Spanish Network for e-Science

Fostering Spanish Scientific Activity by Means of Collaborative use of Distributed Computational Resources

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GOBIERNO DE ESPAÑA

Entidad Coordinadora:
UNIVERSITAT POLITÈCNICA DE VALÈNCIA

Previous History

The Spanish Network for e-Science

Spanish Network for e-Science

- 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.

The Spanish Network for e-Science

Background

Spanish Network for e-Science

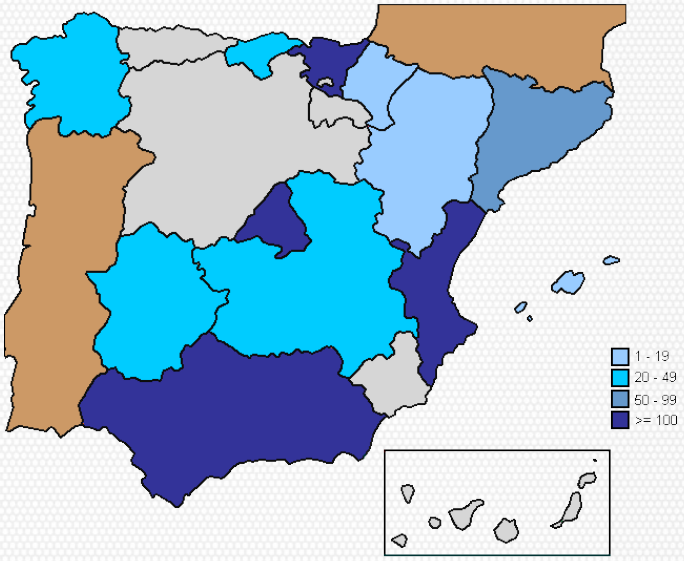
- The Spanish Network for e-Science (CAC-2007-52) is a Network Initiative Funded by the General Directorate of Technological Policy of the Spanish Ministry of Science and Education under the R+D+i Plan 2004-2007.
- It was Officially Approved on December 2007.
- The UPV is the coordinating institution.

The Spanish Network for e-Science

Members

Spanish Network for e-Science

- Around 700 Researchers.
- 68 Research Groups.
- More than 40 Institutions.



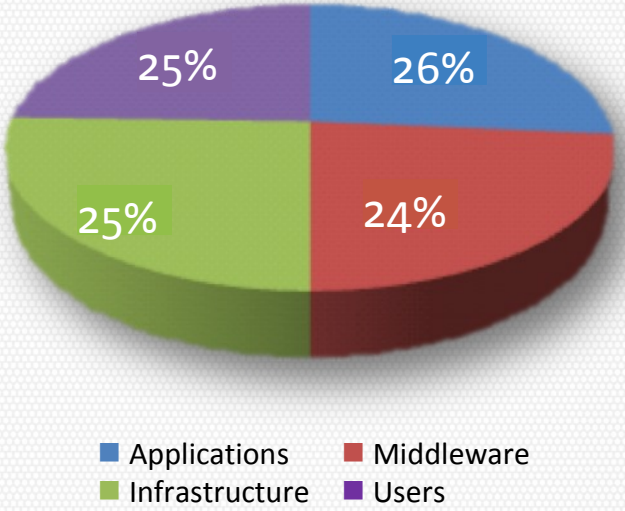
- Grupo de Arquitectura de Computadores y Diseño Lógico / Univ. de Extremadura
- Grupo de Arquitectura de Computadores, Comunicaciones y Sistemas, Univ. Carlos III de Madrid
- Architecture and Technology of Computing Systems Group / Univ. Complutense de Madrid
- Grupo de Clusters y Grid Computing / Instituto de Biocomputación y Física de Sistemas Complejos / Univ. de Zaragoza
- Barcelona Supercomputing Center
- Consorci Centre de Supercomputació de Catalunya
- Grupo de Computación de Altas Prestaciones y Grid / CESGA
- Centro de Supercomputación y Visualización de Madrid / Univ. Politécnica de Madrid
- Computer Graphics Group / Centro de Estudios e Investigaciones Técnicas de Gipuzkoa
- Centro Informático Científico de Andalucía / Junta de Andalucía
- Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas
- Grupo Centro de Motores Térmicos / Centro de Motores Térmicos / Univ. Politécnica de Valencia
- Unidad de Biocomputación / Centro Nacional de Biotecnología/CSIC
- Grupo de Gestión de Contenidos y Grid Semántica / Univ. de Deusto
- Donostia International Physics Centre / Univ. del País Vasco
- Distributed, Parallel and Collaborative Systems Group / Univ. Oberta de Catalunya
- Creación de una infraestructura de e-Ciencia Andaluza / CSIC
- European Theoretical Spectroscopy Facility / Univ. del País Vasco UPV / EHU

