



Western-Hemisphere Research and Education Networks Links Interconnecting Latin America (WHREN-LILA)

**Fall 2005 Internet2 Member Meeting
International Task Force**

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WHREN-LILA IRNC Award 0441095



- λ **Project Partners and Collaborators**
 - ❑ **Florida International University (IRNC awardee)**
 - ❑ **Corporation for Education Network Initiatives in California (IRNC awardee)**
 - ❑ **Academic Network of Sao Paulo (award #2003/13708-0)**
 - ❑ **CLARA, Latin America**
 - ❑ **CUDI, Mexico**
 - ❑ **RNP, Brazil**
- λ **Links Interconnecting Latin America (LILA) aims to Improve connectivity in the Americas through the establishment of new inter-regional links**
- λ **Western-Hemisphere Research and Education Networks (WHREN) is a coordinating body of organizations from across North and South America that aims to leverage the network resources of participating members to foster collaborative research and advance education throughout the Western Hemisphere**

Project Goals



- λ **Improve network connectivity between North and South America through the deployment, operation and evolution of LILA links**
- λ **Evolve the LILA links to their fullest capacities as resources and economies permit**
- λ **Foster collaborative research and advance education throughout the Western Hemisphere and other world regions**
- λ **Support the evolving needs of production science and engineering researchers**
- λ **Foster new inter-regional and inter-disciplinary communities of researchers and learners**

