Red española de e-Ciencia

Fostering Spanish Scientific Activity by Means of Collaborative Use of Distributed Resources

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Scientific Coordinator

Previous History
The Spanish Network for e-Science

- IRIS Grid (http://www.irisgrid.es/doc/Folleto.pdf)

- The White Book of e-Science (http://www.fecyt.es/e-ciencia/libroblanco.htm)

- E-Science activities in Spain: Astronomy and Space, Biomedicine, Material Engineering, Earth Science, Physics, Computational Chemistry, etc.

- The National Research Network (RedIRIS) and the Connection to the European Network GEANT as the Basic Communication Infrastructure.

- Participation of the Spanish Research Centres in Projects and Initiatives as EGEE, DEISA, EELA, LHC, the Spanish Supercomputing Network, etc.

- Need of a Global Coordination of all the Activities, Development of Common Tools and Easy Access to the Research Resources: To Promote the Creation of a National Program of e-Science.

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Background
The Spanish Network for e-Science

- The Spanish Network for e-Science (CAC-2007-52) is a Network Initiative Funded by the General Directorate of Technological Policy of the Spanish Ministry of Science and Education under the R+D+i Plan 2004-2007.
- It was Officially Approved on December 2007.
- The UPV is the coordinating institution.
- Main Mandate: To Set up a National Grid Initiative in Spain

    – An NGI is "an Entity **Recognised** at **National Level** and Established as a **Single Contact Point** that **Operates** a **General Purpose e-Science Infrastructure**, Supporting **Different User Communities**, and Able to **Mobilise Resources** and to **Contribute** and **Adhere** to **International Standards** and **Policies**" (*).
    – On the International Context of the European Grid Initiative

(*)Source: *EGI (www.eu-egi.org), e-IRG (www.e-irg.org)*

- Also supported by the action ICTS-2008-12
  - Support action to start the Internal competitive call for pilots.
  - Focus on Technology Transfer.
- Second Phase Officially approved in December 2009 (ICTS-2009-22).
  - More focused on User Support.

Participant Groups
The Spanish Network for e-Science

- More than 1000 Researchers.

- 97 Research Groups.