The Spanish Network for e-Science

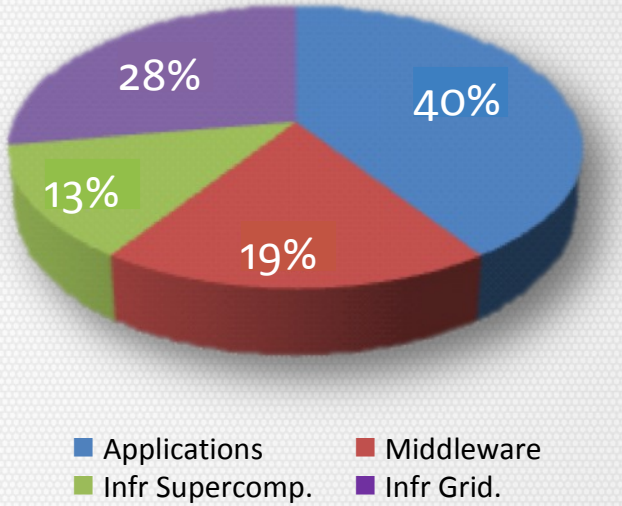
Profiles of the Members

Spanish Network for e-Science

- Evenly Distributed in Application Development, Middleware, Infrastructure Development, and Users.



- With an Important Interest on Applications.



