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ALICE:
The Europe-Latin America Academic Networking Landscape

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Academic Networking in LA

NREN's Present Status

• Argentina	RETINA	Operational
• Brazil	RNP	Operational
• Bolivia	BOLNET	Operational
• Colombia	-	Organizing
• Costa Rica	CRNet	Operational
• Cuba	RedUniv	Operational
• Chile	REUNA	Operational
• Ecuador	CEDIA	Operational
• El Salvador	RAICES	Organizing
• Guatemala	-	Organizing
• Honduras	-	Organizing
• Mexico	CUDI	Operational
• Nicaragua	-	Organizing
• Panamá	RedCyt	Organizing
• Paraguay	-	Organizing
• Perú	RAP	Organizing
• Uruguay	RAU	Operational
• Venezuela	REACCIUN	Operational

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

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Ampath: The present of LA Advanced Networking

Ampath: The GC-FIU Innitiative

- In 2000 thanks to an innitiative 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 separetly 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

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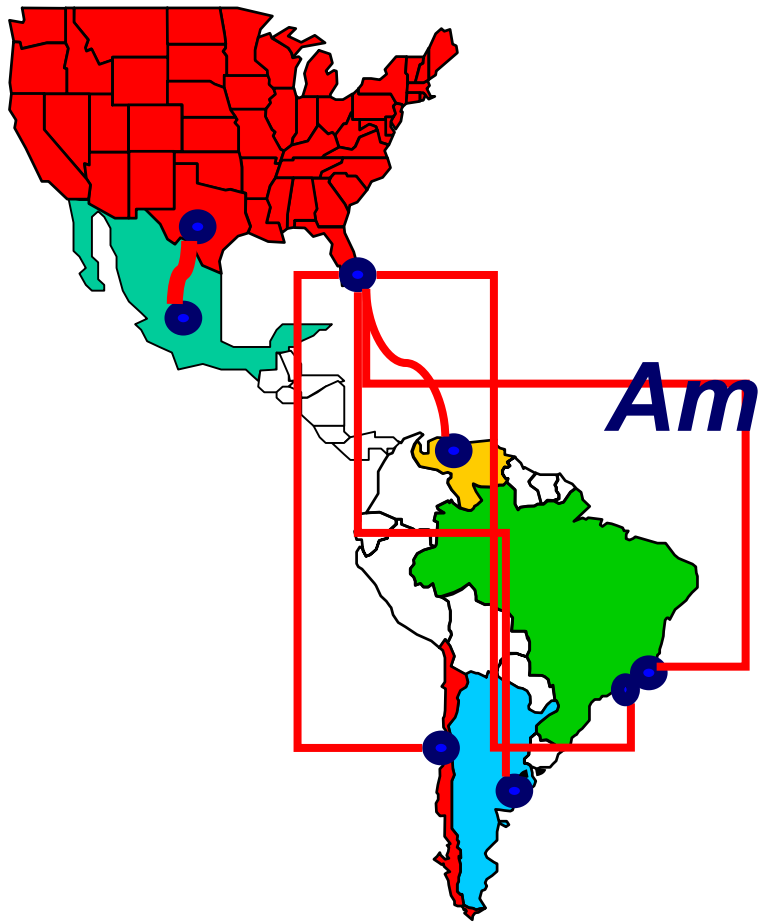
The Latin American Connections to Internet2



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ALICE:
The EU-LA Networking Initiative

The ALICE Project

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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)

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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