- More than 45 Institutions.
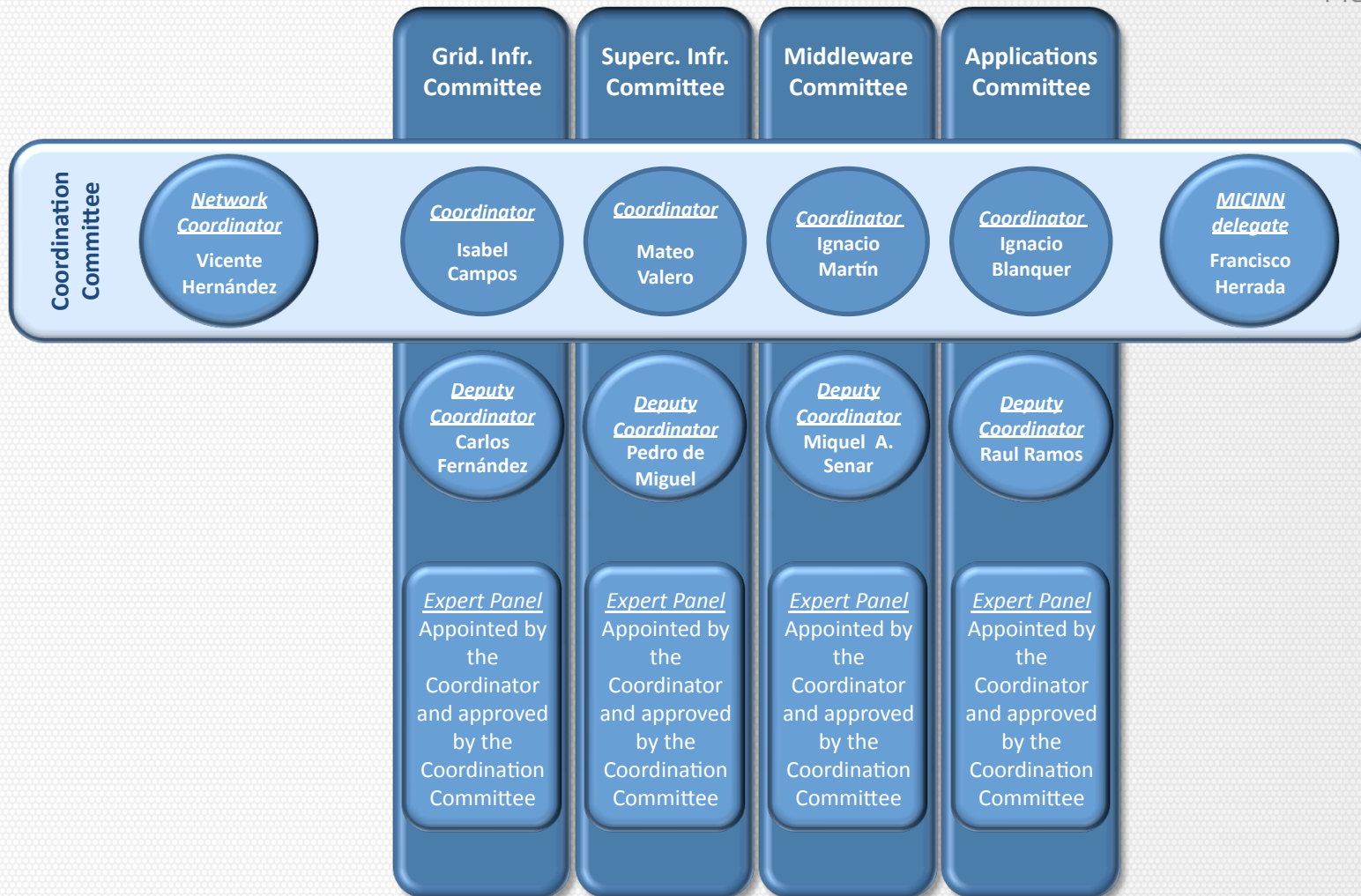
- Dynamic Structure
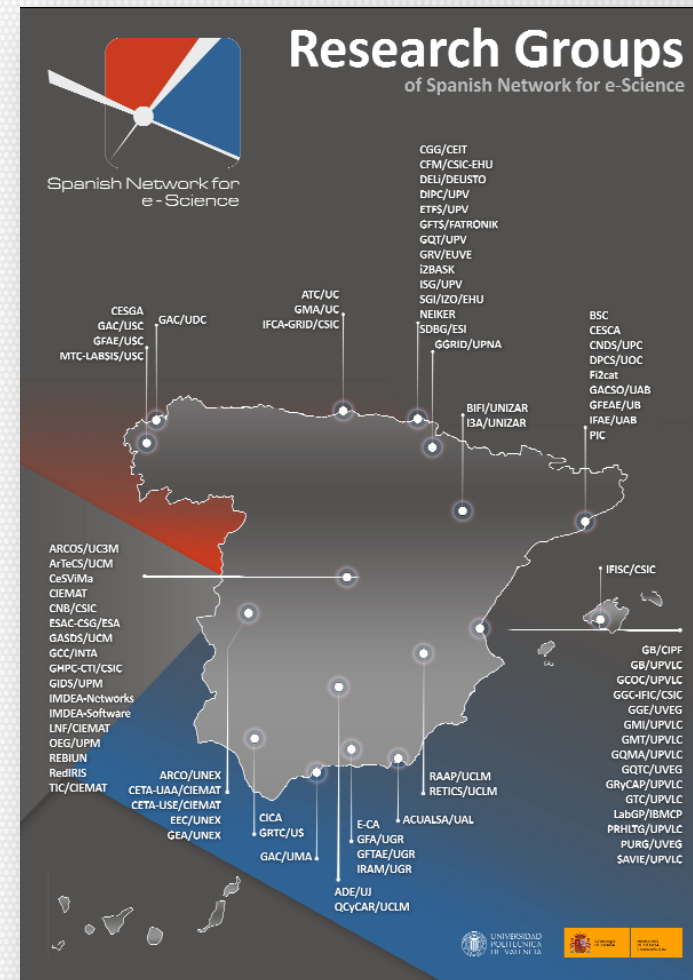
Objectives of the Network
The Spanish Network for e-Science

