GISELA fostering e-Science in Latin America – The Mexican role

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The South Side Story 1/2

F. Gagliardi (EGEE) & J.A.Rubio (CERN), willing to support deployment of the Grid paradigm in Latin America, triggered our participation in the

“ III Latin America and Caribbean – European Union Ministerial Forum on Information Society ”

Rio de Janeiro - November 22nd & 23rd, 2004

The South Side Story 2/2

- **EELA (January 2006 – December 2007)**
- **21 Member Institutions (1 from Mexico: UNAM … the pioneer)**
- **http://www.eu-eela.org/first-phase.php**
  - Build a bridge between consolidated e-Infrasructure 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 (April 2008 – March 2010)**
- **78 Member Institutions (8 from Mexico: UNAM, CICESE, CIC-IPN, CUDI, ITESM, UAEM, UMSNH, UNISON)**
- **JRU concept introduced**
- **http://www.eu-eela.eu/**
  - Provide an empowered Grid Facility with versatile services fulfilling application requirements, ensuring Production Quality
  - 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)

GISELA Objectives and Goals

Following the "Excellent" EELA & EELA-2 results, as acknowledged by the EC reviewers, GISELA has been submitted and brilliantly accepted, to …

Ensure the long- term sustainability of the e-Infrastructure in the Latin American continent

Provide full support to the Virtual Research Communities spanning Latin America and Europe, using the e-Infrastructure.

Focus on two inter-related goals:

- **Implement a sustainability model rooted on National Grid Initiatives (NGI), in association with CLARA, NRENs and collaborating with EGI.**
- **Provide the communities with the suited e-Infrastructure and Application-related Services required to improve the effectiveness of their research. This will address both:**
  - ✓ **The current EELA-2 User Communities whose research investigations are carried out at the Institution level or in small collaborations.**
  - ✓ **The larger Virtual Research Communities as Life & Earth Sciences, HEP**

GISELA Countries & Partners

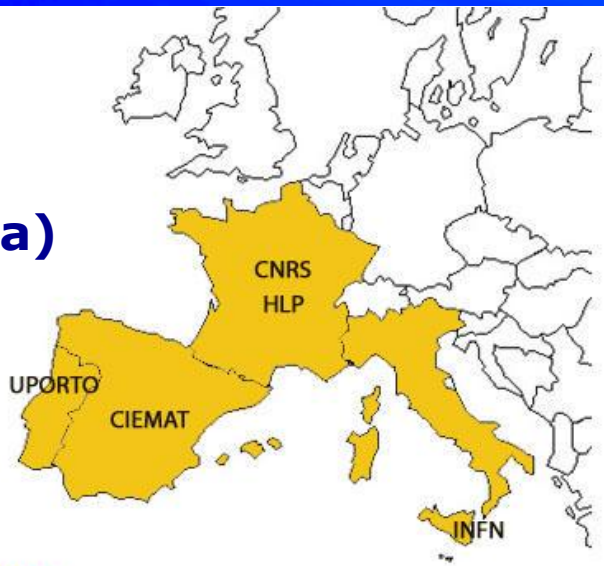
15 Countries (11 in Latin America)

19 Partners (14 in Latin America)

12 Third Parties (11 in Latin America)

UNAM Third Parties

- CICESE
- ITV
- ITESM
- IPN-CIC
- UAEM
- UNISON



Europe

Italy	INFN – Catania
France	CNRS, HLP
Portugal	U.PORTO
Spain	CIEMAT (Coord. Institution)

Latin America and the Caribbean

Argentina	INNOVA-T
Brazil	UFRJ, UFCG
Chile	REUNA
Colombia	UNIANDES
Cuba	CUBAENERGIA
Ecuador	CEDIA
International	CLARA
Mexico	CUDI, UNAM
Panama	CIDETYS
Peru	RAAP
Uruguay	UdelaR
Venezuela	ULA

The GISELA spirit is not anymore to consider Institutions, but rather representatives of JRU / NGI, with the advantage to "accept" de facto all JRU / NGI members.

GISELA Work plan

- **GISELA shall provide and support basic (CORE) operation services. It will develop inter-operation agreement with GÉANT2, CLARA, the NRENs and the NGIs, in Europe and Latin America;**

- **GISELA shall work out, with the CLARA Transition Team, the model of sustainability for the e-Infrastructure best adapted to the CLARA and LA NRENs environment;**