The Spanish Network for e-Science

Objectives of the Network

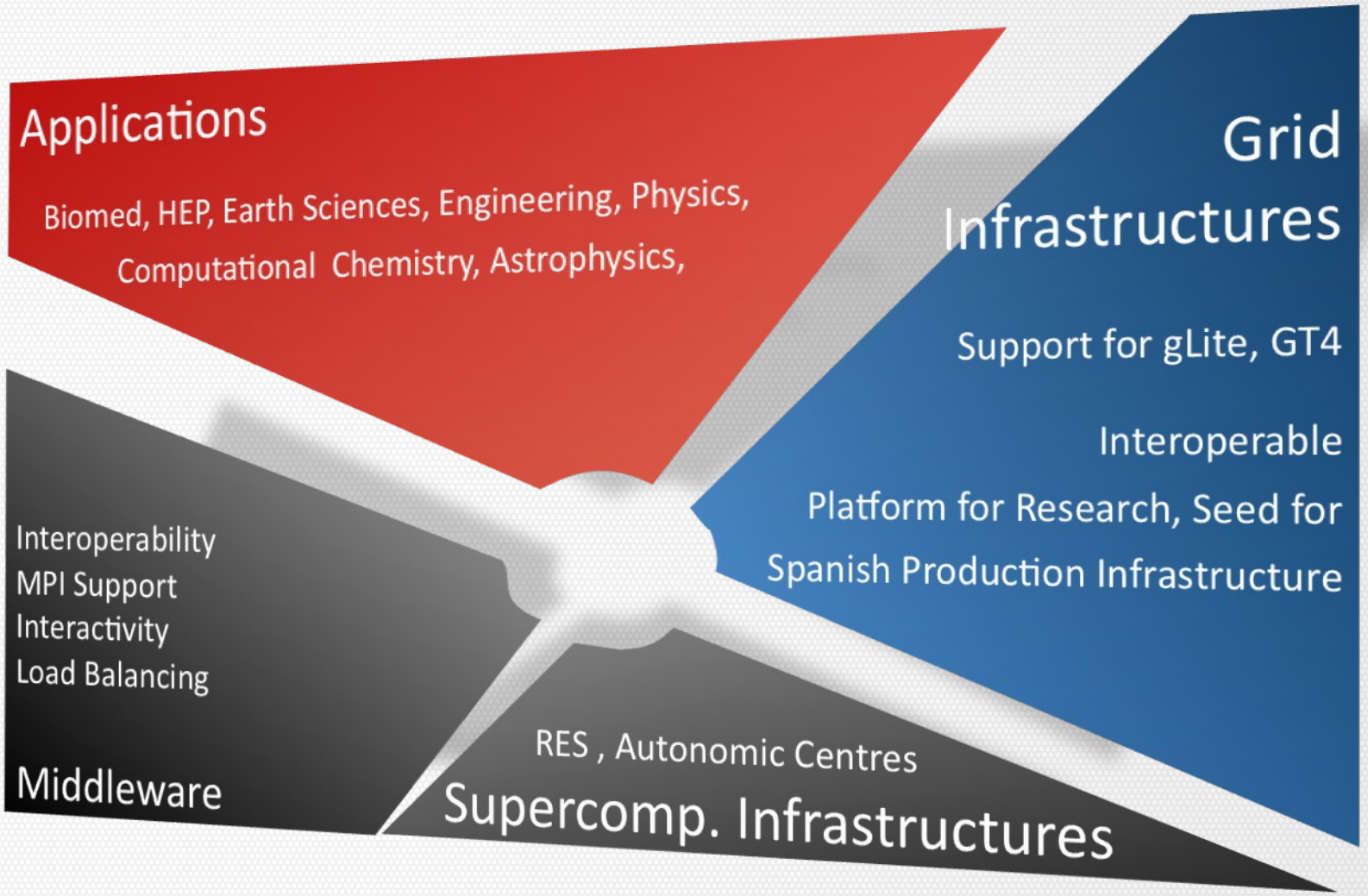
Spanish Network for e-Science

- To Promote and Coordinate the Development of the e-Science in Spain.
- To coordinate the Spanish e-Infrastructures from the point of view of required investments, 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.

