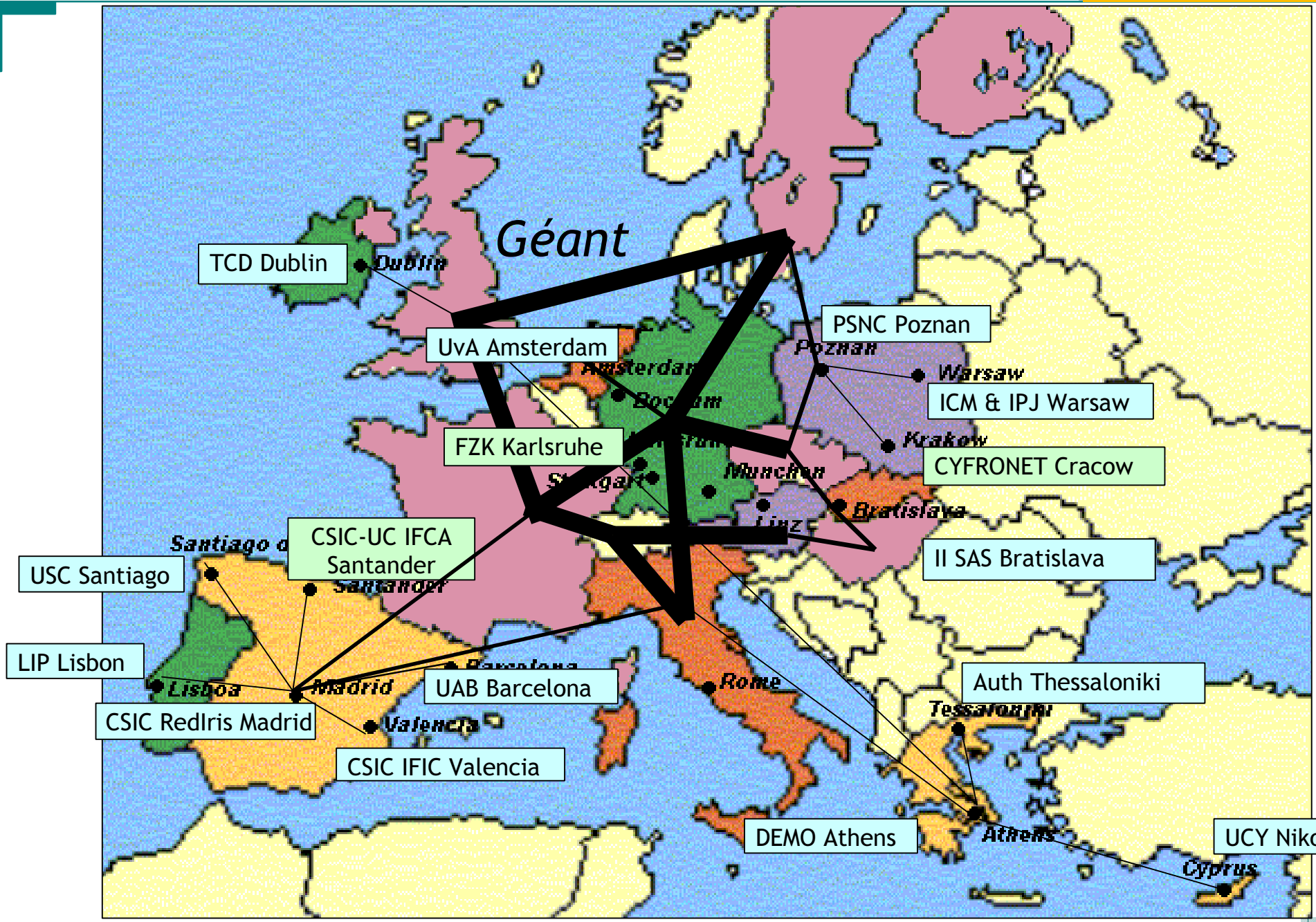
The CROSSGRID project

- EU Vth Framework Programme (IST) Project, started March 2002
- 21 partners from 11 countries
- Objectives:
  - Extend GRID **in close collaboration with DATAGRID**
  - Final user interactive applications (response loop in the range of seconds to minutes):
    - Simulation & visualisation for surgical procedures
    - Flooding crisis team decision support system
    - Distributed Data Analysis in HEP
    - Weather forecast and air pollution modelling

Objectives

- Extension of DataGrid testbed:
  - Basic: EDG middleware
- Supporting testing and validation for
  - Interactive Applications
  - Programming environment
    - Verification of MPI use
    - Performance prediction
    - Monitoring
- New services and tools
  - User friendly portals
  - Roaming access
  - Efficient distributed data access
  - Specific resource management

The CrossGrid Testbed Map



Status of Testbed

Planning completed by M3 (deliverable end of May):

- Sites: manpower, hardware and network
- Integration team
- Certification Authorities (old: Ireland, Portugal, Spain, Netherlands & new: Germany, Poland, Greece, Slovakia, Cyprus)
- Support and Test procedures

First testbed by M6 (now, September):

- Sites: LIP, FZK, CSIC+USC, PSNC, AuTH+Demo
- Basic: EDG release 1.2.0
  - Inclusion in DataGrid testbed (when 1.2.1 released?)
  - **LIP Deployed of CrossGrid RB & VO for initial tests**
- Applications:
  - EDG HEP simulations (Atlas, CMS)
  - first distributed prototypes using MPI:
    - NN distributed training
    - Evolutionary Algorithms

