CoreGRID: European Research Network on Foundations, Software Infrastructures and Applications for large scale distributed, GRID and Peer-to-Peer Technologies

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CoreGRID objectives

• To build a European-wide research laboratory
  – To avoid fragmentation of Grid research activities in Europe
  – Create the European “Grid Lighthouse” and be seen as such worldwide
  – To achieve integration and sustainability
• To build solid foundations for GRID and P2P technologies
  – Both on a methodological basis and a technological basis
  – Support medium and long term research activities
• Achieve and promote scientific and technological excellence within & beyond the Grid research community
• Gather and disseminate European research
• A think-tank for spin-off projects
  – EC funded, bilateral projects, international cooperations, …
CoreGRID Membership

42 partners from 18 Countries (1 from S. America)

CoreGRID researchers
- Sep 2004: 118 researchers
- Aug 2005: 145 researchers
- 7 researchers left the Network, 34 new ones were included

CoreGRID PhD students
- Sep 2004: 163 PhD students
- Aug 2005: 169 PhD students
- 22 left the Network, 28 new ones were included

Operating the Network

- Administrative & Financial Management
  - ERCIM
    - Bruno Le Dantec (Administrative & Financial Coordinator)
    - Celine Bitoune (Assistant to the AFC)

- Scientific & Technical Management
  - INRIA
    - Thierry Priol (Scientific Coordinator)
    - Päivi Palosaari (Assistant to the SCO)
ERCIM is a consortium of leading research institutions from 18 European countries committed to information technology and applied mathematics.

Organizational map

- Scientific Advisory Board
- Industrial Advisory Board
- Specific Task Forces - NPTF: New Participants
- Integration Monitoring Committee
- Administrative & Financial Co-ordinator
- Scientific Co-ordinator
- Executive Committee
- Heads of
  - “Spreading Excellence”
  - CoreGRID Institutes
  - “Integrated Activities”
  - “Collaboration Gateway”

Heads of
- CoreGRID
- Institutes
Scientific Advisory Board (SAB)

Objectives:
- Deliberate on science-related matters of the Network
- Annual external assessment of the scientific quality of the work
- Provide guidance to the strategic orientations
- Formulate recommendations to the Executive Committee
  ➔ on content, planning and execution of the Joint Programme of Activities

Three senior Network scientists and three external advisors + SCO

Internal members:
- Jarek Nabrzyski (PSNC - Poland)
- Henri Bal (Vrije U. - The Netherlands)
- Uwe Schwiegelshohn (Dortmund U. - Germany)

External members:
- Dennis Gannon (Indiana U. - USA)
- Michel Cosnard (Nice U. - France)
- Sato Sekiguchi (AIST - Japan)

Industrial Advisory Board (IAB)

IAB has four primary objectives:

- To communicate to the Network European Industry’s long-term Grid-related technology needs and challenges
- To provide the Network with Grid validation cases
- To help identify the market sector(s) to be addressed within the Grid User Community, in order to ensure a quick adoption of next generation Grid technologies within European industry
- To report to the Scientific Advisory Board its recommendation with respect to future strategic GRID-related research objectives
Industrial Advisory Board

First IAB meeting: June 15, 2005, at UPC, Barcelona

Report written by Monica Marinucci-Lopez, Oracle, CoreGRID IAB secretary

New Participant Task Force

• Set up end of the first year
  – No new participant for the first year

• Objectives
  – Set up procedures to integrate new participants
  – Interaction with the SAB, IAB, IMC and MGA

• Membership
  – D. Laforenza (MGA), B. Le Dantec (AFC), R. Perrot (IMC),
  T. Priol (SCO)
A set of well identified research challenges

Knowledge & Data Management
- Handling information/data that are required/produced by a wide range of diverse processing power

Programming Model
- Making the programming of Grid infrastructures as simple and transparent as possible

System Architecture
- Designing the next generation Grid middleware

Grid Information, Resource and Monitoring Services
- Scalable information service to implement a service view of the Grid

Resource Management & Scheduling
- Scheduling jobs/applications/tasks/computation within a Grid environment

Systems, Tools and Environments
- Integrating various middleware, tools and applications for problem solving

