EELA-2: building the future

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CUDI Workshop
Monterrey - Mexico, 07.10.2008
• General considerations on Networks and Grid
• EELA & EELA-2 objectives
• EELA-2 in short
• Some wishes
• Beyond EELA-2
• A possible Grid Model for Latin America
• CLARA & LGI
• E-Science sustainability
Improvement of Network Technologies

• Network vs. Computer performances at constant cost:
  – Computer speed doubles every 18 months
  – Data storage density doubles every 12 months
  – **Network speed doubles every 9 months**

• **1986 → 2000**
  – Computers: x500
  – **Networks: x340,000**

• **2001 → 2010**
  – Computers: x60
  – **Networks: x4,000**

*Scientific American* (Jan 2001) by Cleo Vilett; source: VinedKhoslan, Kleiner, Caufieldand Perkins
The e-Science

Researchers perform their activities regardless geographical location, interact with colleagues, share and access data.

The Grid: networked data processing centres and "middleware" software as the "glue" of resources.

Scientific instruments and experiments provide huge amount of data.
The “global” Network coverage
The “global” Grid coverage

European Commission co-funded projects
Projects with other funding
EELA & EELA-2 objectives

EELA (SSA project under FP6)

• Build a bridge between consolidated e-Infrastructure initiatives in Europe and emerging ones in Latin American

• Create a collaboration network to deploy a large portfolio of scientific applications on a well supported Pilot Test-bed

• Care in parallel of the training in grid technologies and of the knowledge dissemination and outreach

EELA-2 (I³ project under FP7)

• Provide an empowered Grid Facility with versatile services fulfilling application requirements

• Ensure production quality services

• Ensure the long term sustainability of the e-Infrastructure beyond the term of the project

• Expand the current EELA e-Infrastructure

• Look for new communities outside academia (Industry and Business)

www.eu-eela.eu
EELA-2 Gestation and birth

- FP7 call:
  INFRA-2007-1.2.3 (e-Science Grid Infrastructures)

- EELA-2 proposal submitted to EC on 20/09/07

- Successful Hearings on 22/10/07

- Negotiation started on 20/11/07

- Grant Agreement signed by EC on 19/05/08

- Starting date: 1st April 2008

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• e-Infrastructure oriented Project

• Applications oriented e-Infrastructure

• Production quality e-Infrastructure

• Consortium: 81 candidates
  – 54 Members were selected (1 withdrawal)
  – If more than one member in country:
    ▪ The Members federate into a JRU
    ▪ One of the Members becomes a Partner that will adhere to the Contract

• EELA-2 “seen” by EC: 16 Partners
• **Challenge:** how to cope with 53 members and ~ 50 applications?

  - Central funds for mobility
    - Request from a member
    - Recommendation from the Technical Board
    - Approval by the Management Board
    - Execution by the Project Office (HLP)

  - EELA-2 Support Teams for applications: Gridification, Deployment and Production Teams (partially funded) and Application Teams (one per application - unfunded)
Countries and Resources Centres

- 14 Countries
- 16 Partners (9 JRUs)
- 53 Members

France
Ireland
Italy
Portugal
Spain
Argentina
Brazil
Chile
Colombia
Cuba
Ecuador
Mexico
Peru
Venezuela

CLARA (International)

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New Management Board & External Project Office

Project organisation

External Advisory Committee

Consortium Board (One Representative per Partner)

NA1 – Management
- TNA1.1 Administrative and Technical Management
- TNA1.2 Long-term sustainability and cooperation

NA2 - Dissemination and Training
- TNA2.1 Coordination and dissemination of the activity
- TNA2.2 Training
- TNA2.3 Training

NA3 - Application Support
- TNA3.1 Coordination of the Activity
- TNA3.2 App. under Development
- TNA3.4 App. in Production Stage

SA1 - Infrastructure Services
- TSA1.1 Coordination of the Activity
- TSA1.2 Authority and Authorisation Services
- TSA1.3 Grid Operations
- TSA1.4 Network Operations

