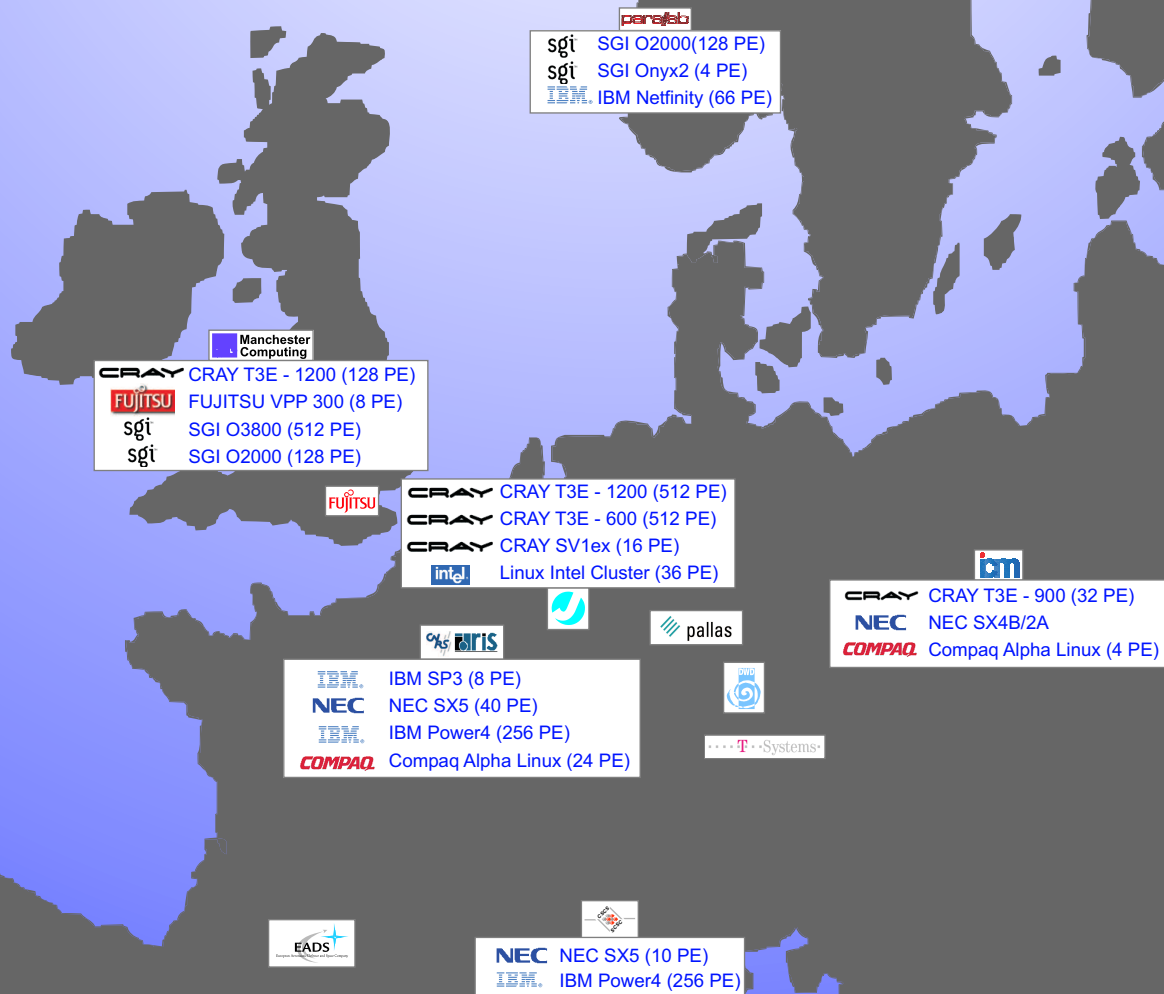


EUROGRID

European Testbed for GRID Applications



HPC Centers

- Forschungszentrum Jülich (D)
- Paralab - University of Bergen (N)
- CNRS - IDRIS (F)
- Warsaw University (PL)
- Victoria University of Manchester (UK)
- ETH Zürich - SCSC Manno (CH)

Users

- Deutscher Wetterdienst(D)
- GIE EADS CCR (F)
- T-Systems (D)

Integration

- Pallas GmbH (D)
Project Coordinator
- Fujitsu Laboratories of Europe (UK)



Information Society
Technologies

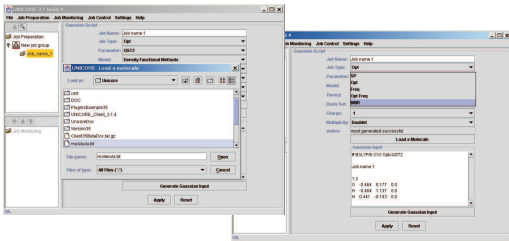
Funded by EU grant no. IST-1999-20247 • Duration: November 2000 - October 2003