- To Promote and Coordinate the Development of the e-Science in Spain.
- To coordinate the Spanish e-Infrastructures from the point of view of , management, operation and user support.
- To Become the National Speaker for e-Science in the European framework.
- To foster the Cooperation with other Programs and Projects.
- To promote the Collaboration with Portugal (IberGrid) and other Countries in the e-Science Context.
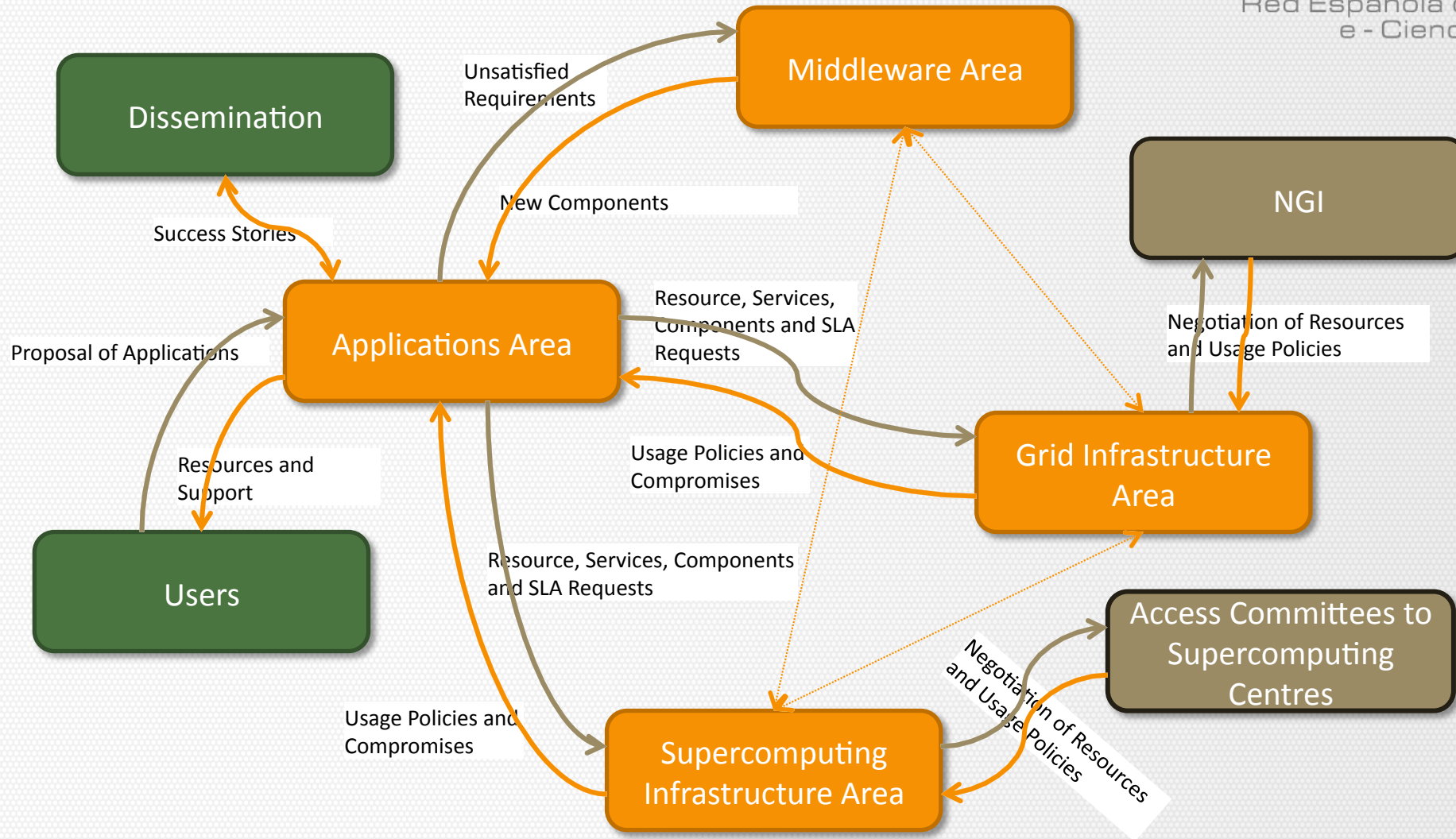- To transfer the Network results, and to train people.