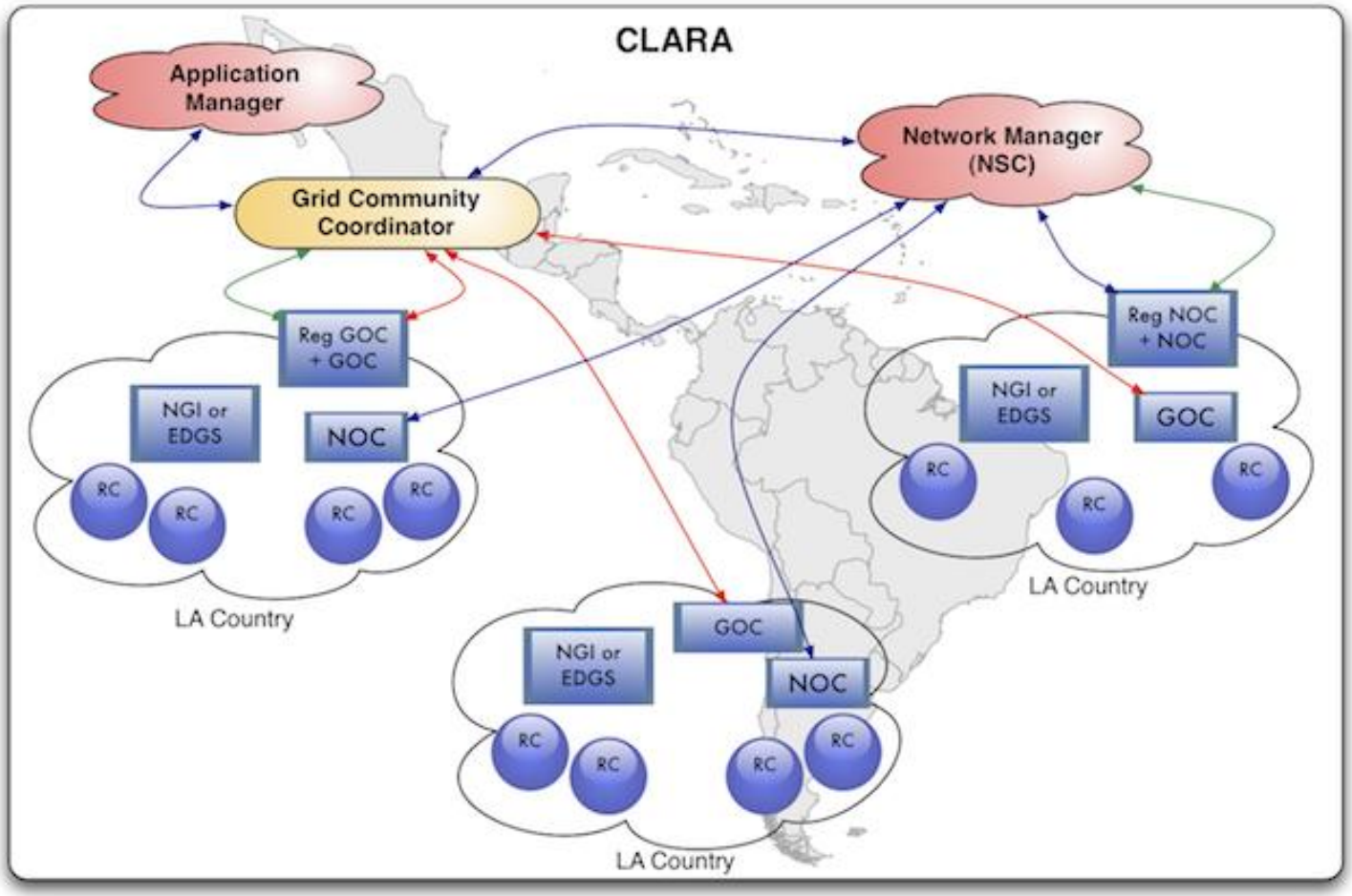
- **CLARA shall identify the NREN(s) that will be in charge of the Operation and Support of the e-Infrastructure, applying the business plan.**

- **GISELA basic duties:**
  - Ensure the proper access of GISELA users to the e-Infrastructure resources;
  - Support Application developers and users over the whole process from deploying an Application up to running it in production;
  - Organise the training best adapted to each VRC;
  - Support the use of the e-Infrastructure and Application-related Services already developed in EELA-2 and helps the users in the validation of these services in the context of their Application;
  - Participate in the development of new services requested by the VRCs and helps in the test and validation of these services for user's Applications.

Long-term Sustainability

THE THREE-LAYER INFRASTRUCTURE AND NETWORK MODEL PROPOSED BY GISELA & CLARA

IMPORTANT ROLE OF LA NRENS OR EQUIVALENT DOMESTIC GRID STRUCTURES



GISELA e-Infrastructure 1/8

- ROC_IGALC, already an official EGI ROC, needs that all operations services will continue to be supported, in particular: GOCDB, GGUS, Operations DASHBOARD, Accounting System, GSTAT, Gridview, Monitoring system support.

- Beside the EGI ROC, the GISELA e-Infrastructure will be operated by several ROCs, (e.g.: UFRJ by ROC_IGALC, UNIANDES by ROC_LA, CCIN2P3 by ROC_France, etc.). Until CLARA & LA NRENS take over from GISELA, ROC_IGALC cares of **all applications**, whatever the domain.

- The GISELA e-Infrastructure is built up from two (or three) distinct middlewares (gLite, OurGrid and probably OSG): special help from the GOCDB team is be needed.

Committed CPU & Storage resources (from the GISELA DoW)

Country	CPUs	TBs	RCs	Country	CPUs	TBs	RCs
Argentina	130	0	5	Mexico	198	2	8
Brazil	1212	25	9	Peru	110	8	7
Colombia	200	2	6	Panama	100	1	2
Cuba	50	0	1	Portugal	100	0	3
Ecuador	100	1	5	Spain	100	20	2
France	40	0	1	Uruguay	100	10	1
Italy	100	30	1	Venezuela	120	6	3