URL: <http://www.eurogrid.org>

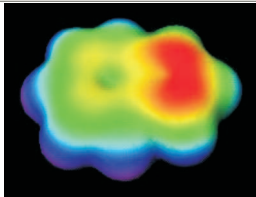
EUROGRID

European Testbed for GRID Applications

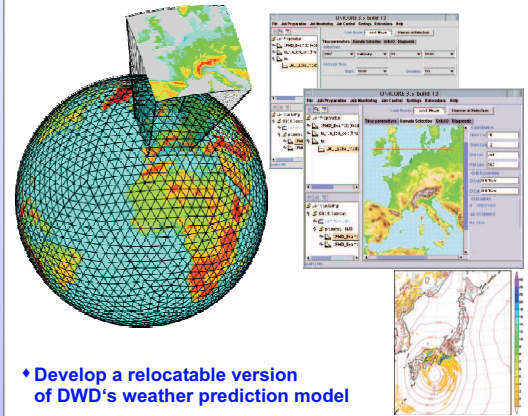
Bio GRID



- ◆ Operate a GRID for biomolecular simulations
- ◆ Develop interfaces to existing biological and chemical codes



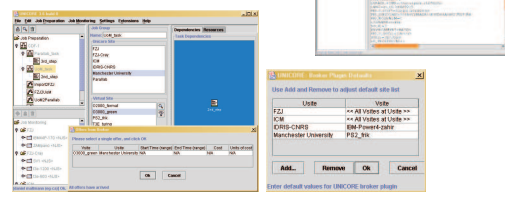
Meteo GRID



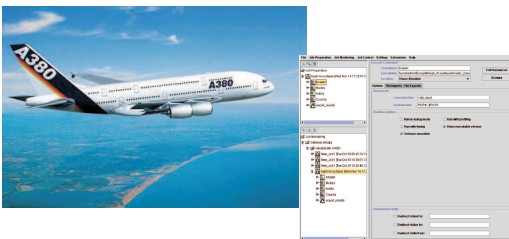
- ◆ Develop a relocatable version of DWD's weather prediction model
- ◆ Goal: 'Weather prediction-on-demand' as an ASP solution

Technology Development

- ◆ Build on the functionality of UNICORE
- ◆ Extend UNICORE to provide the middleware necessary for the Domain specific GRIDS
 - Efficient data transfer
 - Resource brokering
 - ASP services
 - Application coupling
 - Interactive access



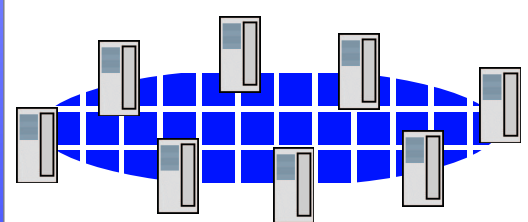
CAE GRID



- ◆ Accommodate coupled CAE simulations from the aerospace field
- ◆ Create an HPC portals for engineering users at EADS, Daimler-Chrysler and partners
- ◆ Prototype an ASP service on top of EUROGRID



HPC Research GRID



- ◆ Demonstrate a European HPC GRID testbed
- ◆ Develop new GRID applications
- ◆ Enable sharing of competence and know-how
- ◆ Agree on security standards, certification, access policies, ...