Coordination Board
The Spanish Network for e-Science

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	Grid. Infr. Committee	Superc. Infr. Committee	Middleware Committee	Applications Committee

Coordination Committee

| *Network Coordinator* Vicente Hernández | *Coordinator* Isabel Campos | *Coordinator* Mateo Valero | *Coordinator* Ignacio Martín | *Coordinator* Ignacio Blanquer | *MICINN delegate* Francisco Herrada |

| *Deputy Coordinator* Carlos Fernández | *Deputy Coordinator* Pedro de Miguel | *Deputy Coordinator* Miquel A. Senar | *Deputy Coordinator* Raul Ramos |

| *Expert Panel* Appointed by the Coordinator and approved by the Coordination Committee | *Expert Panel* Appointed by the Coordinator and approved by the Coordination Committee | *Expert Panel* Appointed by the Coordinator and approved by the Coordination Committee | *Expert Panel* Appointed by the Coordinator and approved by the Coordination Committee |

General Workflow
The Spanish Network for e-Science

Dissemination

Middleware Area

NGI

Unsatisfied Requirements

New Components

Success Stories

Applications Area

Resource, Services, Components and SLA Requests

Negotiation of Resources and Usage Policies

Proposal of Applications

Resources and Support

Usage Policies and Compromises

Grid Infrastructure Area

Users

Resource, Services, Components and SLA Requests

Access Committees to Supercomputing Centres

Usage Policies and Compromises

Supercomputing Infrastructure Area

Negotiation of Resources and Usage Policies

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Achievements per Areas
The Spanish Network for e-Science

Applications Area
- 21 Applications.
- 15 Pilots.
- 15 Support Groups.
- 16 VOs in production.
- 12 Internal collaboration projects.

Grid Infrastructure Area
- 5000 cores in production + ½ PByte.
- 15 resource providers.
- 2 Middlewares (gLite & GT4).
- Compliant to EGI policies.
- Monitoring, Accouting, Operation and Support Services.

Middleware Area
- Identification of new requirements and components.
- Interest on Cloud, interactivity, Interoperability and Integration of HPC and Grids.

Supercomputing Infrastructure Area
- Link to the Spanish Network for Supercomputing and the Autonomic centres.
- Development of Joint Boards and Strategies.

Web Site
The Spanish Network for e-Science

- Web: www.e-ciencia.es
  - Internal and External Communication of the Activities of the Network, Events and Work Material.

- Wiki: www.e-ciencia.es/wiki
  - In Continuous Development and Open to all the Participants of the Network for the Collaboration and Exchange of Information.
  - Structured in Areas.

