

## Quick Facts

- WHREN is an acronym for the Western Hemisphere Research and Networking Initiative.
- WHREN's goal is to improve and support research throughout the Western Hemisphere.
- Links Interconnecting Latin America (LILA) is a project of WHREN that provides links between Miami and Sao Paulo as well as San Diego and Tijuana.
- WHREN is open to participation to research and education networking providers in the Western Hemisphere and their peers around the globe.
- Governance is cooperative.

### Participating Organizations

- Florida International University (FIU) – *Florida, USA*
- Corporation for Education Network Initiatives in California (CENIC) – *California, USA*
- Academic Network of Sao Paulo (ANSP) – *Sao Paulo, Brazil*
- Cooperación Latino Americana de Redes Avanzadas (CLARA) – *Latin America*
- Cooperación Universitaria para el Desarrollo de Internet A.C. (CUDI) – *Mexico*
- Rede Nacional de Ensino e Pesquisa (RNP) – *Brazil*
- Red Universitaria Nacional (REUNA) – *Chile*

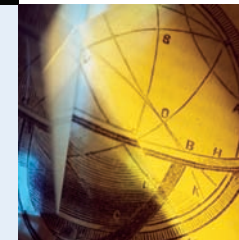
### WHREN-LILA

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Award N°. 0441095

\*WHREN's work is partially funded by the U.S. National Science Foundation



Research



Education



Collaboration

## WHREN: The Western Hemisphere Research and Networking Initiative

The Western Hemisphere Research and Networking (WHREN) is a consortium that provides production, experimental and pre-production services in the Western Hemisphere.

A cooperative of research and education networks across the Americas, WHREN:

- Creates a community-based cyberinfrastructure
- Provides a forum for Pan American collaboration
- Makes it easy to pool network infrastructure that the participants agree to make available for research and education use.

In essence, WHREN provides the ultimate facility and environment for timely transfer of data and supports emerging distributed computation, data manipulation, visualization, remote instrument/experiment control and other scholastic applications and services.

### LILA: Links Interconnecting Latin America

The U.S. National Science Foundation supports WHREN through funding of Links Interconnecting Latin America (LILA)

- Partially funding a fiber-optic acquisition between San Diego, California and Tijuana, Mexico for a multi-gigabit per second (Gbps) link
- Partially supporting a multi-Gbps connection between Miami, Florida and Sao Paulo, Brazil

These links terminate in the following locations:

**Miami, Florida:** The AMPATH International Exchange Point. Located in the NAP of the Americas.

**OPERATOR:** FIU-AMPATH

**São Paulo, Brazil:** The São Paulo Open Exchange. Located in the NAP do Brazil. **OPERATOR:** ANSP

**San Diego, California:** The CENIC International Exchange. Located in the CalREN network hub site.

**OPERATOR:** CENIC

**Tijuana, Mexico:** RedCLARA PoP. Located in the Bestel PoP. **OPERATOR:** CLARA

*Additional LILA funds are provided by the Academic Network of Sao Paolo (ANSP) Projeto Fapesp no. 04/14414-2, the Corporation for Education Network Initiatives in California (CENIC) and Florida International University (FIU).*

### Participation is Easy

Any owner/custodian of research and education network infrastructure (circuits, lightpaths, exchange points, etc.) in the Western Hemisphere is welcome to participate in WHREN. You must be willing and able to make a portion of your infrastructure available to other WHREN participants.

Each participating owner/custodian will prepare an interconnect agreement that sets out the conditions and constraints associated with making its infrastructure available to other participants. Any WHREN participant that wishes to use this infrastructure must execute this agreement with the owner/custodian. A register is maintained of the WHREN resources available to participants.



### Governance is Cooperative

WHREN participants pool their excess resources for the collective good of their communities. There is a desire for the evolving governance structure to be “lightweight” and consistent with this cooperative spirit.

### WHREN – Part of the Emerging Research Interregional Infrastructure

WHREN builds on the emerging interregional infrastructure that facilitates connectivity among the production services of the research networks from North and South America, as well as evolving network activities in the western hemisphere including:

- The RedCLARA – regional backbone in Latin America
- The National LambdaRail – the nationwide optical backbone in the United States
- The Atlantic Wave – a peering point that interconnects the international exchanges in Miami and New York with other international exchanges in the US and US federal networks
- Optical and GLIF exchanges evolving in North America and Europe
- Other data-intensive hybrid-services international networking activities