UCY Contact us November 19, 2007

- Welcome
- News
- Activities
- EGEE Global Events
- Press Room
- Documents
- Infrastructure
- People

Join the Largest International Grid Infrastructure

As a scientist, you can have access to unparalleled computing power and data storage capacity through a Grid infrastructure that is being established by the EU-funded project Enabling Grids for E-SciencE, more generally known as EGEE.

EGEE will provide researchers in academia and industry with round-the-clock access to major computing resources, independent of geographic location. The infrastructure will support distributed research communities, which share common Grid computing needs and are prepared to integrate their own computing infrastructures and agree on common access policies.

Any discipline which currently relies on advanced scientific computing resources can benefit from this project. See the fact sheet for more information concerning the EGEE project.

The Enabling Grids for E-sciencE project brings together scientists and engineers from more than 90 institutions in 32 countries world-wide to provide a seamless Grid infrastructure for e-Science that is available to scientists 24 hours-a-day. Conceived from the start as a four-year project, the second two-year phase started on 1 April 2006, and is funded by the European Commission.

Expanding from originally two scientific fields, high energy physics and life sciences, EGEE now integrates

Done

CyGrid Events

CyGrid Events

1. Grid Day APART Workshop, March 2002.
2. Winter school on middleware, January 2004.
3. IST Concertation Meeting on Grid Research (Jan 2004).
4. CrossGrid Workshop and Integration Meeting, January 2004.
5. 2nd European Across Grids Conference (AxGrids 2004), January 2004.
6. "2004cc: Continuity of Care in e-Health", Conference in ICT Applications & Development of New e-Health Technologies, June 2004.
7. Science Day at the University of Cyprus, October 2005.
8. "EGEE: Introduction to Grids" Seminar, March 2006.
9. "EGEE: Introduction to Grids" Seminar, September 2006.

CyGrid Events

CyGrid Events

10. "Grid Technologies: Introduction and Practice" Workshop, November 21-22, 2006
11. "EGEE User & SysAdmin Training Event at Intercollege" Workshop, April 23-24, 2007.
12. "Training: Using and Administrating EGEE Grid infrastructure Part I", May 16, 2007.
13. "Training: Using and Administrating EGEE Grid infrastructure Part II", May 23, 2007.
14. "Grid Certificates and Security", May 24, 2007.
15. "Early Steps" - CyGrid User Forum, December 12-13, 2007.
16. Cyprus Grid Day, January 21, 2008.

Participation to National Events

1. 19-20 November 2007: **Experiencing e-Government into an e-Community.** Organised by the **Embassy of Romania and UCY**
   - **Presentation Grid Computing and e-Health: IC Medicine Apps. (EGEE)**
2. 8 September, 2007: **"Researchers' Night"** event organised by the **"Research Promotion Foundation of Cyprus",** et al. HPCL demonstrations were attended by a large number of visitors, including **HE the Minister of Commerce and Industry *Mr. Antonis Michaelides* and the Member of the European Parliament *Mr. Kyriacos Triantafyllides***
   - **Presentation of "ICW, ICGrid and the use of EGEE on the simulation of protocols for vehicular services"**

Contents
What is Grid ?
A Brief History
Five Big Ideas Behind Grid
Grid Systems' Categories
Grid Prospects
Grid Users
Grid Architecture