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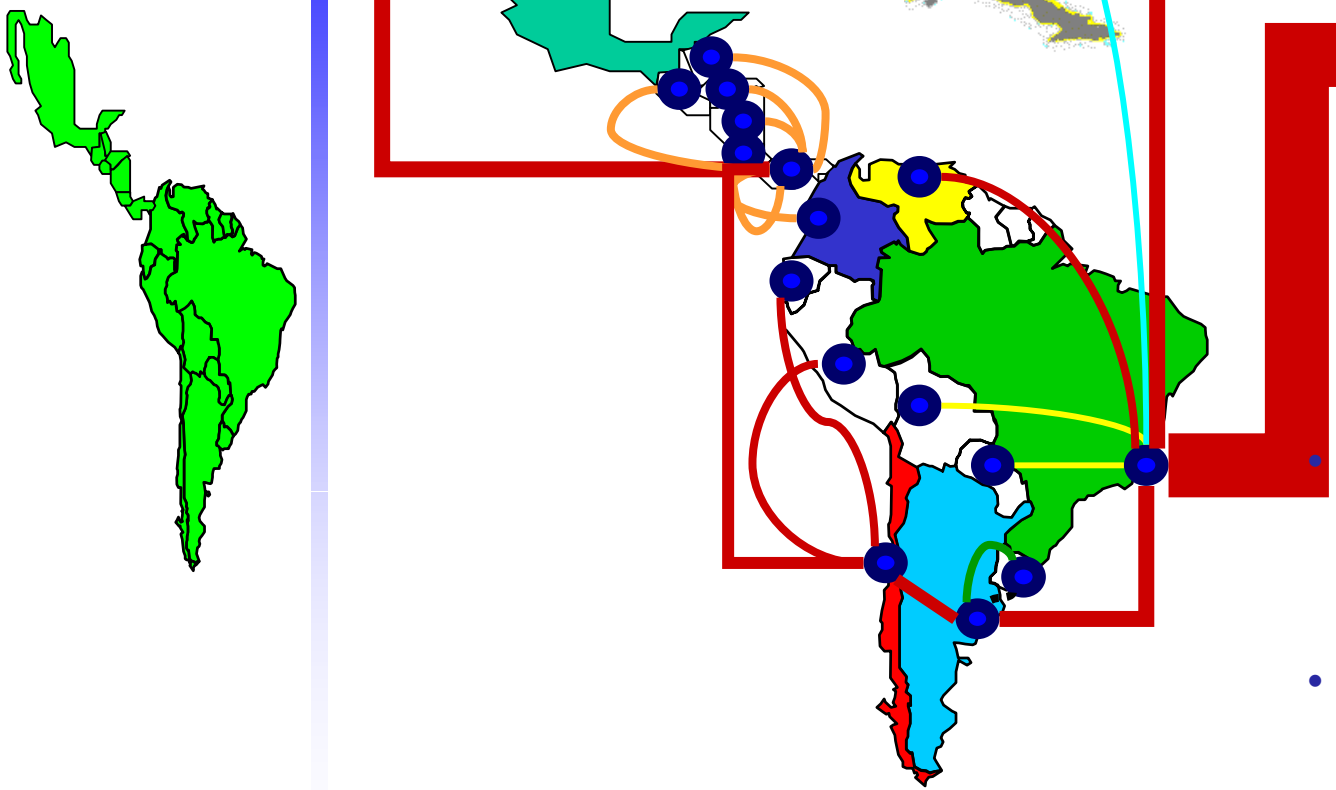
RedClara: The Upcoming LA Academic Advanced Network

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
  - Centraly 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)

Backbone Timetable

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

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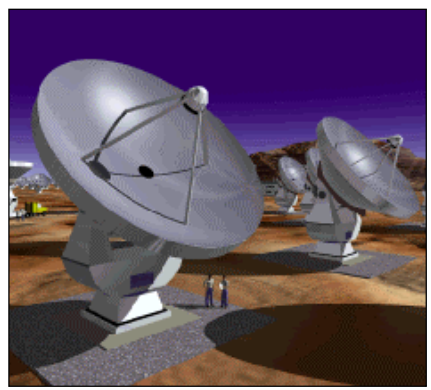
Example Applications

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



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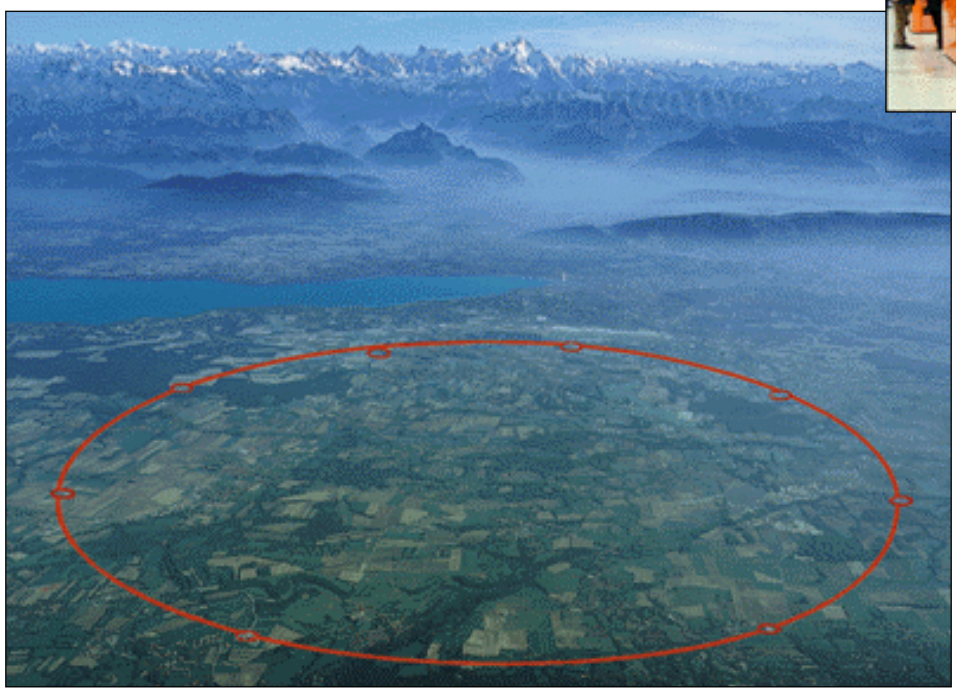
Access of HEP Phisicists to CERN's LHC