	CPUs	TBs	RCs
Total	2660	105	56

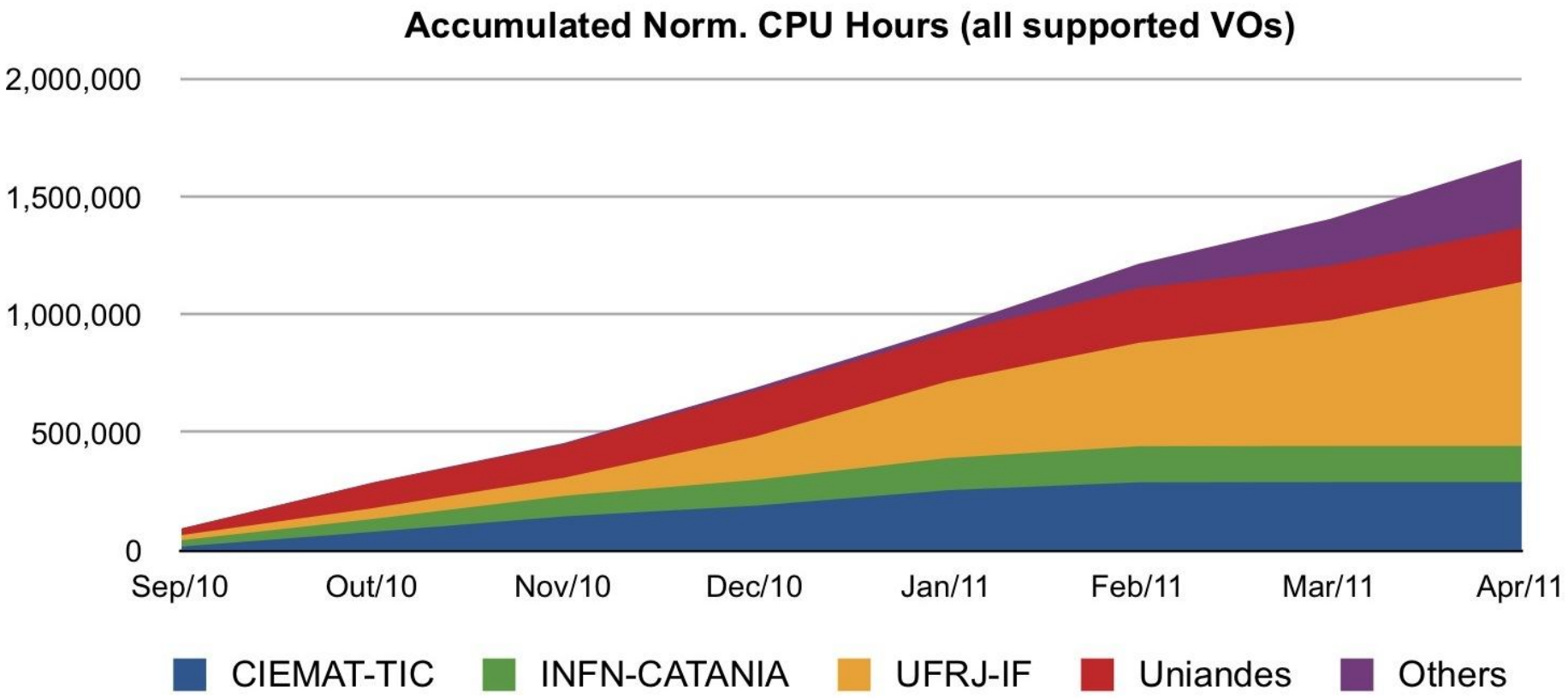
GISELA e-Infrastructure 3/8

- **GISELA gLite sites integrated in the infrastructure**
  - CEFET-RJ, CIEMAT-TIC, EELA-UNLP, ICN-UNAM, INFN-CATANIA, UFRJ-IF, ULA-MERIDA, UMinho-CP, Uniandes and UPorto
  - About 1000 job slots (VO “prod.vo.eu-eela.eu”)

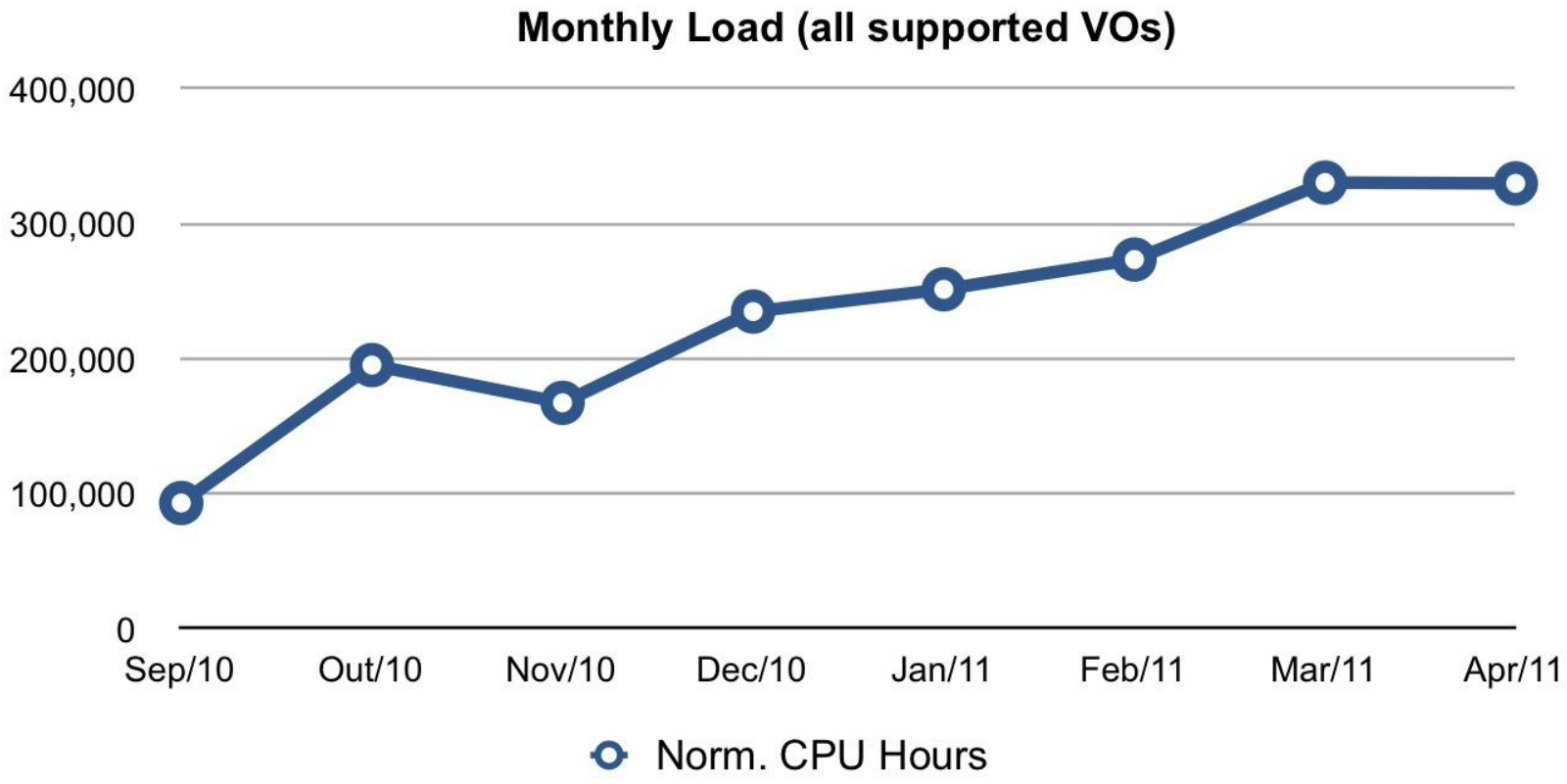
- **Non-GISELA sites contributing to the VO “prod.vo.eu-eela.eu”**
  - CERN-PROD, csTCDie, EELA-UTFSM, IEETA and UNICAN