CyGrid Presentations

CyGrid Presentations

1. "e-Infrastructures and CyGrid" by Marios Dikaiakos presented at the Post-graduate seminar 2003 "Post-Operative Intensive Care" University of Cyprus (audience scientific-medical; event broadcasted via teleconferencing system from Cyprus to Israel attendees: 100) ;
2. "ICU: Internal Care & Grids" Dr. Theodoros Kyprianou from Nicosia General Hospital presented at 2004c – eInfrastructures in Cyprus 26 June 2004 (audience scientific; event broadcasted via satellite from Cyprus to Algeria attendees: 200) ;
3. "The EGEE Project and CyGrid" by Marios Dikaiakos presented at 2004cc – eInfrastructures in Cyprus, 26 June 2004 (event type: conference, audience scientific; event broadcasted via satellite from Cyprus to Algeria, attendees: 200);
4. "The EGEE Project" Maria Poveda presented at "From EMISPHER towards a Virtual Euro-Mediterranean Hospital (VEMH)" EMISPHER Meeting of the Deans of the Medical Faculties, in Berlin, Germany, 4 December 2004 (event type: government/political; scientific audience: medical and computer science; 20 attendees);
5. "Test driving the Grid" by Marios Dikaiakos in ICS-FORTH, Herakleion, Greece, 22 October 2004 (event type: seminar, audience scientific / technical)
6. "CyGrid and EGEE" presentation by Michalis Elinas. e-NEXT meeting, Athens, Greece, 17 December 2005 (event type: project meeting)
7. "Grid Performance Exploration" by Marios Dikaiakos presented to the Department of Computer Science, University of California, USA; 10 June 2005 (event type: seminar; scientific community, computer science)
8. "Test Driving the Grid" by Marios Dikaiakos. Department of Computer Science Colloquium, Rutgers University, USA; 20 May 2005 (event type: seminar; scientific community, computer science)
9. "The EGEE Project" Maria Poveda presented at the 8th Meeting of the Tunisian Society of Informatics (broadcast by satellite from Cyprus to Tunisia, Germany, Algeria) in Tunis, Tunisia; 26 February 2005 (event type: seminar; scientific community, informatics; 40 attendees).

CyGrid Presentations

CyGrid Presentations

10. "Grid Explorations" by Marios Dikaiakos, Department of Computer Science Seminar, University of Cyprus; 11 March 2005 (event type: seminar; scientific community, computer science)
11. Science Day II at the University of Cyprus, demos and presentation by George Tsouloupas to High Schools students; 19 November 2005 (event type: open day; community: High school students, sciences)
12. Science Day at the University of Cyprus, demos and presentations by Kyriacos Neokleous and George Tsouloupas to High Schools students; Nicosia, Cyprus 8 October 2005 (event type: open day; community: High school students, sciences)
13. "CyGrid: Current Status and Future Plans of the Cyprus Grid Initiative" by M. D. Dikaiakos. The Cyprus Institute of Neurology and Genetics, Nicosia, Cyprus, 25th January 2006 (event type: seminar; scientific community, medical and biologists, attendees: 30)
14. "Searching within Large Grid Infrastructures." by M. D. Dikaiakos. Parallel Computing Research Seminar of University of Paderborn, Queen's Bay Hotel, Paphos, Cyprus, March 3, 2006.
15. "CyGrid: Current Status and Future Plans of the Cyprus Grid Initiative" by M. D. Dikaiakos. Medical Intensive Care Forum: "Congress Elysium Hotel", Paphos, Cyprus, 27-28 January 2006 (event type: conference; scientific community, medical and health sector, attendees: 150).
16. "CyGrid: Current Status and Future Plans of the Cyprus Grid Initiative." presented by M. D. Dikaiakos.: South East Europe Regional Workshop: "Towards long-term sustainability of the European Grid Infrastructure", 19 April, 2006.
17. "Design and Development of a core Grid Ontology", by Wei Xing. 3rd Semantic Grid Workshop, GGF16 in Athens, February 15, 2006.

