ALICE: The Europe-Latin America Academic Networking Landscape

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Academic Networking in LA
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<tr>
<th>Country</th>
<th>Network</th>
<th>Status</th>
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<tr>
<td>Argentina</td>
<td>RETINA</td>
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<td>Brazil</td>
<td>RNP</td>
<td>Operational</td>
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<td>Bolivia</td>
<td>BOLNET</td>
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<td>Cuba</td>
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<td>Chile</td>
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<td>Guatemala</td>
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<td>Honduras</td>
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<td>Uruguay</td>
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<td>Venezuela</td>
<td>REACCIUN</td>
<td>Operational</td>
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NREN’s in Latin America are embryonic but .....

- With the exception of Argentina, Brazil, Chile, Mexico and Venezuela, the NREN’s are based on commercial Internet services at low speeds (frequently 256Kbps to 2 Mbps)
- Most NREN’s in Latin America are still getting organized, but all countries in the region are betting on developing their organizations and infrastructure in the coming months
- A clear common view exists on the importance of this type of infrastructure for the development of science, technology and education
Ampath: The present of LA Advanced Networking
Ampath: The GC-FIU Initiative

- In 2000 thanks to an initiative by FIU, Global Crossing donates 10 DS-1’s to be used by 10 countries in LA to connect to the Internet2 thru a POP located in Miami.
- In June 2001, Chile’s REUNA becomes the first LA NREN to get connected to the Ampath POP.
- In December 2001, both Argentina (RETINA) and Brazil (RNP) get connected to Ampath.
- In January 2002, FABESP from Brazil connects to Ampath separately from RNP.
- In April 2003, Venezuela’s REACCIUN gets connected to Ampath.
- All links are DS-3.
- All connections are free of charge from GC for 3 years.
The Latin American
Connections to Internet2

AmPath
ALICE:
The EU-LA Networking Initiative
The ALICE Project

America Latina Interconectada con Europa

The three years project have just started (June 2003)

- Coordinator: DANTE
- Partners: FCCN, RedIris, Renater, GARR and 18 LA-NRENs

- Phase A
  - Network design and procurement

- Phase B
  - Implementation and operations
    - training HR, support collaborative projects

- Total budget: 12.5 M Euros (20% LA, 80% EU)
CLARA:
An Organization to Coordinate Efforts in Academic Networking
The Clara Organization

Cooperación Latino-Americana de Redes Avanzadas

- Coordination amongst LA-NREN and other stakeholders
- Cooperation for the promotion of scientific and technologic development
- Planning and implementation of network services for regional interconnection
- Development of a regional network (here called RedCLARA) to interconnect the NRENs operated by its members
CLARA features

• Association of NRENs in LA open to all LA Countries
  – constituted in Uruguay (like LACNIC)
  – Bylaws signed on June 10 in Mexico

• CLARA is not limited to @LIS time scale and restrictions

• RedClara will connect LA to GEANT, Internet2 and possible other regional networks as APAN
RedClara:
The Upcoming LA Academic Advanced Network
ALICE network design

• **Main characteristics:**
  – use of submarine cable infrastructure, where possible (except Cuba)
  – single connection to Europe (GÉANT) from the region
  – At least one (Tijuana) and desirably more connections to the US
  – connectivity to LA NRENs through regional backbone network
  – Centrally operated from Mexico
The Network Provided by ALICE

• Major connectivity between AR, BR, CL, MX, PA: 155 Mbps
• Other countries connect to major nodes (between 10 and 45 Mbps)
Project ALICE - América Latina Interconecta Con Europa

- May 2003: technical definitions complete
- June 2003: Open tender for provisioning of links and equipment
- August 2003: Initial offers received
- November/December 2003: Final decision on Tender
- February 2004: Final Negotiations took place
- August 2004: Backbone operational
- December 2004: 18 countries connected

Notes:

- DANTE is the project coordinator and will sign contracts with users and providers
- CLARA is expected to represent interests of LA users in the medium term (one year)
InterRegional Connectivity

RedCLARA-GEANT : STM-4
RedCLARA-Internet2: STM-1 → 1 Gbps
Example Applications
Astronomy and Geodesy

- EU Access to Telescopes like Paranal, Las Campanas in Chile or Pierre Auget in Argentina
- Future access to the ALMA site in Chile
- Integration of TIGO to the e-VLBI for Geodesics Network
Access of HEP Physicists to CERN’s LHC
Physical Oceanography

- El Niño monitoring
- Climate Studies
- Understanding Dry Zones
- Access to satellite data and processing power
Advanced e-Learning Tools

- Video-Conferencing
- Digital Libraries
- Computing power
- Graphical Tools
LA Access to Scientific Instruments

ALICE’s RedCLARA

DNA Sequencers

Electronic Microscopes

CLARA Users

Spectrometers
The ALICE Project Opens huge opportunities for collaboration with LA Universities and Research Institutions