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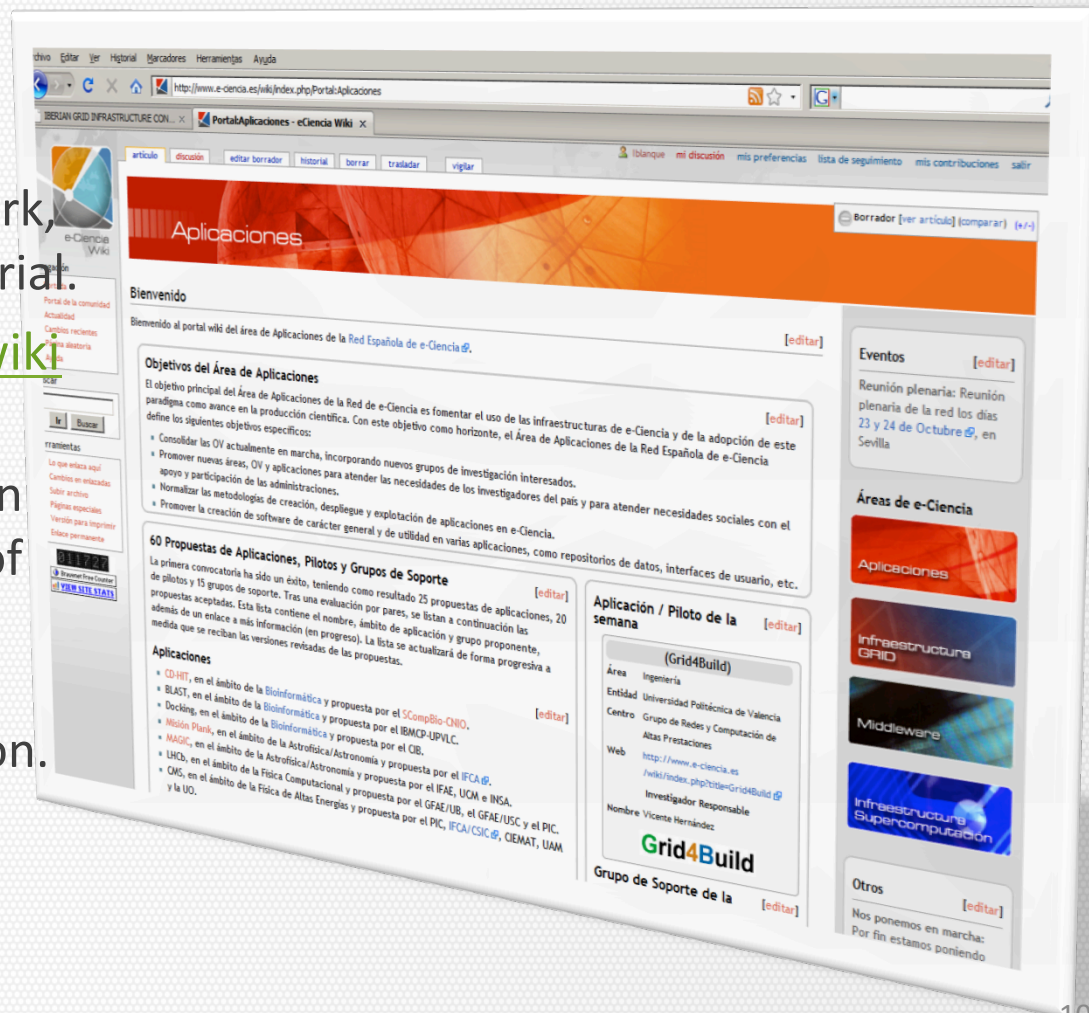
The Spanish National Grid Infrastructure

The Spanish Network for e-Science

The Spanish NGI: ES-NGI
The view of the MICINN

- The Spanish National Grid Initiative (ES-NGI) is "a distributed and virtual infrastructure that uses Grid Technology to link computacional resource centres".

- The objective of the shared use of the resources is a joint efficient management of those resources to offer a computational service to improve R&D quality in Spain.

- One of the aims of the Ministerio de Ciencia e Innovación (MICINN), through the "Secretaría de Estado de Investigación", aims at promoting the development and coordination of Singular Scientific-Technical Centres, as well as the feasibility study of future installations, in collaboration with the "Secretaría General de Innovación".

- The coordination of the initiatives in e-Science, including those related to Grid Infrastructure, are part of the mandate of the MICINN according to the cross-border nature of Science and Innovation.

The Spanish NGI: ES-NGI

- On July 2009, at the same time of the starting of the activities of the European Grid Initiative (EGI.EU), the MICINN designated the Instituto de Física de Cantabria, as the Spanish representative for the National Grid Initiative at European Level.