CyGrid Presentations

CyGrid Presentations

18. "ICGrid: Intensive Care Grid" presented by Harald Gjermundrod at the EGEE Bioinformatics Meeting #3, Valencia, Spain 6 March, 2007
19. "ICGrid: Enabling Intensive Care Medical Research on the EGEE Grid" presented by Harald Gjermundrod at the HealthGrid 2007 Conference, Geneva, Switzerland, 7 April, 2007: 27 April, 2007: 26 May, 2007: "Grid Technologies for Computational Research"
presented by Marios Dikaiakos at The ECCO XX Conference, Amathus Beach Hotel, Limassol, Cyprus
20. "FailRank: Towards a Unified Grid Failure Monitoring and Ranking System" presented by Demetrios Zeinalipour-Yazti at the CoreGRID Workshop on Grid Programming Model Grid and P2P Systems Architecture Grid Systems, Tools and Environments, Crete, Greece 12 June, 2007:
21. "Grid Resource Ranking using Low-level Performance Measurements" by George Tsouloupas at the Euro-Par 2007, Rennes, France 31 August, 2007
22. "EGEE-SA3 Annual Partner Review" presented by Asterios Katsifodimos, EGEE '07 Conference, Budapest, Hungary 2 October, 2007
23. Presentation of "CyGrid - Infrastructure & Applications" by N. Stylianides at the "Ithanet, General Assembly Meeting" organized by the "Institute of Neurology and Genetics" 27-29 November, 2007.
24. "Computing Grid and its Applications in Intensive Care Medicine" presented by M. D. Dikaiakos, Cyprus Academy, Hilton Cyprus Hotel, Nicosia, Cyprus , 9 October, 2007.
25. Presentation by M. D. Dikaiakos "Grid Computing and e-Health: IC Medicine Apps. (EGEE)" Experiencing e-Government into an e-Community workshop. 19-20 November, 2007

Dissemination in Scientific Events

Dissemination in Scientific Events

1. 18-20 November 2007 4th IEEE International Conference on Innovations in Information Technology. Dubai. http://www.it-innovations.ae/
2. Nov 05-09, 2007 26th International Conference on Conceptual Modeling (ER 2007). Auckland, New Zealand. http://er2007.massey.ac.nz/
3. 31 August, 2007 "Grid Resource Ranking using Low-level Performance Measurements" Euro-Par 2007, Rennes, France
4. 8-10 May, 2007: "ICGrid: Intensive Care Grid", software demo presented by Harald Gjermundrod, OGF 2007, Manchester, UK
5. 24-27 April, 2007: 5th HealthGrid Conference, University Hospital of Geneva, Geneva, Switzerland
6. **31- 4 November 2005 OnTheMove-OTM 2005 Federated Conferences, Ayia Napa, Cyprus; (event type: conference; scientific community, computer science, atendees: 150)**
7. 10 October 2005, Particle Physics in the 21st Century, University of Cyprus (event type: seminar; scientific community, physics; atendees: 20)
8. 14-17 July 2005 Workshop on Computational Hadron Physics, University of Cyprus (event type: workshop; scientific community, physicists);
9. 1 July 2005 5th GRACM International Congress on Computational Mechanics, Limassol, Cyprus (event type: conference; scientific community);
10. 27-29 June 2005 International Symposium on Intelligent Control in Limassol, Cyprus (event type: conference; community: IEEE CSS - Control Systems Society; attendees 250);
11. 21-22 June 2005 Workshop on Climate Change and Energy Pathways for the Mediterranean at University of Cyprus (event type: workshop; scientific community, audience physicists; 30 attendees);
12. 3 June 2005 "Characterisation and Correlation of Elastic and Conductive Properties of Microstructured Solids" for Mechanical and Manufacturing Engineers at the University of Cyprus (event type: seminar; scientific community)
13. 11-13 April 2005 "11th European Wireless Conference", Nicosia, Cyprus (event type: conference; scientific community; audience 120 attendees);
14. June 2004 "2004cc: Continuity of Care in e-Health", Conference in ICT Applications & Development of New e-Health Technologies.
15. 10 March 2004, "A Grid-Computing Infrastructure for Monte Carlo Applications" Nicosia, Cyprus, (event type: seminar; scientific/technical audience);
16. January 2004, 2nd European Across Grids Conference (AxGrids 2004).
17. January 2004, Winter school on middleware.
18. March 2002, Grid Day APART Workshop.
19. 17 January 2005, "First CoreGRID Workshop on GRID and P2P Systems Architecture", Herakleion, Greece (event type: conference, audience scientific/technical; 100 attendees);
20. 23-26 October 2004, "Open Grid Day" Lisbon, Portugal (event type: conference; audience scientific / technical);
21. 24-26 October 2004, 'NexWay Workshop: Part of SympoTIC'04" Bradislava, Slovakia (event type: conference; scientific/ technical audience);

