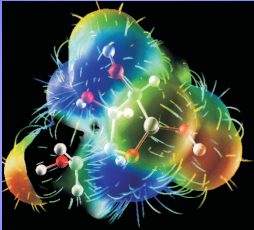


EUROGRID

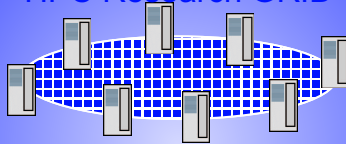
European Testbed for GRID Applications

Bio GRID



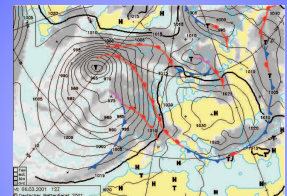
- ◆ Operate a GRID for biomolecular simulations
- ◆ Develop interfaces to existing biological and chemical codes

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, ...

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



- ◆ Coupled simulations of aircrafts
- ◆ HPC portals for EADS engineers and for engineers at Daimler-Chrysler and partners
- ◆ Develop GRID technology for computing cost estimates and billing

CRAY CRAY T3E - 1200 (128 PE)
FUJITSU FUJITSU VPP 300 (8 PE)
sgt SGI O3000 (512 PE)
sgt SGI O2000 (128 PE)

Manchester Computing

parallab
sgt SGI O2000(128 PE)
sgt SGI Onyx2 (4 PE)

fecit

CRAY CRAY T3E - 1200 (512 PE)
CRAY CRAY T3E - 600 (512 PE)
intel Linux Intel Cluster (36 PE)



pallas

CRAY CRAY T3E - 900 (32 PE)
NEC NEC SX4B/2A
COMPAQ Compaq Alpha Linux (4 PE)

CNRS

IBM IBM SP3 (8 PE)
NEC NEC SX5 (40 PE)
IBM IBM Power4 (256 PE)
COMPAQ Compaq Alpha Linux (24 PE)

T-Systems

EADS

NEC NEC SX5 (10 PE)

HPC Centers

- Forschungszentrum Jülich (D)
- Parallab - 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)
- Assistant Partner:
 - T-Systems (D)

Integration

- pallas Pallas GmbH (D)
Project Coordinator
- Assistant Partner:
 - fecit Fujitsu European Centre for Information Technology (UK)



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

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

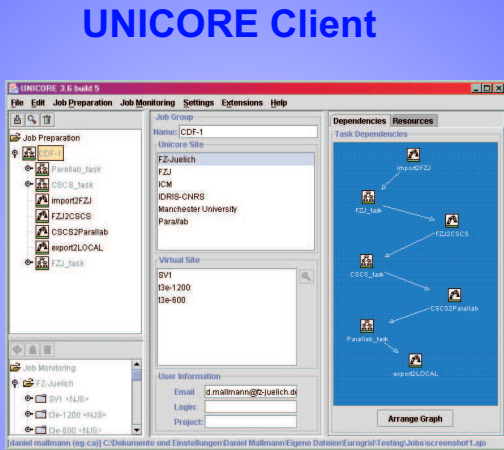
EUROGRID

European Testbed for GRID Applications

Technology Development Enhancements of the UNICORE GRID System

Technology Development

- ◆ Satisfy requirements generated by domain-specific grids
- ◆ Improve EUROGRID take-up and exploitation in both science and industry



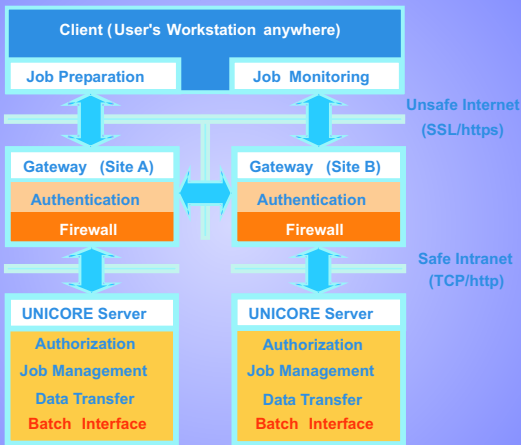
Resource Brokering

- ◆ Dynamic identification of available resources in a GRID
- ◆ Broker automatically matches resource requirements of job to available resources
- ◆ Selection of possible matches based on various criteria, such as turnaround time, cost, etc.

Efficient Data Transfer

- ◆ Fail-safe and encrypted transfer
- ◆ Overlap of transfer and processing
- ◆ Handle latency-critical burst transfers, and bulk transfers which utilise available bandwidth
- ◆ Exploit Quality-of-Service aware networks where available

UNICORE Architecture



ASP Services

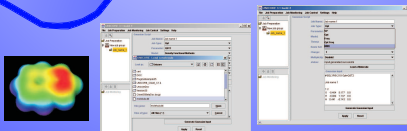
- ◆ Infrastructure for Application Service Providers (ASPs)
- ◆ Provide precise accounting and license billing
- ◆ Also provide up-front cost predictions
- ◆ Will interface to basic UNIX accounting mechanisms

Application Coupling

- ◆ Integrate communication middleware for weakly coupled applications
- ◆ Develop techniques for strongly coupled applications
- ◆ Develop interfaces to schedulers for co-scheduling

Application Specific Plugins

Gaussian



Interactive Access

- ◆ Interactive control and steering of jobs
- ◆ Allow use of interactive applications
- ◆ Provision of interactive shell
- ◆ Provision of general-purpose interactive graphical interface