- This nomination is formalised through a service commendation from the MICINN to the CSIC to practice the representation of the Spanish NGI at European Level.

- ES-NGI is fully integrated in the EGI.eu and Follow their Policies.

- It participates in the EGI-Inspire Project in a "federated" way with Portugal
  - Sharing responsiblities
    - User Technical Support Activity is shared between Spain and Portugal.
  - Virtually operating as a single Distributed "ROC".

The Applications

The Spanish Network for e-Science

Objetives of the Application Area
Applications Area

- To Consolidate Current Virtual Organisations, Increasing the Groups Involved, through the Development of Applications
  - Scientifically Relevant Experiments in a Mature Status, Near to be Ready to Execute on the Grid.

- To Promote New Areas, Virtual Organisations through Pilots
  - Test Activities that Could Prove the Benefits of e-Science Approach.
  - Immature Applications that Require Extensive Porting.

- To Normalise the Methodologies and To Promote General-Purpose Software Through Support Groups
  - Experienced Groups who Offer their Experience to Create Stable Partnerships with Users for the Adaptation of Applications.

Application Access Procedure
Applications Area

First Step

- Open Calls for Pilots, Applications and Support Groups from the Members of the Network.
- Submission of Proposals By Filling-in Short Questionnaires.
- Each one Peer-Reviewed by two Members of the Expert Panel.
- Enables Publication and Access to Resources.

Second Step

- Autonomous Migration or Pre-existing Collaboration.

- Internal Call for Supporting the Technology Transfer.
- Sign-up of Contracts with Support Groups to Adapt and Deploy User's Applications.

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Applications Area

- The First Call has Ended up with 20 Approved Proposals for Applications, 22 for Pilots and 14 for Support Groups
    - 16 New Applications or Pilots have been Started.
    - Application-specific Vos are being Created for Accountability.
    - Applications Should Renew their Interest Periodically.

- The Internal Call for Co-Funding Through Contracts Technology Transfer Received 9 Proposals.
    - Currently Under Evaluation.
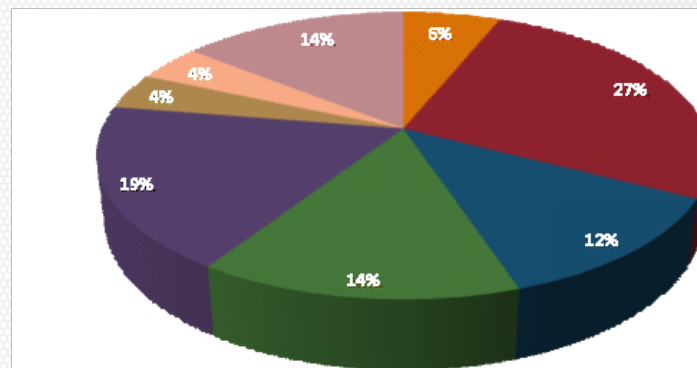
- Bioinformática / Biotecnología.
- Ingeniería.
- Ciencias de la Tierra.
- Química Computacional.
- Física Computacional y de Altas Energías.
- Astrofísica / Astronomía.
- Matemáticas.
- Tecnologías de la Información y Comunicaciones.

Collaboration between Spain and Portugal

- The IMEDGRID case
  - Set-up of a collaborative environment to federate Mammograms and other Breast Cancer images among centres of Spain and Portugal.
  - Integration of DICOM-SR capabilities with automatic feature extraction.
  - Integration of DRI (CETA-CIEMAT) and TRENCADIS (UPV) technologies.
- Collaboration among two countries
  - Spain: UPV, CETA-CIEMAT, Hosp. Univ. Dr. Peset.
  - Portugal: INEGI, Hosp. São João.
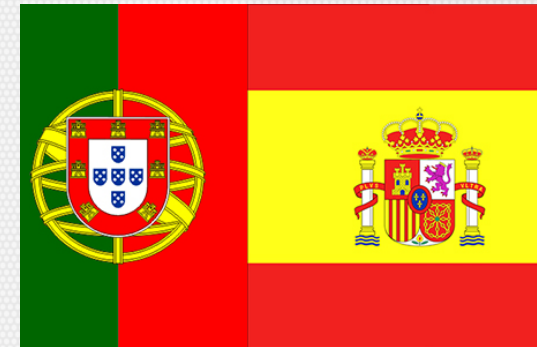
The Spanish Network for e-Science and the NGI