A Network operated as a European-wide Research Laboratory

CoreGRID Institutes

Knowledge Data Management
- Domenico Talia

Programming Model
- Marco Danelutto

System Architecture
- Artur Andrzejak

Grid Information, Resource & Monitoring Services
- Norbert Meyer

Resource Management & Scheduling
- Ramin Yahyapour

Systems, Tools and Environments
- Vladimir Getov
A set of services to foster Integration

- Coordinated approach to prepare project proposals
- Coordinated Programming of Partners’ activities
- Internal Collaboration and Dissemination
- CoreGRID Institutes
- Common Understanding Trust & Security
- Grid Testbed
- Annual Integration Workshop
- Mobility of researchers

Coordination approach for preparing joint research proposals

Goal: Provide assistance to the CoreGRID members in the preparation of international research proposals by:

- Establishing a list of funding sources relevant to the NoE’s activities
- Soliciting collaborative research (at least two countries involved);
- Evaluating the quality of the proposals prior to the submission (IMC).

The CoreGRID private website provides access to information on:

- Funding programmes at national and European level, including Marie Curie Actions & IST programme;
- Accepted proposals;
- Rejected proposals .

url: http://www.coregrid.net/mambo/content/view/117/123/
CoreGRID Integration Workshop

- Annual workshop to discuss . . .
  - possible overlaps and synergies between partners within every Institute, and between Institutes,
  - interdisciplinary topics within the NoE,
  - future collaboration activities.

- Workshop schedule
  - Workshop 2004: Future Generation Grids
    - 1.-5.November 2004, Dagstuhl/Germany
    - 45 invited participants, about 40 from CoreGRID
    - Selected papers after reviewing --> second book in the CoreGRID Series by Springer-Verlag
  - Workshop 2005: To present and discuss the results of integration in Year 1 (held 28-30.11.05 in Pisa)
  - Workshop 2006: planned for October 2006

CoreGRID Integration Workshop 2005

- Summarized the integration work of Year 1
- 28-30 November in Pisa
- 124 attendees: All partners, SAB and IAB.

- 50 reviewed presentations, incl. 46 cooperation papers:
  - 23 full (20 min)
  - 27 short (10 min)
- 179 authors
- 2 keynote speeches (SAB and IAB)
- 2 general discussions (Trust & Security, Panel)

- Preliminary Proceedings: both printed and electronic versions
- Selected papers → Book by Springer-Verlag (early 2006)
Activities on Trust & Security

- A horizontal integration activity across the NoE, with the following objectives:
  - Provide survey material summarising work on trust and security carried out outside CoreGRID
  - Conduct a critical analysis of the requirements of each CoreGRID research WP from a trust and security perspective
  - Establish a Web portal on Trust & Security, as a communication forum on these issues
  - Liaise with standardisation organisations (GGF, W3C, IETF, OASIS) and other Grid projects

Web Portal on Trust and Security

- Serving as a communication forum on Trust & Security for the Grid community
  - http://www.coregrid.net/mambo/content/view/192/181/

- Includes information about
  - Projects
  - Tools
  - Research groups
  - Events related to the area

- Will be updated regularly
Testbed Activities

- **Objective**: giving support by collecting and providing to the NoE:
  - experience made in existing CoreGRID testbeds,
  - information about testbeds in European and national Grid projects,
  - general best practice information with respect to operating Grids,
  - frequent problems and possible solutions.

- We give support for facilitating the access to testbeds by mediating between CoreGRID Grid testbed providers and other CoreGRID partners needing access to a testbed

- We do not create a common, unique CoreGRID testbed, e.g.
  - based on a common middleware,
  - with a common security approach,
  - with a network infrastructure based on VPNs,

Durable mobility of researchers

- **Internal mobility is essential for integration and to ensure stronger co-operation among partners, promote career development and mobility**

- **2 activities**:
  - **Fellowship Programme** - Young researchers hosted by two institutes for two distinct periods ~ 600 k€
    - CALL 1, JANUARY 2005 (12 applications and 3 candidates selected)
    - CALL 2, MAY 2005 (28 applications and 4 candidates selected)
    - CALL 3, DECEMBER 2005 (5 positions offered)
  - **Research Exchange Programme** - Researcher or student from 1 member to another, two weeks to six months ~ 480 k€
    - Exchange visit in Dortmund (8 weeks)
    - Exchange visit in Cyprus (20 weeks)

- **Search for external sources of funding is also needed, e.g. the Marie-Curie-Programme**

- **Mobility web portal available at the CoreGRID web site**
CoreGRID

A set of Services to Spread Excellence

- Training & Education
- Brochures
- Conferences
- Newsletter
- Sponsorship
- Link with the Industry
- Grid User Community

CoreGRID Institutes

Research Groups

Public Web Site

Publications
- Technical Reports
- White Papers

Pierre Guisset

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Monday, Mobility Portal

Encourage exchange of personnel and staff mobility

The network have a specific mobility programme, and allocates substantial funding to it. It is, however, recognized that mobility alone is not enough. A set of Services and Facilities to Spread Excellence must be developed to provide a more comprehensive program for the diffusion of excellence.