- **OurGrid sites - about 400 job slots:**
  - LCC2, GMF,DCA, AESA, LCC1, LSD

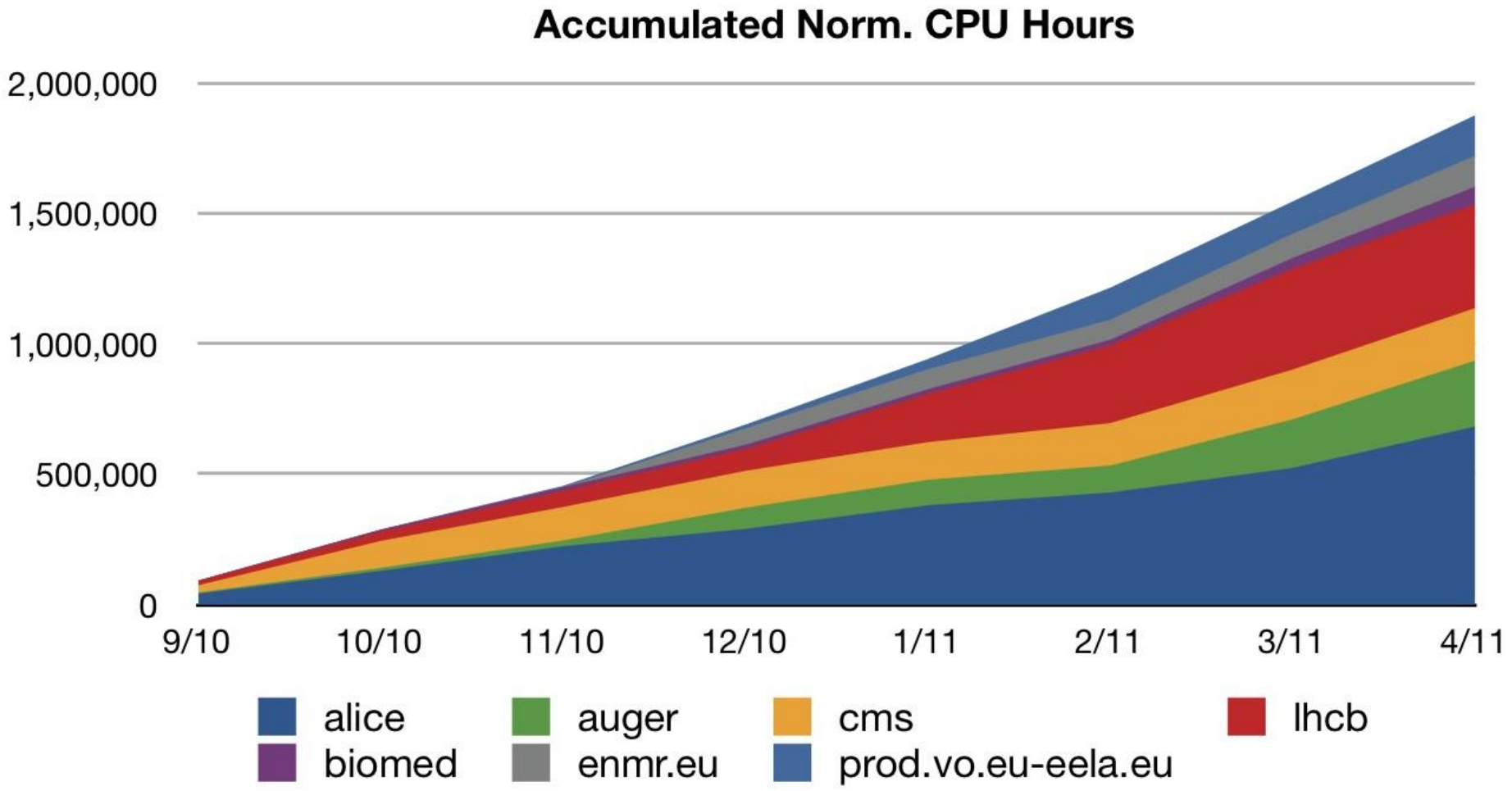
- UFRJ is the most active site (gLite only)
  - specInt2000



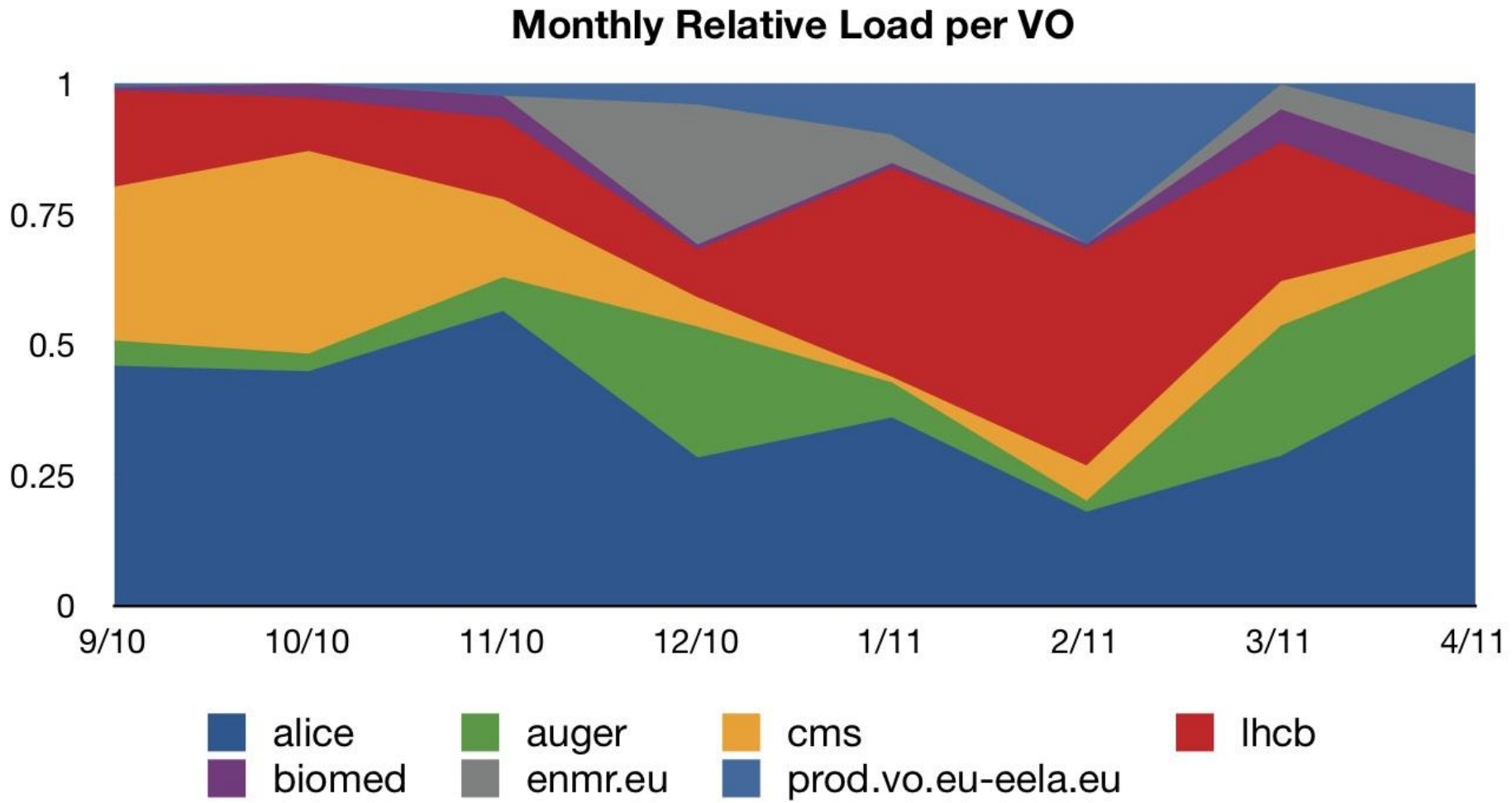
- Concerning gLite:
  - If a VO is supported by WP3, the load is calculated using the ratio <CPUs pledged> / <Total # of CPUs of the site>, considering only GISELA sites
  - Exception: VO prod.vo.eu-eela.eu, for which the load is calculated as GISELA contribution, the site being or not a GISELA site and independently of the fraction of CPUs dedicated to GISELA.