The Spanish Network for e-Science

Main Areas

Spanish Network for e-Science



The Spanish Network for e-Science

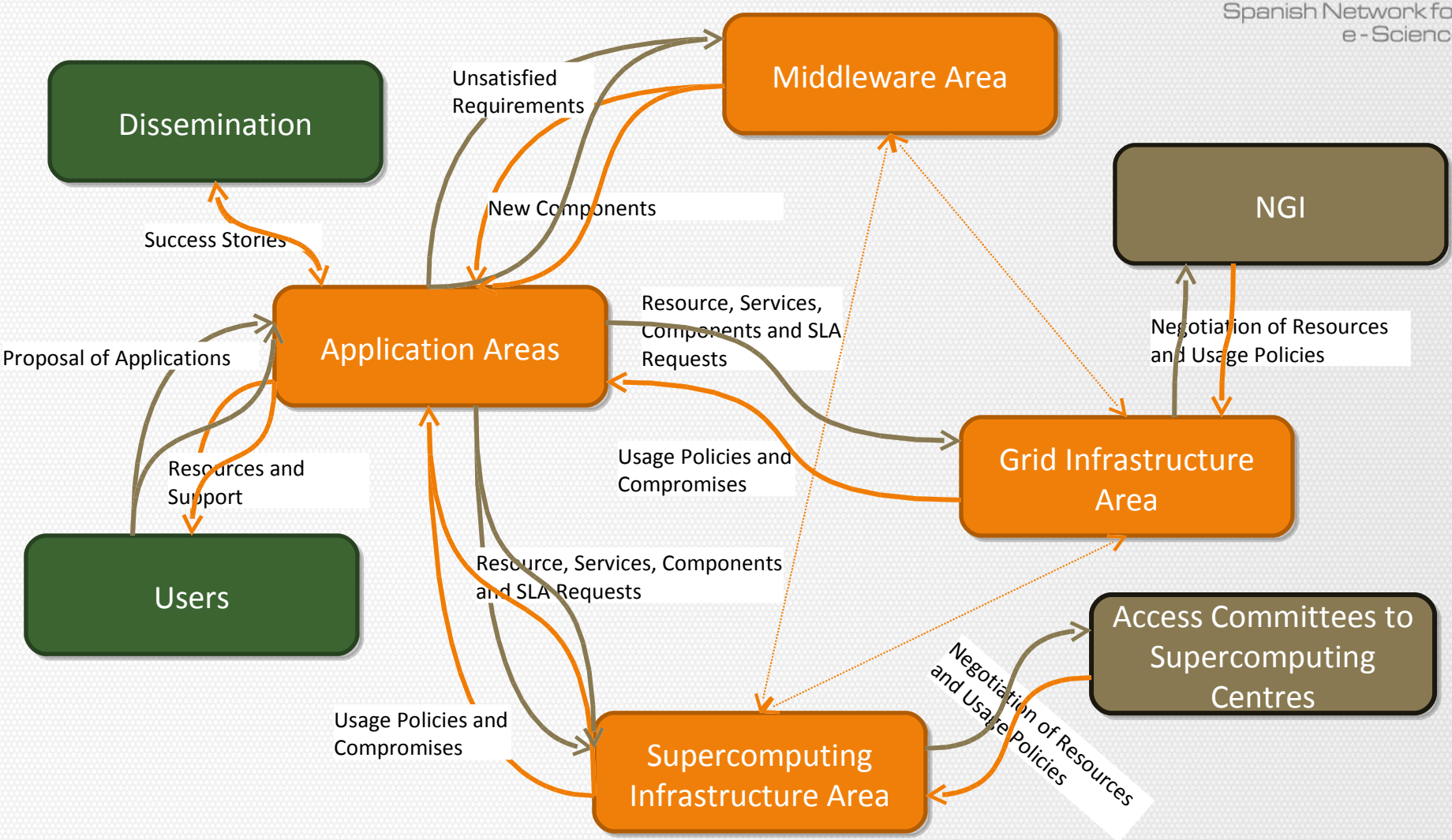
Organisational Structure

Spanish Network for e-Science

The Spanish Network for e-Science

General Workflow

Spanish Network for e-Science



Grid Infrastructure Area

Grid Infrastructure Area

Objectives

Spanish Network for e-Science

- 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)*

Setting up the Spanish NGI Infrastructure

Grid Infrastructure Area

Spanish Network for e-Science

- This Infrastructure is Articulated by The Contribution of Resources by the Participant Groups.
  - The Infrastructure Must be Constructed on Top of Existing Resources. Interoperability of gLite and GT4 is a Key Issue.
- The Spanish Government Could Evaluate the Need to Fund such Infrastructure
  - If the Benefit for Researchers is Proven and Demonstrates an Economic Scale Factor.
  - If its Impact can be Quantitative Evaluated.
- Up to Now, 18 Centres are Willing to Participate.
  - Including the Support For Central Services, such as Certification.

Supercomputing Infrastructure Area

Supercomputing Infrastructure Area

Objectives

Spanish Network for e-Science

- Collaboration Among the Spanish Network for Supercomputing and the Autonomic Supercomputing Centres
- Coordination Among Grid Infrastructures and Supercomputing Infrastructures.
- Participants
  - Spanish Network for Supercomputing (RES)
  - Autonomic Supercomputing Centres.
- Objectives
  - Progress for Sharing an Access Committee to the Infrastructures.
  - Coordinate with the Grid, Middleware and Application Areas in the Development of Joint Activities.

