

Project name:  
EELA

Contract no.:  
IST-026409

Project type:  
SSA

Start date:  
1/01/2006

Duration:  
24 months

Total budget:  
2568320€

Funding from the EC:  
1700000 €

Total effort in person-month:  
1109

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Project participants:

CECERJ/CEDERJ	BR
CERN	EU
CIEMAT	ES
CLARA	LA
CSIC	ES
CUBAENERGIA	CU
INFN	IT
LIP	POR
RED.ES	ES
REUNA	CL
RNP	BR
SENAMHI	PE
UC	ES
UDEC	CL
UFF	BR
UFRJ	BR
ULA	VE
UNAM	MX
UNLP	AR
UPV	ES
UTFSM	CL



E-infrastructure shared between Europe and Latin America

EELA (E-infrastructure shared between Europe and Latin America) project aims to build a digital bridge between the existing e-Infrastructure initiatives that are in process of consolidation in Europe and those that are emerging in Latin America, throughout the creation of a collaborative network that will share an interoperable Grid infrastructure to support the development and test of advanced applications. In its collective effort, EELA will start up a common infrastructure in Latin America and Europe, interconnected by means of RedCLARA and GÉANT networks, in which certain applications of general interest will be implemented: Biomedicine, High Energy Physics, e-Education and Climate. Due to the scope of its action, EELA will help to reduce the digital divide in the Latin-American region, making available to researchers a very powerful e-Infrastructure on which to make complex investigations in a simple way, which can be extended in the future to serve as basis for a greater community of users.

Specific Support Action

## Objectives

The overall goal of the EELA project can be summarised in three main objectives:

Establishing a human collaboration network: the European institutions expertise on Grid operations, already active in EGEE project, will support the current emerging activities at Latin American institutions.

Setting up a pilot e-infrastructure in LA (Latin America), interoperable with the existing EGEE one in the EU (European Union). This will enable a dissemination of knowledge towards research communities via two lines: the technical know-how in sharing a computing infrastructure using Grid technology, and the possibility to test and execute enhanced applications by means of researchers collaboration.

Identifying and promoting a sustainable framework for e-Science: the project aims to establish a long-term framework for collaboration in research and e-Infrastructure management and operation between Europe and Latin America. So, not only the communities involved, but also the mechanisms for a long-term support, will be considered and exploited.

## Action Plan

The major thrust of the EELA project is to connect the activities of Latin American scientific communities and European initiatives of investigation in the field of computer science of high yield, storage and shared use of networks of communication towards a unified distributed platform e-Science. The EELA infrastructure will exhaustively use the already existing networks, GÉANT and RedCLARA.

The EELA project is divided in four Work Packages. While the Work Package 1 deals with the Project Administrative and Technical Management, the support activities are implemented in the other ones. The Work Package 2, named Pilot Testbed Operation and Support, makes operative the infrastructure between LA and EU, implements services oriented to provide access, assures an efficient provision of these services and provides a framework for final users. The Work Package 3, designated Identification and Support of Grid Enhanced Applications, deploys High-Energy Physics and Biomedical EGEE applications, and shows the interest of enhanced applications of huge appeal for both Latin American and European countries, namely e-Education and Climate. Finally, the Work Package 4, denominated Dissemination activities, imparts the Grid knowledge.

## International Aspects

EELA seeks to establish a human collaboration network between Europe and Latin America. The European institutions expertise on Grid operations already active in EGEE, e.g. CERN (Switzerland), CIEMAT (Spain), CSIC (Spain), INFN (Italy), LIP (Portugal), and UPV (Spain), will support the current emerging activities at Latin American institutions, e.g., CECIERJ/CEDERJ (Brazil), CUBAENERGIA (Cuba), UFF (Brazil), UFRJ (Brazil), ULA (Venezuela), UNAM (Mexico), SENAMHI (Peru), UNLP (Argentina), UDEC (Chile) and UTFSM (Chile).

## User Communities

The project considers, first of all, communities that have already established research links, and where the experience guarantees that the applications can be enhanced thanks to the use of the Grid. These are biomedical and high energy physics applications, already supported in EGEE. The collaboration within these communities could open new lines of interest.

Two additional areas are also considered due to their expected impact. The first one is Education in the Grid Environment and the second one is Climate, which will focus on the research of "El Niño" phenomenon, a topic of key importance where the Grid will greatly improve the research possibilities.

**EELA:**  
creating a  
human network  
between  
Europe and  
Latin America

## Service Activities

The EELA project will provide a huge number of services to the interested communities:

To share the know-how in terms of Grid computing within Latin America and between Latin America and the rest of the world.

To integrate Grid middleware standards proposed by the Global Grid Forum (GGF) and participate in their evolution.

To make effective use of the regional research networks (GÉANT, RedCLARA) and their associated national research networks both in Europe and in Latin America, and to trigger the development of common computing and storage infrastructure.

To introduce the participant countries to open market practices in computing, telecommunications, etc.;

To ensure fast, secure and cheap access to huge computing power, storage and bandwidth.

To enhance the collaboration among scientific communities, both within Latin America and between Latin America and Europe.

The interaction between research communities and governmental bodies in Latin America, with the aim of gaining long-term support for e-Infrastructures and e-Science.

The launch of new common projects in educational, scientific and cultural fields.

To serve as a test-bed for more ambitious initiatives.

Besides, common projects, collaborative work, and human resources formation will not be just EELA spin-offs but, rather, EELA main objectives.

## Innovation

EELA proposes innovative technologies and innovative strategies. Technologically, apart from the network itself, the innovations are related to the capability of efficiently share data across a wide network area through a global file system. This integrated platform enhances the computing capability in Europe and specially in Latin America thanks to the possibility of redistributing the global computational workload by migrating jobs across national borders, in a way that is totally transparent to end users.

From the strategic point of view, the EELA project will deploy a supercomputing infrastructure through a deep integration of existing national high-end platforms, tightly coupled by a dedicated network and supported by innovative systems and grid software. Strategies of coordinated operation have been identified and agreed. The result will be an integrated infrastructure whose capabilities will be more robust than the sum of its parts.



## Research Activities

The EELA project follows a Specific Support Action, where no research activities are explicitly foreseen. Nevertheless, the key point in this project is dissemination and implementation of several applications in certain areas of Science and Technology (Biomedical, High Energy Physics, Education in the Grid Environment and Climate sciences). So the development of this project opens the field to a huge number of activities in the research domain. The areas involved have been considered as the most relevant for the research community in the organizations participating in the project.

## Networking Activities

The project will facilitate the spread and exchange of technical expertise between all participating countries, which already possess strong but isolated clusters of knowledge in the relevant areas. Project will also facilitate the exchange of information between the participating countries and the rest of the world, via close interactions with worldwide Grid efforts and projects. This interaction between the associated participants of the project is envisaged to promote the integration of the research communities of the LA region to the ERA (European Research Area).

The networking activities will develop a culture of cooperation formalized in the management structures elaborated in the project. But will produce, as well, the spread of good practices, especially the adoption of standards for software and operational procedures in the deployment of the e-Infrastructure and its subsequent use.