Dissemination at large

Dissemination at large

1. POLITIS Newspaper (Cyprus), 9 September 2005 published an article EGEE Battles Malaria with Grid Wisdom (circulation 13,000);
2. PHILELEFTHEROS newspaper 6 May 2004 Launch of the EGEE Project. (circulation 27,000) ;
3. PAROIKIAKI newspaper of London, 27 February 2004; article on AxGrids 2004 Conference
4. CHARAVGI newspaper, 10 February 2004; article on AxGrids 2004 Conference
5. ALITHIA newspaper, 11 February 2004; article on AxGrids 2004 Conference
6. Cyprus Computer Society magazine, (May 2006); article on e-Infrastructures and CyGrid
7. KOINOTHTA magazine, October 2005 (the University of Cyprus newsletter) published an article on "Drug Discovery using In Silico docking" (page 5 and 20, in Greek; circulation 6,700);
8. KOINOTHTA magazine January 2005 issue (the University of Cyprus newsletter) published an article about the collaboration between CyGrid with Grid Ireland (in Greek; circulation 6,700);
9. KOINOTHTA magazine June 2004 edition (the University of Cyprus newsletter) Launch of the EGEE Project announcement (circulation 6,700);
10. CoreGRID newsletter March 2005 issue published an article on "GridBench: A Tool for Benchmarking Grids", (available electronically in the CoreGRID web site 333368 visitors in the first year);
11. Press Releases:(in Greek)
    1. **Global e-Infrastructure Reports Landmark Results at European Conference**. 28 November 2005;
    2. **Open Day: The Grid and Neglected Diseases**.16 June 2005;
    3. **EGEE Battles Malaria With Grid Wisdom**. 26 August 2005;
    4. **EGEE Makes Rapid Earthquake Analysis Possible**. 17 June 2005;
    5. **EGEE Speeds Up Hunt for New Malaria Drugs**. 18 May 2005;
    6. **EGEE Celebrates First Birthday in Athens**. 22 April 2005;
    7. **First Industrial Application Is Running On EGEE**. 7 March 2005;
    8. **EGEE Branches Out in the Med**. 1 March 2005 (posted on the front page of the EGEE website);
    9. **EGEE Presented in Cyprus**. 16 July 2004;

Production of promotional material

Production of materials

- **Videos (2)**
  1. **ICGrid: Intensive Care Grid Demo**
     - ***presented at IST 2006 Helsinki & OGF 2007 Manchester***
     - ***Best DEMO Award 1st CoreGRID Industrial Conference Nice***

  2. **The Best Practice Award Video produced by the Academic Internet Television Network (ATVN) for the EMISPHER project**
     - Lambros Lambrinos and George Tsouloupas: Introduction to Grid Computing and the EGEE project
     - Demetrios Zeinalipour-Yazti: Intensive Care Grid: ICGrid
- http://www.atvn.pl/atvn-eu-gp/euarchive/2.php?uppage=2_page/EMISPHER/cyprus_pierwsza.html&page=2_page/EMISPHER/cyprus_pierwsza.html