The mobility for the researchers will consist of scientific visits and research stays between members ofiliki (smart) institutions, as for example those involved in the same research area. Typical stay will be of one month, although stays, and funding, could be extended. An exchange of seminars and conferences is an important component of the program.

The CoreGRID Fellowship Programme (CFP) is inspired by the Marie Curie Fellowship Programme, aimed at stimulating research cooperation between the European leading in the area of Grid, Peer-to-Peer and other distributed applications. The CFP is intended for researchers and students working in specific areas, who are expected to return to their home institution with new knowledge and skills.

In addition to the training activities, the CFP will promote career development, and ensure that the network of excellence in the research environment.

Public Website

www.coregrid.net
- Internal and External Communication
- Regularly updated
- Visitors counted since mid April 05
  - Apr 14: 90,508 visits
  - May 31: 123,000 visits
  - Aug 26: 227,701 visits
  - Dec 2: 337,631 visits
- Visibility: score of 8/10 in the Google PageRank

36% from non-european countries

CoreGRID Publications

Objectives
- To gather information on publications in journals, edited books, proceedings of conferences and workshops from CoreGRID researchers
- To disseminate the results of the network by publishing Technical Reports
- To publish white papers related to Grid technologies

Results
- Many joint scientific publications in proceedings, journals and edited books during the first year
- 18 CoreGRID Technical Reports available
- 3 planned White Papers
- A publication database
CoreGRID Springer series

CoreGRID negotiated a series of books with Springer

3. Vol 3: Proceedings on the 1st CoreGRID Workshop on Knowledge and Data Management in Grids (to appear)

Grid User Community & Newsletter

Grid User Community
- Electronic mailing list
- Scientific – Industry – Public
- Expanded through other Newsletter mailing lists

Quarterly Newsletter
- Nr. 1: February 2005
- Nr. 2: May 2005
- Nr. 3: September 2005
- Nr. 4: January 2006
- Editorial board: Anne Falier, Rosa Badia, Ron Perrott, Vladimir Getov, Thierry Priol, Domenico Laforenza and Per Brand
- Sent to the GUC
- Infos relayed by other Newsletters
CoreGRID Brochure

- Electronic & Paper (4,000 copies)
- Set-up CoreGRID visual identity

Training & Education activities

- Training and Education Website
- Annual CoreGRID Summer Schools
- In 2005:
  - EPFL, Lausanne, Switzerland, 5-9 September
  - Targeted to young computer science PhD students
  - 40 participants (fully booked)
And More

NCOS Workshop
Brussels
March 16-17, 2005

In the Media also:

Chiarotl, capitale européenne du «Grid»

Le Cégep du Vieux-Montréal a choisi d'investir dans un centre de recherche sur les technologies de la «grid». Ce choix doit permettre à l'établissement d'être une force dans le secteur de la viabilité, une activité en constante évolution. L'inauguration de l'établissement a eu lieu vendredi dernier. Le centre de recherche, lequel est conçu par le CCHEC (Collaborative Computational Environment for Higher Education), vise à supporter l'adoption des technologies du «grid» dans les domaines de la recherche et de l'enseignement. La technologie du «grid» permet de partager les ressources informatiques et deくなる.
Collaboration with other EU Grid projects

- Exploitation of synergies / technical concertation
- Repository of reference implementations and Grid middleware
- Joint fora for exchange and dissemination
- Training activities
- Co-ordination of standardisation efforts
- Collaboration on research inventories and roadmaps
- Indicators and impact assessment

Conclusion

CoreGRID started in September 1st, 2004
- A very active project that has completed successfully its first year
- Funding from the EC: 8.2 M€ for the first 4 years
- Involvement of the main European Key players in Grid computing (both institutions and researchers)
- The only one Network of Excellence in Grid funded by the EU