Links Interconnecting Latin America

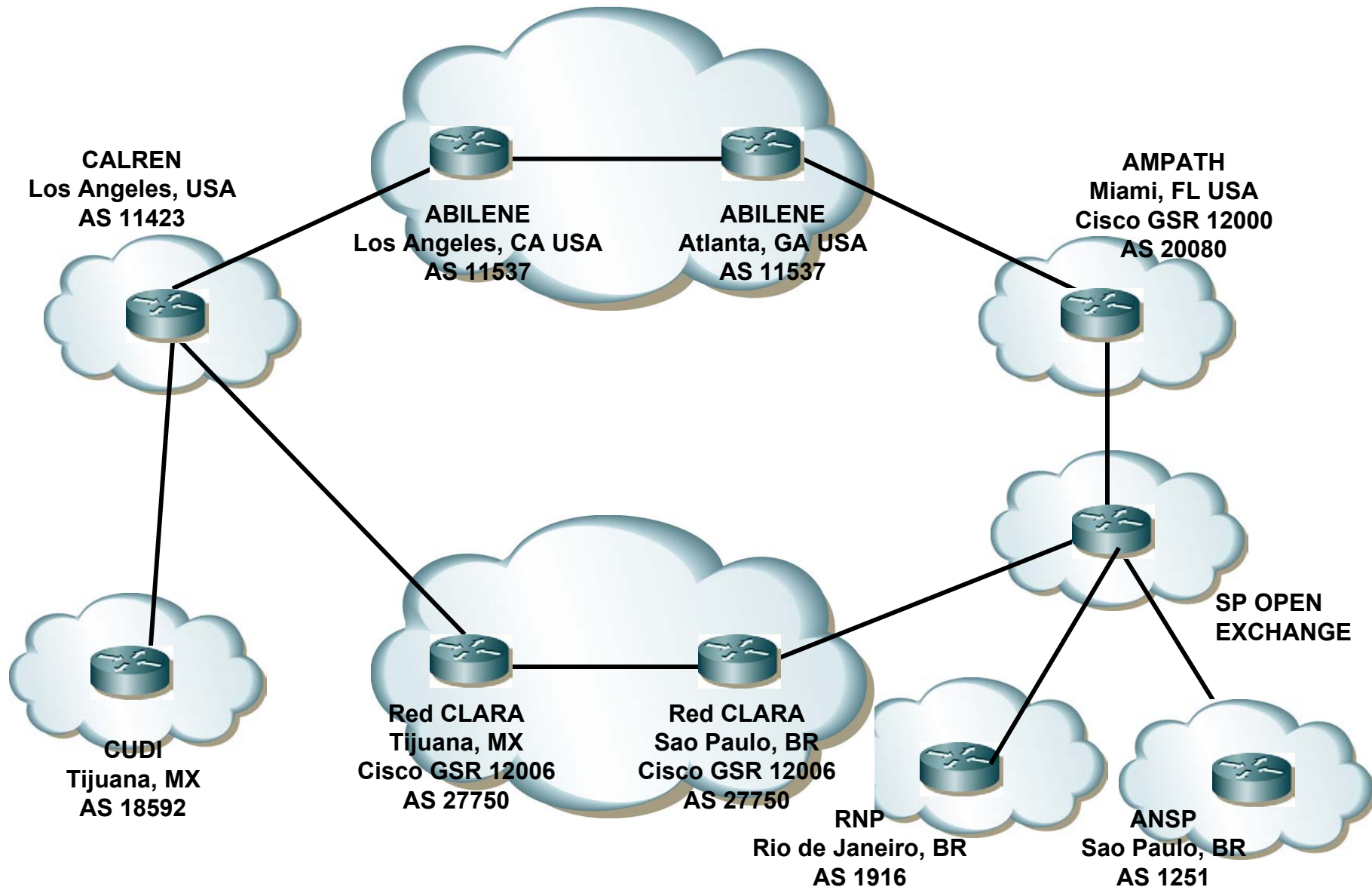


- λ **Miami - Sao Paulo link** operating at 622Mbps, increasing to 1.2Gbps by calendar year end, providing Gig-E interfaces to ANSP, RedCLARA and RNP
- λ **Link capacity evolves to at least 2.5Gb over 5 years**
- λ **San Diego - Tijuana link** operating at 1 Gbps, providing shared GigE to CLARA and CUDI
- λ **Growth across border possible up to maximum of 6 Gig-Es**
- λ **Peerings through AMPATH and CalREN to Internet2's Abilene and other US and global R&E networks**

- Mexico
- Brazil
- Venezuela
- Argentina
- Chile
- Peru
- Panama



Peering Topology



Communities Served



Latin America	R&E institutions
ANSP, Sao Paulo, Brazil	93
RedCLARA	
Connected:	
CUDI, Mexico	98
RNP, Brazil	329
REACCIUN, Venezuela	45
RETINA, Argentina	25
REUNA, Chile	14
RAAP, Peru	
RedCyt, Panama	
Planned:	
ADSIB, Bolivia	
Agencia de Conectividad, Col	16
ARANDU, Paraguay	22
CEDIA, Ecuador	17
CR2net, Costa Rica	10
RAGIE, Guatemala	7
RAICES, El Salvador	9
RAU, Uruguay	29
RedUniv, Cuba	
RENIA, Nicaragua	4
UNITEC, Honduras	23
Total Institutions	648

United States

Astronomy:

Gemini South
NOAO and CTIO
SOAR
Pierre Auger
ALMA

High-Energy Physics:

CMS: CERN

Brazil, Mexico, Argentina

D0, DOSAR, STAR: FermiLab
Brazil

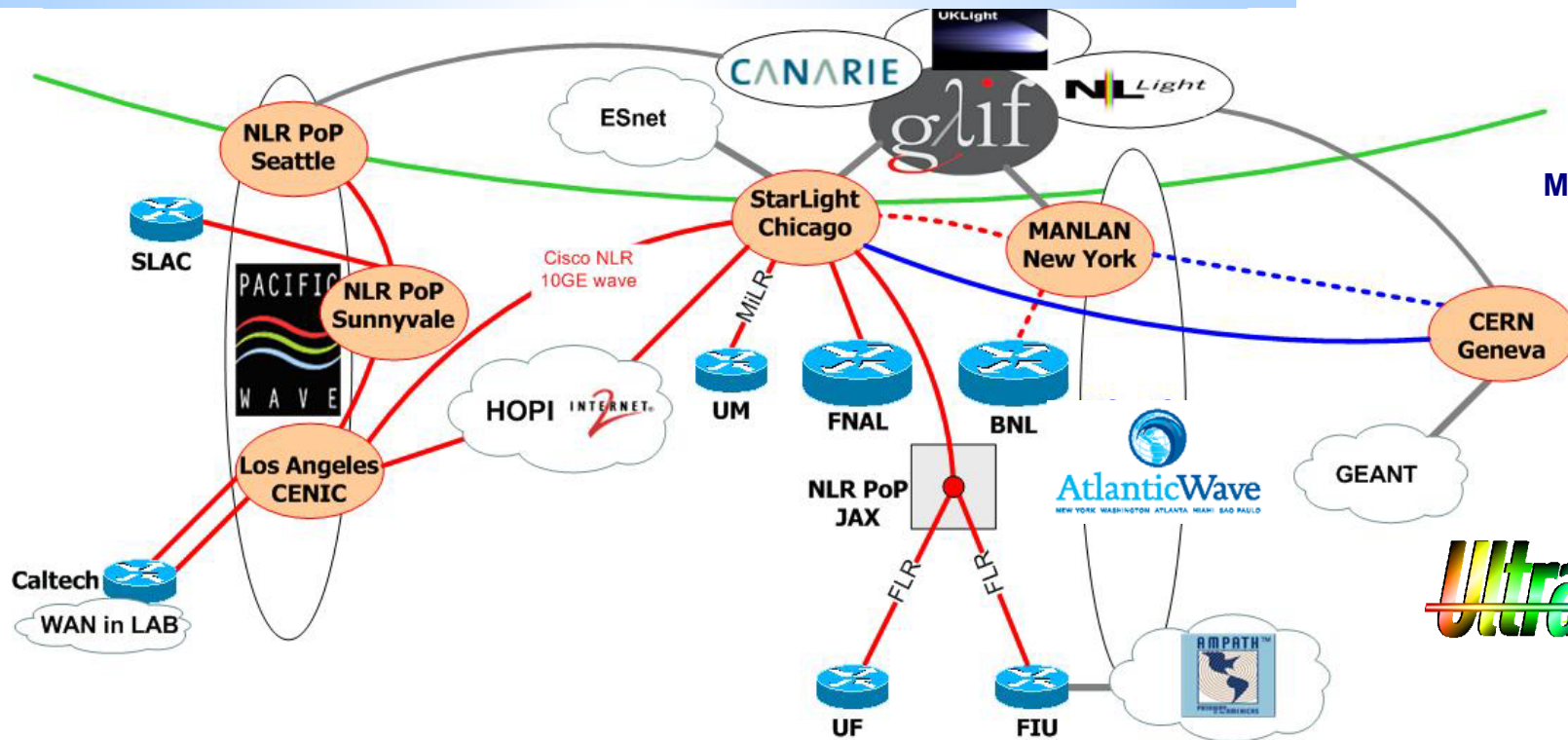
US Federal Agencies:

DOE
NASA

UltraLight: Advanced Network Services for Data Intensive HEP Applications



MPS #0427110



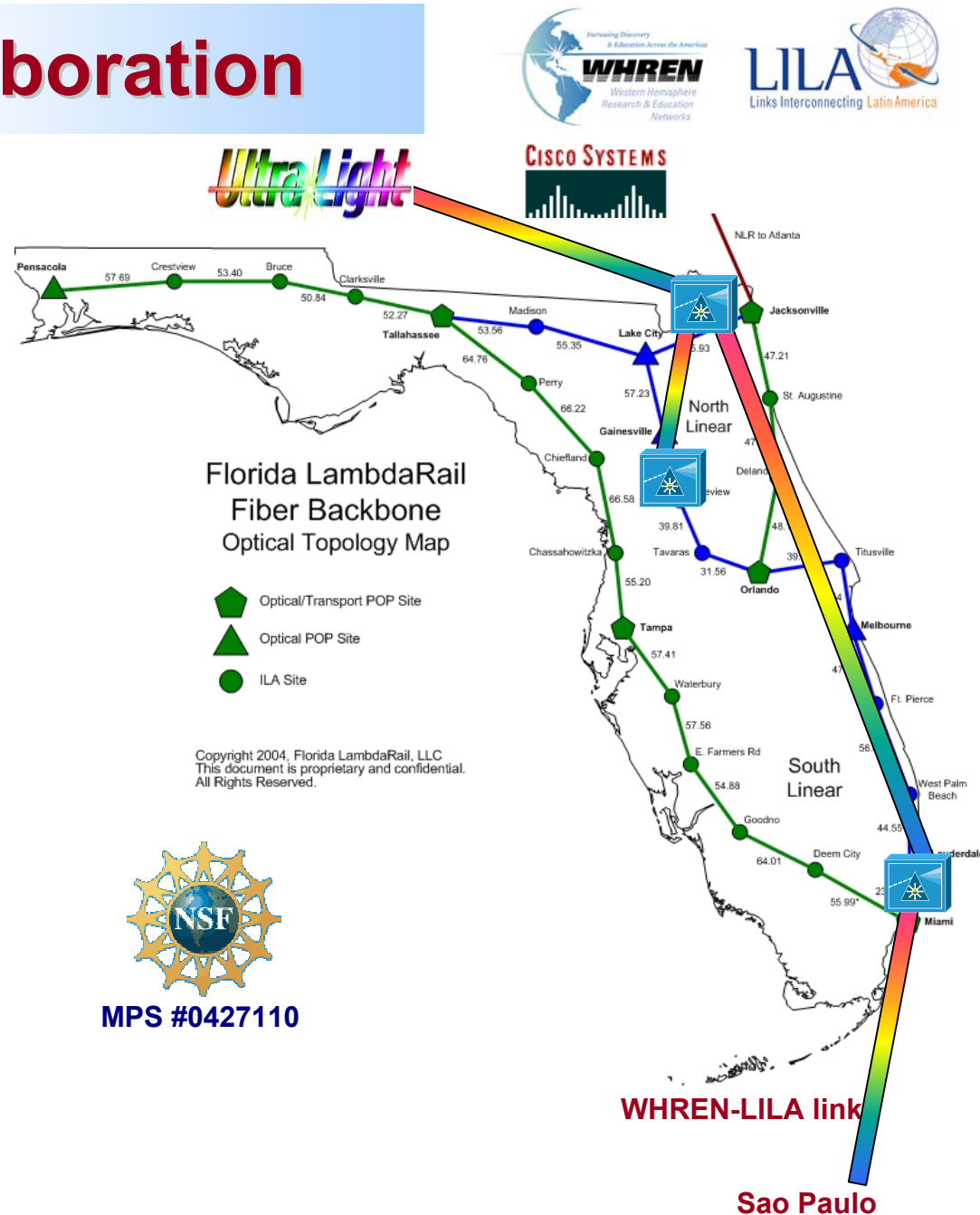
UltraLight



- ◆ Extend and augment existing grid computing infrastructures (currently focused on CPU/storage) to include the network as an integral component
- ◆ A next-generation hybrid packet- and circuit-switched *dynamic* network infrastructure
- ◆ Partners: Caltech, UF, FIU, UMich, I2, SLAC, FNAL; UERJ, USP, ANSP, RNP; GLORIAD (cn, kr, ru), GLIF
- ◆ Strong support from Cisco, CENIC, NLR, FLR

UltraLight Collaboration

- λ UFL, FIU, CHEPREO, and communities in Brazil participating in UltraLight
- λ Inter-regional connectivity through WHREN-LILA link
- λ Demonstration project using Cisco NLR wave for at least 6 months
- λ Cisco NLR wave from Jacksonville to Chicago
- λ Cisco-FLR provided 10GE links in Florida



Announcements



λ **WHREN-LILA Project Web site at**
<http://www.whren-lila.net/>

☐ **Measurement data at <http://www.whren-lila.net/network/monitor.htm>**

λ **Newsletter**

☐ **Subscribe at <http://www.whren-lila.net/news/moreport.htm>**

λ **WHREN meeting at iGrid, scheduled for**
Thursday, Sept. 29th, 16:30 to 18:30 PST

λ **Demonstrations at iGrid 2005 involving LILA**
circuits

☐ **Opening a University Fiber Highway between Mexico**
and the USA, <http://iGridMX.cicese.mx>

☐ **Global Lambdas for Particle Physics Analysis, Brazil,**
<http://ultralight.caltech.edu/web-site/igrid>

Thank You!



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- ☐ **Florida International University**
- ☐ **Latin American Research and Education community**
- ☐ **The many national and international collaborators who support our efforts**