Middleware Area

Middleware Area

Objectives

Spanish Network for e-Science

- To Identify and Analyse the Requirements of Infrastructures and Applications for Defining Middleware Strategic Projects.
- To Coordinate and Support the Execution of Middleware Projects.
- To Promote and Support new Components and their Deployment on the Infrastructure.
- To Represent The National Middleware Community in Specialised Forum.
- Objectives
  - Concentrate on High-Level Components, Closer to the Final User or to the Infrastructure Manager.
    - The Basic Middleware (GT, gLite and UNICORE) is Mature.
  - To Set-up a Platform to Support Research Groups in the Area of Middleware, in the Framework
  - Access to the Production Infrastructures Through External or Own Certification Processes.

Applications Area

Applications Area

Objectives

Spanish Network for e-Science

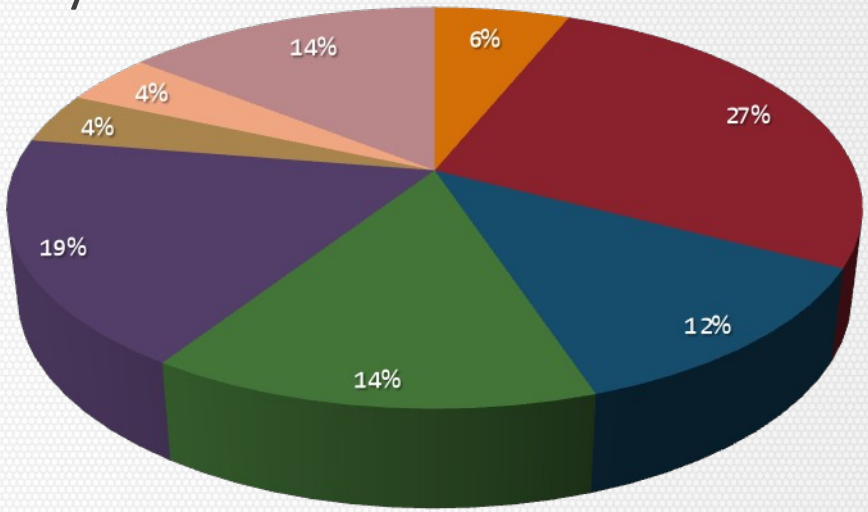
- To Consolidate Current Virtual Organisations, Increasing the Groups Involved.
- To Promote New Areas, Virtual Organisations and Applications.
- To Normalise the Methodologies for Analysis, Migration, Deploy and Exploitation of e-Science Applications.
- To Promote the Creation of General-Purpose Software.

Applications Area

Application Areas

Spanish Network for e-Science

- Biomedicine / Bioinformatics / Biotechnology.
- Engineering.
- Earth Sciences.
- Computational Chemistry.
- High Energy Physics / Computational Physics.
- Astrophysics / Astronomy.
- Mathematics.
- Information and Communication Technologies.



Applications Area

Support

Spanish Network for e-Science

- E-Science Implies Not Only Computational Resources
  - It is Important to Consider Data, Scientific Resources and Collaborative Environments.
- The Network for e-Science will Foster and Assist the Complete Cycle of Grid Applications
  - By Means of Collaborations and Persistent Expert Teams.
  - By Means of External Projects.
- The Network will Provide the Channels for the Communication Across Infrastructure, Middleware and Application
  - Create Single Contact Points Access to Infrastructures.
  - Provide Analysis and Support for the Applications.

The Spanish Network for e-Science

Latest Information

Spanish Network for e-Science

- http://www.e-ciencia.es
- General information on the Network.
- Specific information on the Application, Middleware, Grid Infrastructure and Supercomputing.
- Details on Events Organised by the Network and other Related Events.