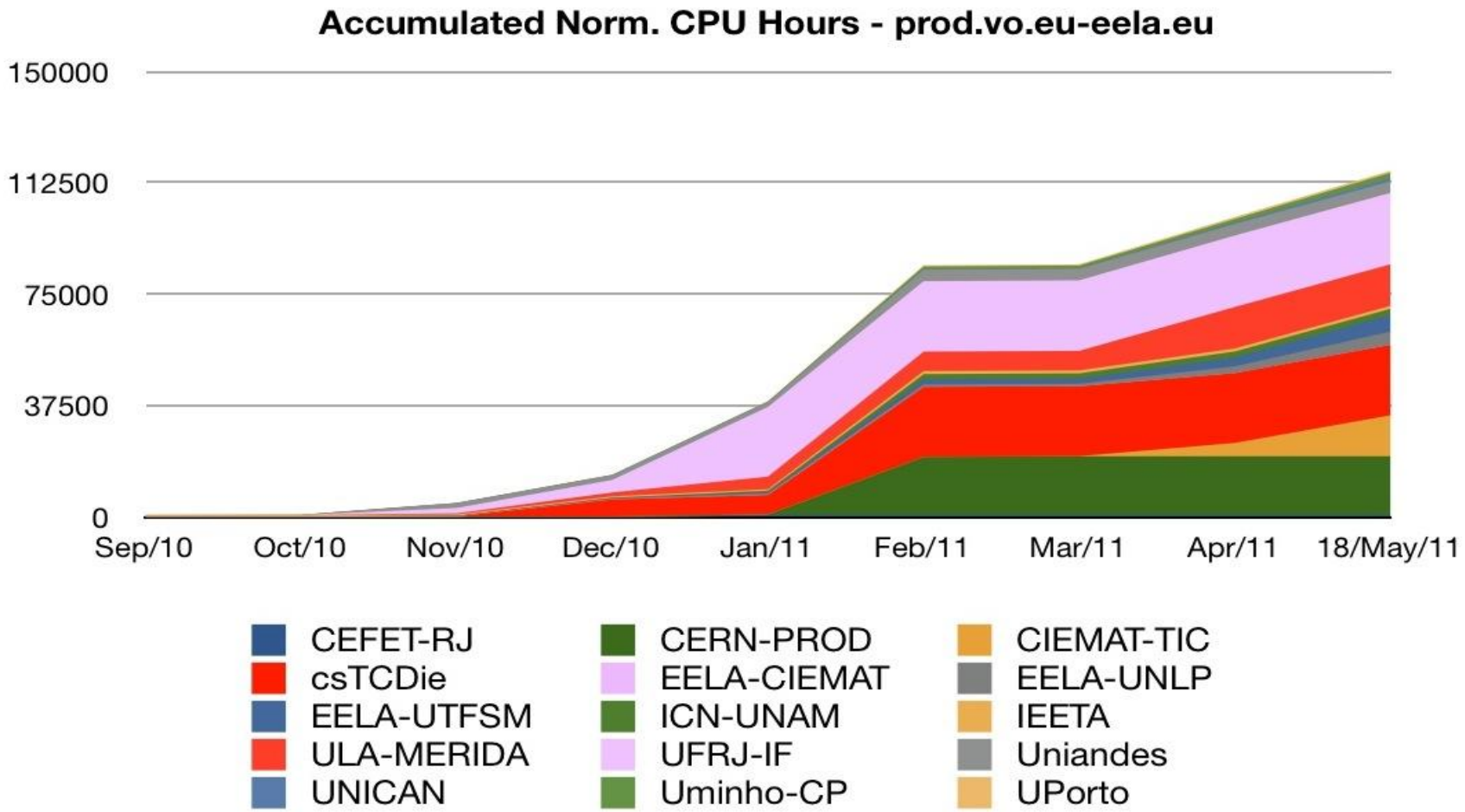
- Accumulated load per VO



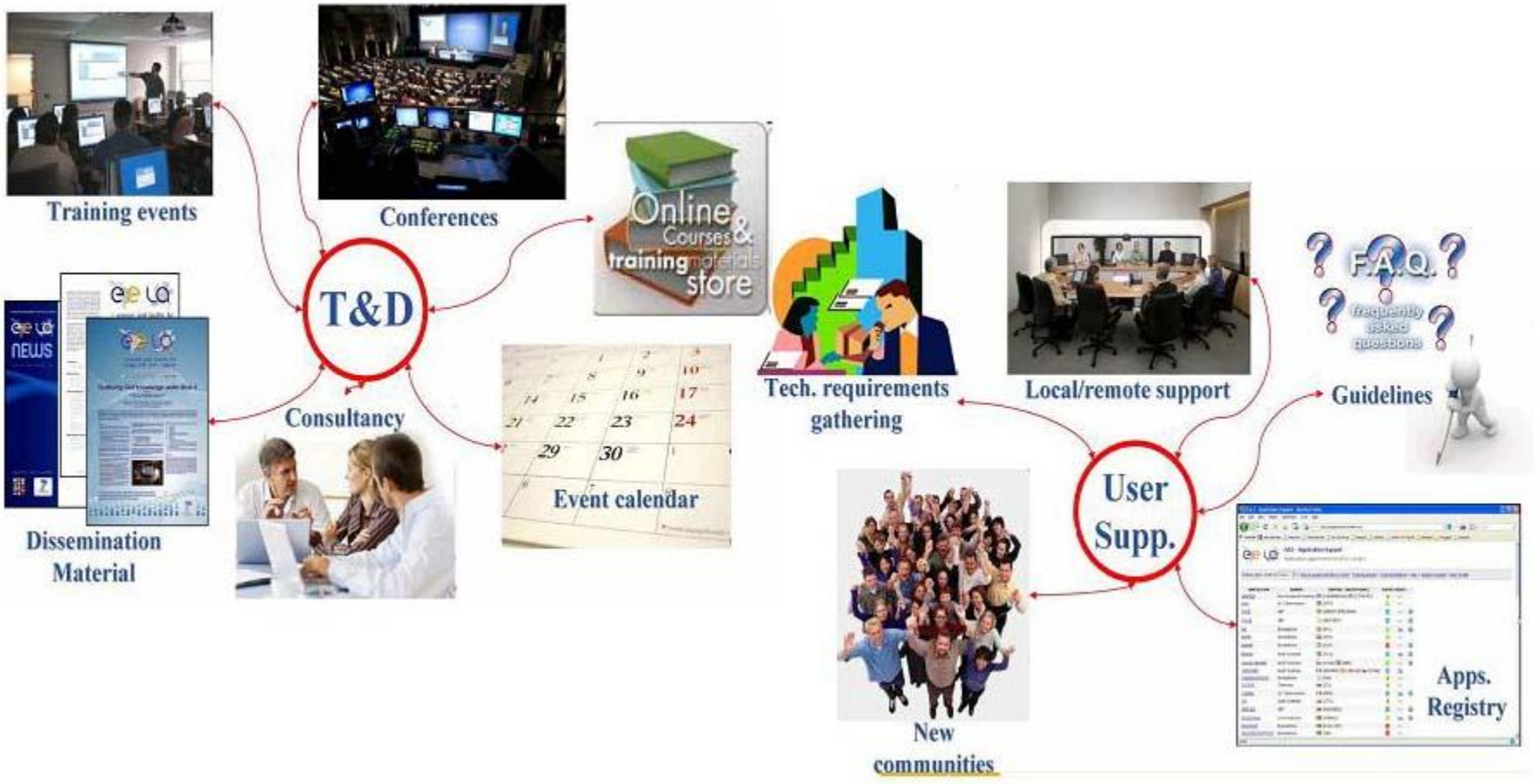
- GISELA e-Infrastructure load per VO per month



- Relatively low UNAM contribution (gLite only)
  - specInt2000



GISELA User Support activities



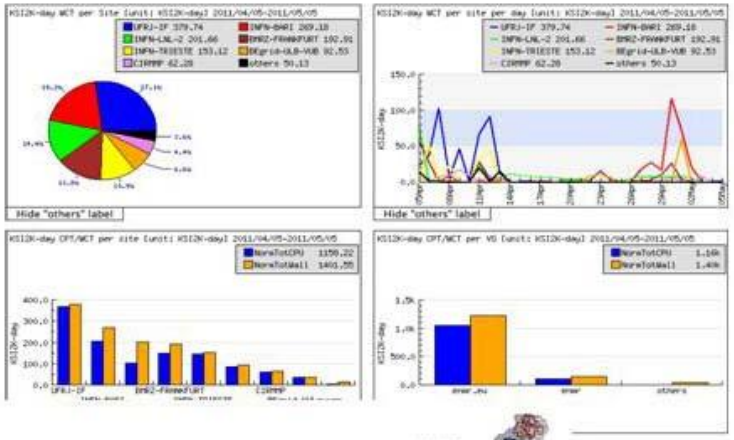
GISELA has a comprehensive user support tailored to VRCs

Training & Dissemination are important activities