Report and extension to all sites by M10 (end of year)

Coordination, testbed setup

Sites responsibles:

All active, most quite **enthusiastic!**

Meetings through VRVS each 2-3 weeks

Hardware:

All sites with dedicated hardware installed (typically 5-10 Pcs)

(=56 Nodes, 80GHz, 38.5 GB RAM, 1.6 TB Disk)

Some sites may contribute significant resources for production (clusters of 20-100 PCs)

Integration Team

- Jorge Gomes (LIP)
- Marcus Hardt (FZK)
- Javier Sanchez & Santi Gonzalez (Valencia)
- Rafael Marco (Santander)
- Christos Kannellopoulos (AuTH)
- Pawel Wolniewicz (PSNC)

Testbed site responsibles:

- CYFRONET (Krakow) A.Ozieblo
- ICM, IPJ(Warsaw) W.Wislicki
- UvA (Amsterdam) D.van Albada
- FZK (Karlsruhe) M.Hardt
- IISAS (Bratislava) J.Astalos
- PSNC(Poznan) P.Wolniewicz
- UCY (Cyprus) G.Tsouloupas
- TCD (Dublin) B.Coghlan
- CSIC (Santander) R.Marco
- CSIC (Valencia) J.Sanchez
- UAB (Barcelona) E.Heymann
- USC/CESGA (Santiago) C.Fernandez
- Demo (Athenas) Y.Kotronnis, V.Floros
- AuTh (Thessaloniki) C.Kannellopoulos
- LIP (Lisbon) J.Gomes

Examples of Testbed Sites

Valencia GoG farm, Santander (GridWall), Karlsruhe

Coordination with DataGrid

CrossGrid testbed is installing EDG 1.2.0 release

CrossGrid Integration Team meetings with DataGrid at CERN:

- April: learning about hardware and middleware
- July: specific on 1.2 release issues

THANKS A LOT FOR THE HELP AND SUPPORT!

Next: Inclusion in the DataGrid production testbed:

LIP and FZK in 1.2.0, also UvA ready (via NIKHEF)

Next (with 1.2.1, production testbed):

- CSIC, CESGA, UAB (Spain), TCD (Dublin)
- Inclusion for Poland, Greece and Slovakia in CA (PSNC, AuTH, DEMO and IISAS have 1.2.0 installed!)

Certification Authorities

CA for all sites is a priority in the CrossGrid testbed

Several sites are already accepted in DataGrid:

- Ireland: TCD (Dublin) B.Coghlan
- Portugal: LIP (Lisbon) J.Gomes
- Spain: CSIC (Santander R.Marco, Valencia, RedIRIS), UAB, USC/CESGA
- Germany: FZK (Karlsruhe U.Epting)

Other sites have worked hard to have CA ready:

- Poland: PSNC (Poznan) Pawel Wolniewicz
- Greece: AuTH (Thessaloniki) Christos Kannelopoulos
- Slovakia: IISAS (Bratislava) Jan Astalos

CPS documents thoroughly revised inside CrossGrid (by Brian, Jorge, Rafael and Ursula), and modifications suggested and implemented

Pawel, Christos, Jan and Ursula present in the DataGrid CA meeting in Prague.

Now we use a test V.O. inside CrossGrid

Need acceptance in DataGrid asap to join common production testbed

Collaboration Items

- User Support: HelpDesk
  - Responsability of Valencia group (lead by J.Salt)
  - In coordination with DataGrid (thanks to Sophie!)
  - Database + simple webinterface
  - Experts panel being arranged
- Software repository
  - Collaborative software development platform (now Savannah), installed by Marcus (FZK)
  - Autobuild issues in collaboration with Yannick
- Infrastructure issues
  - Installation
    - Clusters in Valencia, Santander, FZK...:
      - Collaboration for LCFG, and for AFS installation (Lyon)
      - NFSrooted installation of Mandrake 8.2 in Bratislava
  - Network issues: QoS (group set by CESGA)
    - *KEY POINT FOR INTERACTIVE APPLICATIONS*

Applications to be tested

- Example: distributed NN training
  - Partial implementation of HEP problem
  - First tests using MPI in
    - Local cluster (perfect speedup)
    - Two different sites (Santander-Madrid) with usual network
  - First results (will be presented in PVM, Linz, September 29):
    - QoS is important: 10ms latency limit for typical example
    - Modelling possible, and so load balancing
- Next example: evolutionary algorithms
  - Also MPI-based
  - Transparent use of resources to the Application
- PLUS HEP (ATLAS & CMS) simulation (DataGrid)
  - Including production sites (FZK & Valencia involved in ATLAS Data Challenge, Santander for CMS summer production)

Next…

- Participation in production testbed with DataGrid
  - Sites ready to join now
  - Need of CA acceptance for Poland, Greece, Slovakia
  - All sites will be ready by end of September as agreed on March (in Cracow)
  - Common DEMO in IST 2002 (4-6 November)
- Collaboration with DataGrid in specific points
  - Hope CrossGrid testbed people will have more time after installation issues are finished, to collaborate along the lines indicated, contributing to a high quality testbed
- Not waiting for middleware and applications, but discussing with them on the support issues: CrossGrid meeting in Linz (end of September)

THANKS TO DATAGRID FOR ALL THE SUPPORT!

. Questions?