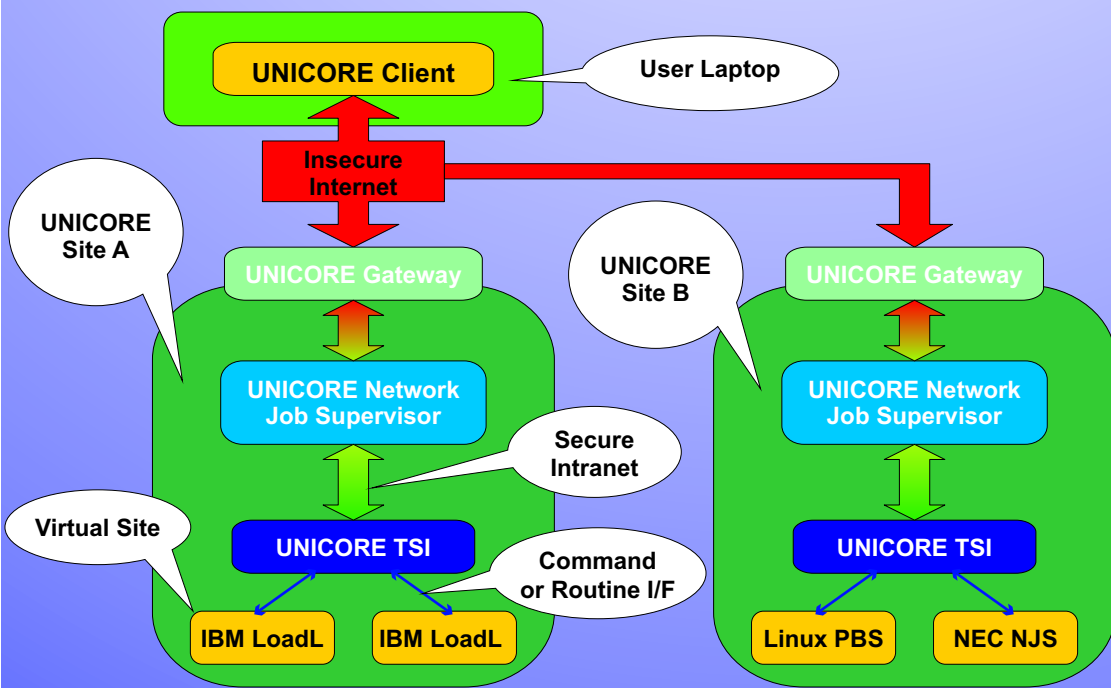
EUROGRID

European Testbed for GRID Applications

UNICORE Grid System: Software Base of the EUROGRID Project

Uniform Interface to Computing Resources

- ◆ Provides a science and engineering GRID combining distributed resources of supercomputer centers and makes them available through the Internet
- ◆ Performs strong authentication in a consistent and transparent manner
- ◆ Hides differences between platforms from the user
- ◆ Creates a seamless HPC portal for accessing supercomputers, compiling and running applications, and transferring data
- ◆ URL: <http://www.unicore.de>
- ◆ UNICORE Test Grid: <http://www.fz-juelich.de/unicore-test>
- ◆ Source code: <http://www.unicore.org/downloads.htm>



UNICORE Architecture

- Client:** Interacts with the user and provides functions to construct, submit and control the execution of computational jobs
- Gateway:** Acts as point-of-entry into the protected domain of the HPC centers
- Server:** Schedules and runs the jobs on the HPC platform that it controls

Components written in Java

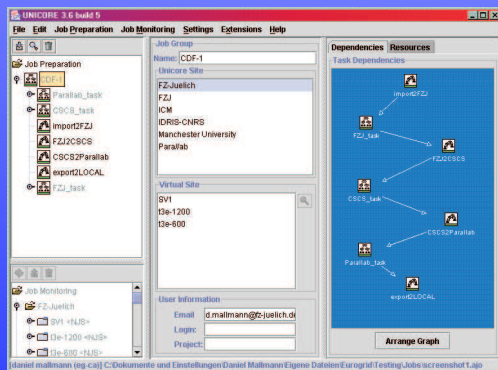
Protocols between the components defined using Java mechanisms

Functions

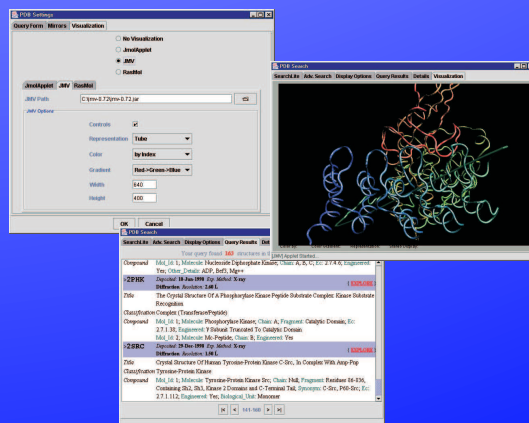
- ◆ Interactive creation of batch jobs
- ◆ Submission to different platforms at different locations
- ◆ Interdependent multi-application and multi-site jobs
- ◆ Automatic control of job flow
- ◆ Automatic staging of data
- ◆ Secure access to remote data
- ◆ Reuse of existing jobs
- ◆ Authentication of users through x.509 certificates
- ◆ Single sign-on to the EUROGRID Testbed
- ◆ Mapping to existing user identification at target site

Client

- ◆ Prepare and modify structured jobs
- ◆ Show resources
- ◆ Submit jobs on the Internet
- ◆ Execution of scripts
- ◆ Data transfer directives
- ◆ Application specific interfaces
- ◆ Monitor and control of jobs
- ◆ Fetch output



PDB Search Interface



Weather Forecast Interface