Dissemination is very productive!

Life Science Virtual Research Communities

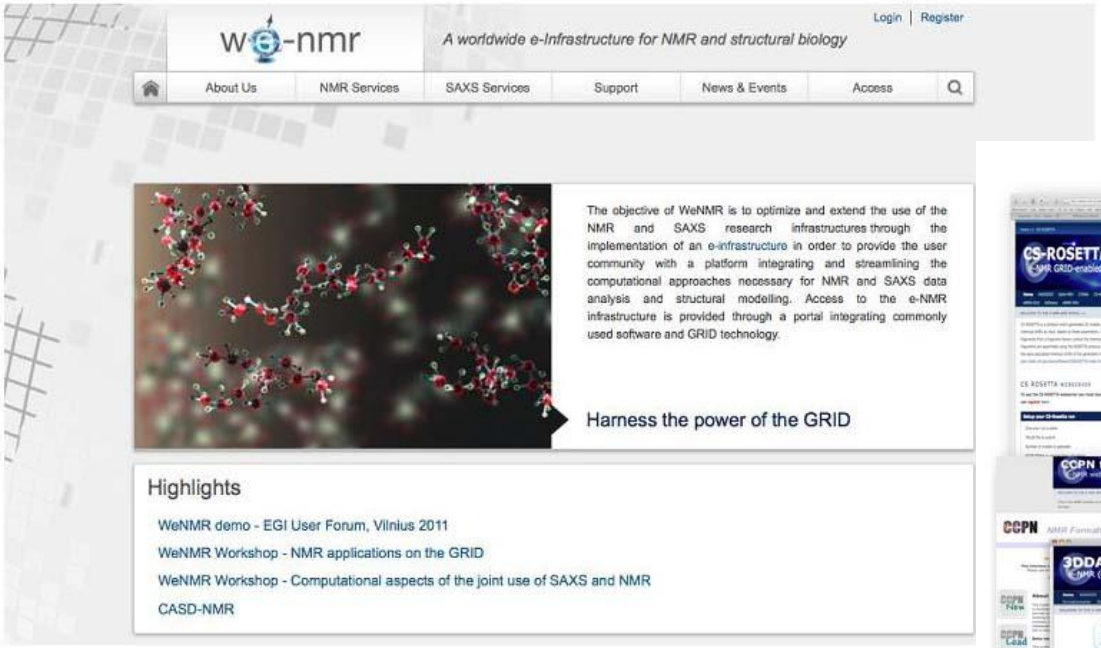
- Providing computing power to WeNMR.EU and Biomed VOs
- Helping LA users to access WeNMR.EU tools such as:
  - ✓ TALOS+
  - ✓ AnisoFIT
  - ✓ MARS
  - ✓ MDD NMR
  - ✓ CS-ROSETTA
  - ✓ CYANA
  - ✓ Xplort-NIH
  - ✓ AMBER
  - ✓ HADDOCK
  - ✓ 3D-DART



