

# U.PORTO

## Campus Grid



The University of Porto has established a Grid infrastructure in order to provide a platform for demanding wide-area distributed calculations and data storage in a broad range of scientific and technological applications, as well as to foster international collaboration and participation in large international scientific projects.

The U.PORTO Campus Grid infrastructure is composed by three clusters, belonging to three different administrative domains: the Faculty of Science (FCUP), the Faculty of Engineering (FEUP) and the Institute of Common Resources and Initiatives (IRICUP).

The U.PORTO Campus Grid is part of the European project "Enabling Grids for e-Science", allowing users to perceive it as a unified large scale computational resource and to join virtual organizations to work on common projects.



**FCUP SUN Cluster**  
AMD Opteron 250, 2.4 Ghz (x2)  
4 Gb Memory  
12 nodes



**FEUP SUN Cluster**  
AMD Opteron 250, 2.4 Ghz (x2)  
4 Gb Memory  
12 nodes



**IRICUP SUN Cluster**  
AMD Opteron 250, 2.4 Ghz (x2)  
4 Gb Memory  
24 nodes

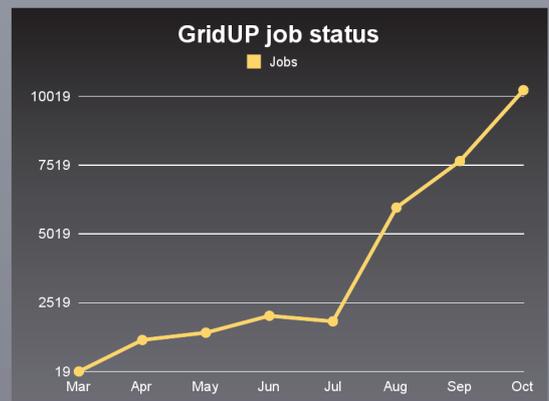
### Resources and Architecture

- 3 sites
- 96 CPU cores
- 2Tb of storage

## How to use it ?

### Three Easy Steps

- 1 get a certificate
- 2 join a virtual organization
- 3 submit your job



U.PORTO Grid submission statistics since March 2007, representing the number of jobs executed on the U.PORTO EGEE site.

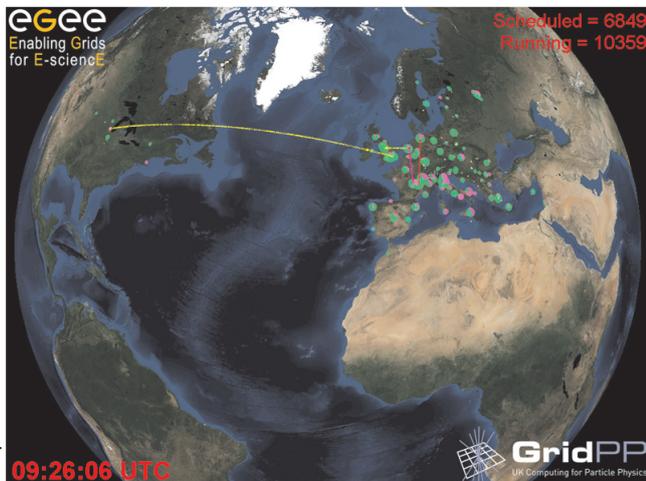
# GRID.UP.PT

# U.PORTO

# U.PORTO IN EGEE

**E**nabling Grids for e-Science is a project that brings together scientists and engineers from more than 240 institutions in 45 countries world-wide to provide a Grid infrastructure for e-Science available 24 hours-a-day. Expanding from originally two scientific fields, high energy physics and life sciences, EGEE now integrates applications from many other scientific fields, ranging from geology to computational chemistry.

The EGEE infrastructure is ideal for any scientific research especially where the time and resources needed for running the applications are considered impractical when using traditional IT infrastructures. The EGEE Grid consists of 41,000 CPU available to users 24 hours-a-day, 7 days a week, in addition to about 5PB disk and maintains 100,000 concurrent jobs. Having such resources available changes the way scientific research takes place. 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.



## middleware

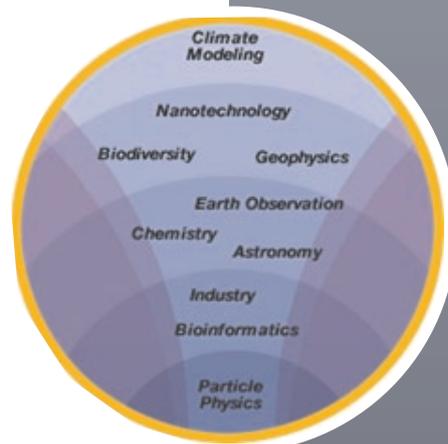
**I**n order to take advantage of the Grid infrastructure itself there is the need to use adequate methods, API's and programs. The U.PORTO Campus Grid uses the EGEE middleware gLite. Born from the collaborative efforts of more than 80 people in 12 different academic and industrial research centers as part of the EGEE project, gLite is an integrated set of components designed to enable resource sharing and is nowadays deployed on hundreds of sites. In addition to code developed within the project, the gLite distribution pulls together contributions from many other projects, including LCG (<http://lcg.web.cern.ch/LCG/>) and VDT (<http://vdt.cs.wisc.edu/>).



Lightweight Middleware for Grid Computing

## virtual organizations

**T**he U.PORTO Campus Grid offers resources to several virtual organizations (VOs) and may join others depending on the needs expressed by the University of Porto researchers. Several VOs are already established in many different fields: particle physics, biomedicine, Earth observations, computational chemistry, and seismology, among others.



Universidade do Porto  
Praça Gomes Teixeira,  
4099-002 Porto PORTUGAL  
Email: [helpdesk@reit.up.pt](mailto:helpdesk@reit.up.pt)  
Phone: +351 22 040 80 88  
Fax: +351 22 040 81 84

The term virtual organization (VO) describes an aggregate of computational resources and persons who work on a common project. The aim of a VO is sharing of available data resources and computational capacities that can be advantageously used for processing of computational jobs.

Technical advice is offered by the U.PORTO Grid staff team.  
Contact [helpdesk@reit.up.pt](mailto:helpdesk@reit.up.pt)

More information at: <http://grid.up.pt>