SA2 - Network Resource Provision
- TSA2.1 Coordination of the Activity
- TSA2.2 Network Operations Centre
- TSA2.3 End-to-end Service Level Agreements
- TSA2.4 Integration with Historical Resources

JKA1 – Development of Services for App. and Infra.
- JKA1.1 Coordination of the Activity
- JKA1.2 Development of App. Oriented Additional Grid Services
- JKA1.3 Development of Infra. Oriented Additional Grid Services
- JKA1.4 Middleware Repository Setup and Operation

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Survey: Application domains

- **Biomedicine:** 45%
- **HEP:** 14%
- **Earth Sciences:** 14%

Here is a pie chart showing the distribution of applications across various domains:

- Bio
- HEP
- Earth Sciences
- Engineering
- Optimization
- A.I
- Civil Protection
- Data Mining
- e-Learning
- Environmental Sciences
- Food Engineering
- Physics
BR: 29%  ES: 27%  CL: 8%  AR=FR=MX=PT: 6%
• **Problem Addressed**
  – WISDOM (Wide In-Silico Docking Of Malaria) is a deployment of a *high-throughput virtual screening platform* in the perspective of *in-silico drug discovery* for *neglected diseases*
  – The in-silico docking is faster and much cheaper than the experimental docking, which is restricted to the most successful ligands obtained after the simulation process

• **Latin American Interest**
  – Collaboration is started in the analysis of *new targets for malaria*. New targets of Plasmodium Vivax have been included in large-scale docking experiments
Description of Work - DoW
http://documents.eu-eela.org/record/1086/files/

Grant Agreement - GA

Consortium Agreement - CoA

EC/FP7 general documents
• WEBSITE (EELA-2 & EELA), with access to INDICO (Events) and INVENIO (Documents)

  www.eu-eela.eu

• EELA-2 MAILING LISTS available at

  http://documents.eu-eela.org/record/1084/files/

• FRAMEWORK PROGRAMME 7

  cordis.europa.eu/fp7
• New Countries collaborating with / joining EELA-2: Panama, Uruguay,....

• New Communities using the EELA-2 e-Infrastructure: industry, business,...

• New Mexican institutions could accompany UNAM and build a JRU-MX: good for EELA-2 and hopefully for e-Science in Mexico
• Get the EELA-2 members more active
  – using as much as possible the Infrastructure
  – disseminating the Grid benefits

• e-SCIENCE in Latin America needs EELA-2

• EELA-2 NEEDS YOU ….
– No EELA-3, supported by EC, foreseen

– Alternative funding after 2010: a must

– “Long-term sustainability”: an EELA-2 goal

– e-Science structures highly desirable (mandatory???)

– In Europe: EGI (European Grid Initiative) is on the way (with EC support foreseen)

– In LA: LGI (Latin American Grid initiative)
A possible model for Grid in LA

- **GOC: Grid Operation Centre**
  - Will connect directly up to 4 RCs (Resource Centres) per countries
  - Countries with more than 4 RCs will have to create and maintaining a Regional Operation Centre (ROC)
  - The GOC will operate the central grid services, a common middleware repository and a central user support system

- **Central Training Team**
  - Will define common training programmes
  - Will set-up and operate a central repository for training material
  - Will coordinate large events like international grid schools

- **Central Application Support Team**
  - Will define best practices for application support
  - Will act as consultant to identify applications’ needs and commonalities among their architectures
  - Will behave as a central point to connect applications and JRUs/NGIs in the various countries
Country A
(up to 4 RCs connected)

Country B
(with more than 4 RCs a ROC is needed)
- CLARA built on NRENs

- LGI built on National Grid Initiatives (NGI)

- CLARA and LGI as sister LA organisations, or

- GRID and NETWORKS inside CLARA???
• Sustainability:
  – the affair of **ALL**
  – first a local concern

• EELA-2 wants to tackle sustainability in **common** with all related projects.
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the EELA-2 mailing lists