Next Steps

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- Promote the use of Grid technologies and infrastructures by Cypriot businesses
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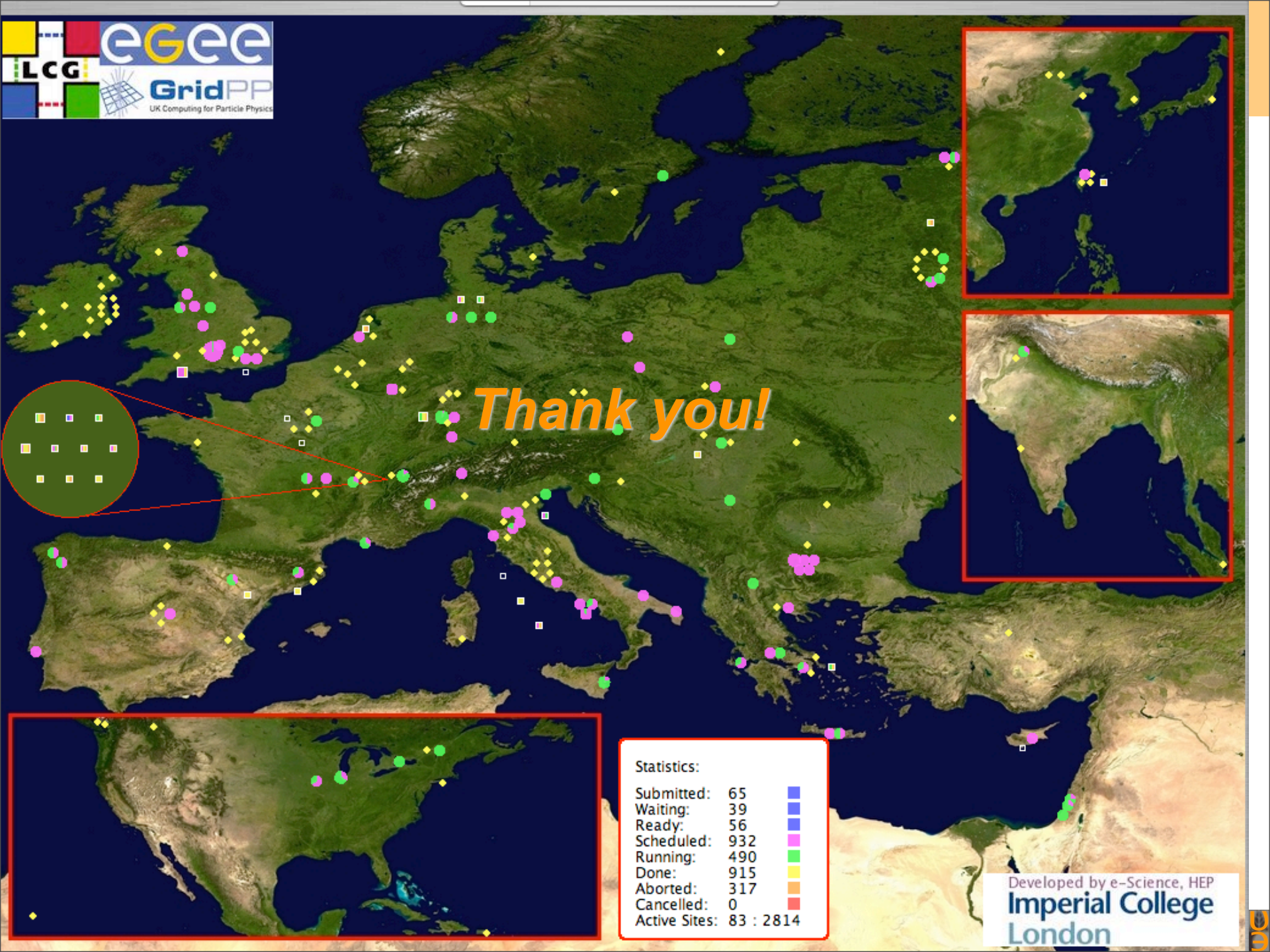
- Towards a national strategy for e-Infrastructures and e-Science
  - Memo circulated to Planning Bureau, Ministry of Finance, and the Research Promotion Foundation


LCG
eGee
GridPP
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Thank you!
Statistics:
Submitted: 65
Waiting: 39
Ready: 56
Scheduled: 932
Running: 490
Done: 915
Aborted: 317
Cancelled: 0
Active Sites: 83 : 2814
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