GISELA User Support by examples 2/5

WeNMR: to optimise and extend the use of the NMR and SAXS research infrastructures through the implementation of an e-Infrastructure

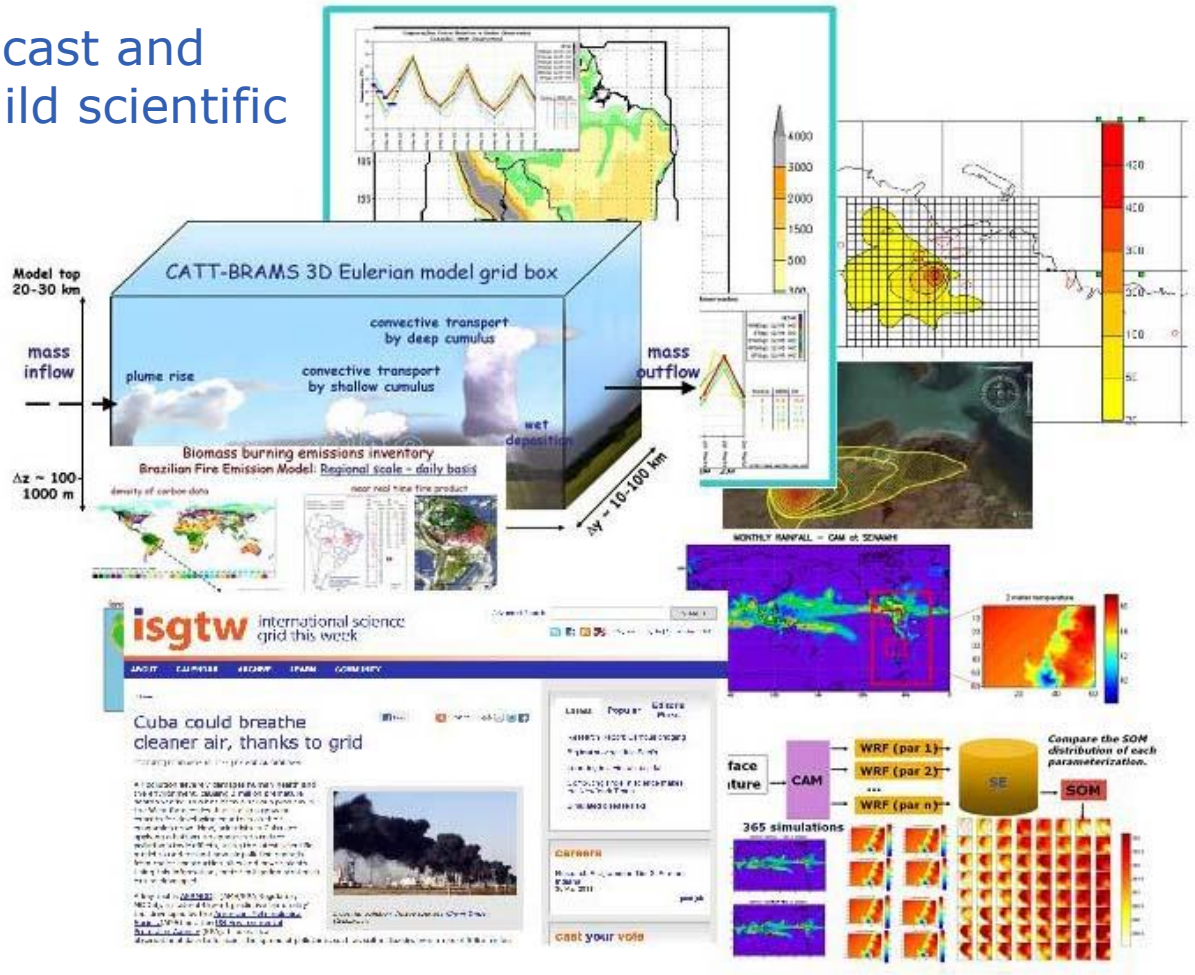
Source: Alexandre Bonvin – WeNMR Project Coordinator



- *Largest global VO in the Life Sciences*
- *Over 280 registered users and growing*
- *> 500 CPU years over the last 12 months*
- *User-friendly access to e-Infrastructure via web portals*

Earth Science Virtual Research Communities

- Helping LA weather forecast and climate researchers to build scientific experiments using:
  - ✓ AERMOD
  - ✓ BRAMS
  - ✓ C/CATT-BRAMS
  - ✓ CAM
  - ✓ WRF