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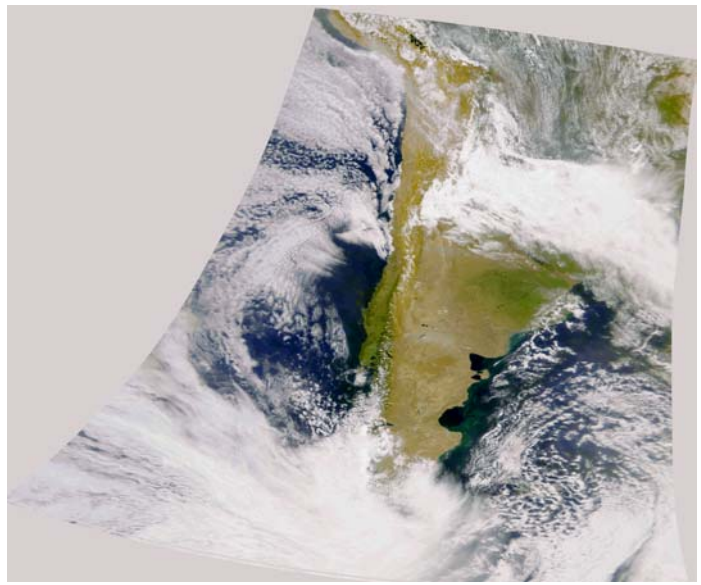
Physical Oceanography



- El Niño monitoring
- Climate Studies
- Understaning Dry Zones
- Access to satellite data and processing power

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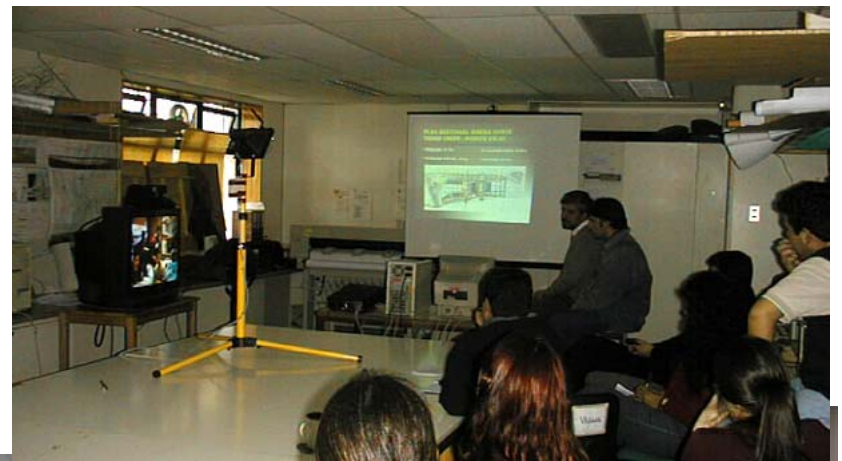
Advanced e-Learning Tools

- Video-Conferencing
- Digital Libraries
- Computing power
- Graphical Tools



LA Access to Scientific Instruments

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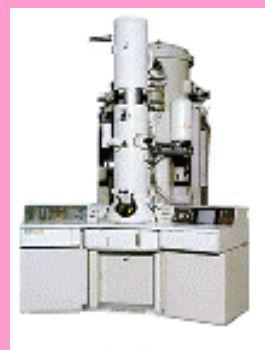
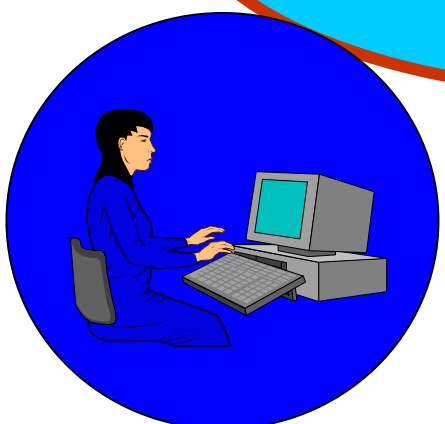
DNA Sequencers



Electronic Microscopes

ALICE's RedCLARA



CLARA Users

Spectrometers

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