- The Spanish Network for e-Science has clear interactions with the Spanish NGI
  - The NGI takes the responsibility of the operation of the infrastructure and the coordination with EGI.
  - The Spanish Network for e-Science provides support for Users in the form of:
    - Application stimulation and selection.
    - First-level User support.
    - Documentation and Training activities.
    - Networking and Liaison.
    - Dissemination and Communication.

Application Stimulation and Selection

- Objective
  - Consolidate and enlarge the Number of Projects and Collaborations.

- Tasks (I)
  - Management of National VOs.
  - Development of a Common Portal for the Access to the Infrastructure.
  - Support to the Specific Needs in Software of VOs.
  - Support the integration of new models for Resource Provision.

- Tasks (II)
  - Creation of New Thematic Work Groups (Biomedicine and Health, High Energy Physics, Astrophysics, etc.).
  - New internal calls for Applications, Pilots and Support Groups.
  - New editions of the Internal collaboration call.

New activities in the Spanish Network for e-Science

- The Activities in 2010 will be complemented with:
  - Training
  - Data Repositories
  - User Support

Actividades de Soporte a Usuario

- Objectives
  - To provide users with first-line support to assist them on the support of fundamental problems.
  - To provide users with a proactive technical support for VO-specific resources.

- Actions Planned
  - Start-up of a helpdesk platform.
  - Inventory of expertise.
  - Creation of "on-duty" answer turns.

Training Activities

- Highly demanded activity in the First Phase of the Spanish Network for e-Science.

- Objectives
  - To transfer the knowledge about efficiently using e-Infrastructures to the users' community.
  - To set-up a knowledge basis for self-training.

- Actions Planned
  - Set-up of the training platform.
  - Collection of material and examples
    - About infrastructure and applications.
  - Organisation of presential and on-line courses.

- A Main Objective for the Last year is To Reinforce the Innovation and Technology Transfer
  - The Network is a Framework that Comprises Research Groups with High Level Results:
    - Applications, Services, Middleware Components, Capacities, etc.
  - The Network Aims at Improving Collaborations and New Results.

Collaborations in the Frame of IBERGRID

- IBERGRID
  - The infrastructure of ES-NGI has been designed considering a common management between Spain and Portugal
    - The success of the distributed SWE-ROC in EGEE.
  - Agreements were analysed to support certified grid applications in Portugal to run in Spain, and vice-versa.
  - Support for the IBERGRID conference
    - The Spanish share of the conference is paid through the Network.
    - Support to IBERGRID 2008, 2009 and 2010.

Digital Repositories

- Área en Proceso de Creación.

- Interés por Parte de Numerosos Grupos de la Red y Grupos Portugueses.

- Orientado tanto en su Vertiente Tecnológica como de Contenidos.

Networking Liaison

- Organisation of a yearly pleannary meeting.
  - An open meeting for all the members of the Spanish Network for e-Science.
  - A one-day / one and a half day meeting for updating progress and setting-up liason among developers and users.
  - Financially covered by the Network.

Networking, Liaison and Dissemination
www.es-ngi.es

Conclusions
The Spanish Network for e-Science

- The Spanish Network for e-Science has Already Achieved all the Main Milestones that were Planned.

- This work will Continue Giving Support to the Spanish User Communities in coordination with ES-NGI and EGI-inSPIRE.

- Cooperation with Portugal is very intense in the frame of the IBERGRID collaboration.

- Its Open Nature and the Voluntary Effort of a Dynamic Community have made It Possible.