GISELA User Support by examples 4/5

- GISELA applications portfolio at:

  http://applications.gisela-grid.eu/app_list.php?l=20

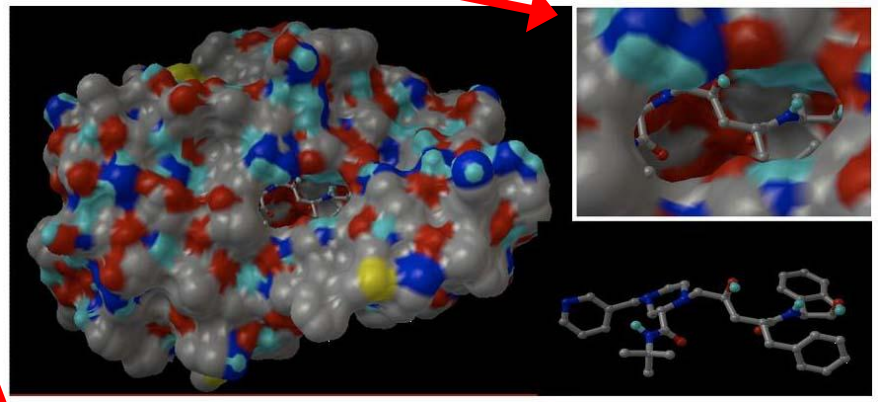
- 11 applications from Mexico (EELA-2 heritage!)
  - ALICE: High Energy Physics
  - APPPF: Computer Science & Mathematics
  - CTSAE: Life Science
  - D-I-D: Earth Science
  - GrEMBOSS: Bioinformatics
  - GridFSant: Computer Science & Mathematics
  - LEMDistFE: Engineering
  - META-Dock: Bioinformatics
  - Pierre Auger: Astrophysics
  - PSAUPMP: Engineering
  - Seismic Sensor: Earth Science / Seismology

  but … Lack of intensive use of the GISELA e-Infrastructure!!!

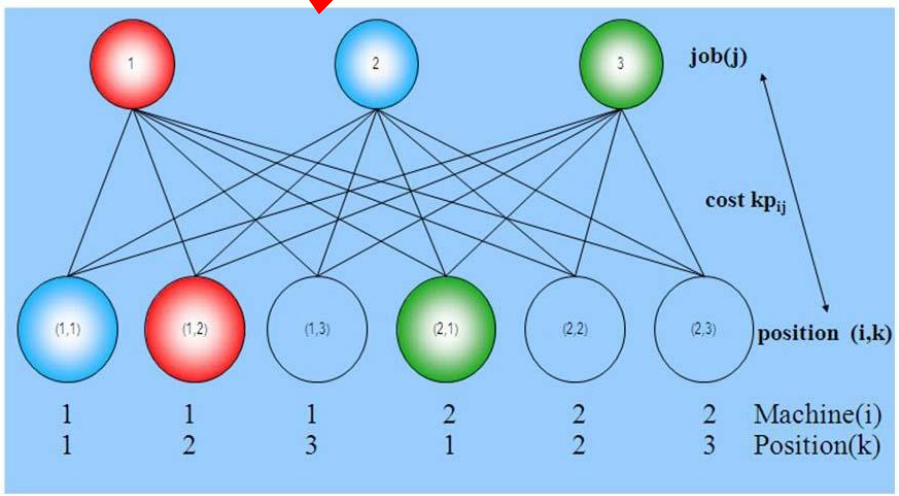
- Promising contact with Industry at the GISELA KoM (San Luis Potosi) but … nothing happened then! No interest? No follow up?

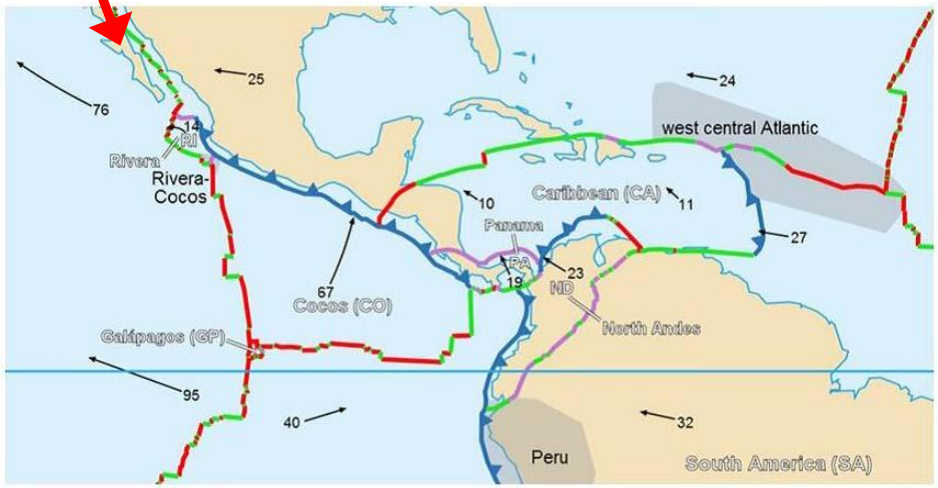
GISELA User Support by examples 5/5

- ***List of Mexican Applications ported to GISELA***
  - *META-Dock:* Grid-based screening method for pharmaceutical studies
  - *Seismic Sensor:* Automatic real-time sending of signals generated in different regions)
  - *PSAUPMP*
    (sequence of 'n' jobs on 'm' unrelated parallel machines)
  - *LEMDistFE*
  - *GridFSant*
  - *GrEMBOS*



- ***But, almost no activity in 2011…***
  - *Only two users with almost zero-job submission Fernando Almauer Angeles and Jerome Verleyen*





Conclusions

- GISELA still young (9 months old) but …
- Some concerns (from a managerial point of view):
  - Slow implementation of the CLARA business plan for long-term sustainability
  - Handover to CLARA and NRENS of the GISELA activities
  - (Not enough) use of the GISELA e-Infrastructure
  - Third parties not fully on board
  - NGIs implementation very slow and painful
- However…
  - Excellent dissemination and Outreach activities (WP2)
  - Infrastructure and Applications-oriented Services for User Communities (WP6) rather productive (DIRAC)
  - Infrastructure operating satisfactorily (WP4)
  - VRCs supported and training available(WP3)
  - 6 important MoUs already signed and 2 in progress (WP1)
- But ...

More commitments and enthusiasm are needed

Some wishes (1)

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

Beyond EELA-2 (2)

CLARA built on NRENs …

LGI built on National Grid Initiatives (NGI) …

CLARA and LGI as sister LA organisations, or …

GRID and NETWORKS inside CLARA???