

Americas Lightpaths (AmLight) Update



South American Astronomy Coordination Committee Meeting August 10, 2012



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Topics

- AmLight Project
- AmLight Network Engineer
- Performance Measurement



Americas Lightpaths (AmLight) Links



- **AMLIGHT East:**
 - Miami-Sao Paulo
 - 2 x 10G connections
- **AMLIGHT West:**
 - Tijuana-Los Angeles
 - 1x10G connection
- **AMLIGHT Andes:**
 - Santiago-Miami
 - 1G connection
- **AMLIGHT Central:**
 - San Antonio-Mexico City:
 - 1G connection





AmLight Collaborating Partners



- AmLight is made possible through the ongoing support of our collaborating partners
 - Academic Network of Sao Paulo (ANSP-FAPESP)
 - Association of Universities for Research in Astronomy (AURA)
 - Rede Nacional de Ensino e Pesquisa (RNP)
 - Corporation for Education Network Initiatives in California (CENIC)
 - Lonestar Education and Research Network (LEARN)
 - Cooperación Latino Americana de Redes Avanzadas (CLARA)
 - Red Universitaria Nacional (REUNA)
 - Corporación Universitaria para el Desarrollo de Internet (CUDI)



AmLight Network Engineer

- Jeronimo Aguiar
- [<jeronimo.aguiar@rnp.br>](mailto:jeronimo.aguiar@rnp.br)
- The AmLight network engineer supports and coordinates with each of the network engineering teams of the networks participating in AmLight regarding network engineering requests
- Based in Campinas, Brazil

Performance Measurement

- Request from the SAACC March 27, 2012 meeting:
 - *Conduct a requirements analysis to evaluate perfSONAR as an instrument to measure end-to-end performance between project sites in Chile and sites in the U.S.*
- Internet2 has an award in the IRNC program to deploy perfSonar on IRNC links
 - *The AmLight PI engaged the PI at I2 to provide guidance*

Performance Measurement (cont.)

- Network engineering teams from Internet2, AmLight, REUNA, and AURA, along with PIs discussed goals and requirements on the use of perfSONAR on AmLight from AURA site to sites in the U.S. (NCSA)
- Data was provided to Internet2 to observe routed paths from AURA to NCSA
- The discussion revealed perfSONAR nodes were already deployed at the following sites:
 - AURA (La Serena)
 - REUNA (Santiago)
 - AMPATH (Miami)

Performance Measurement: Findings and Next Steps

- Refer to report
- Analysis showed routed path to NCSA used NLR backbone
- Additional data needs to be analyzed to confirm if the shortest path to NCSA is over NLR
 - Engineering teams to investigate
- Using deployed perfSonar nodes, work with Internet2 to
 - Characterize the path between AURA and NCSA
 - Build a history of the performance of the path



More Slides Follow

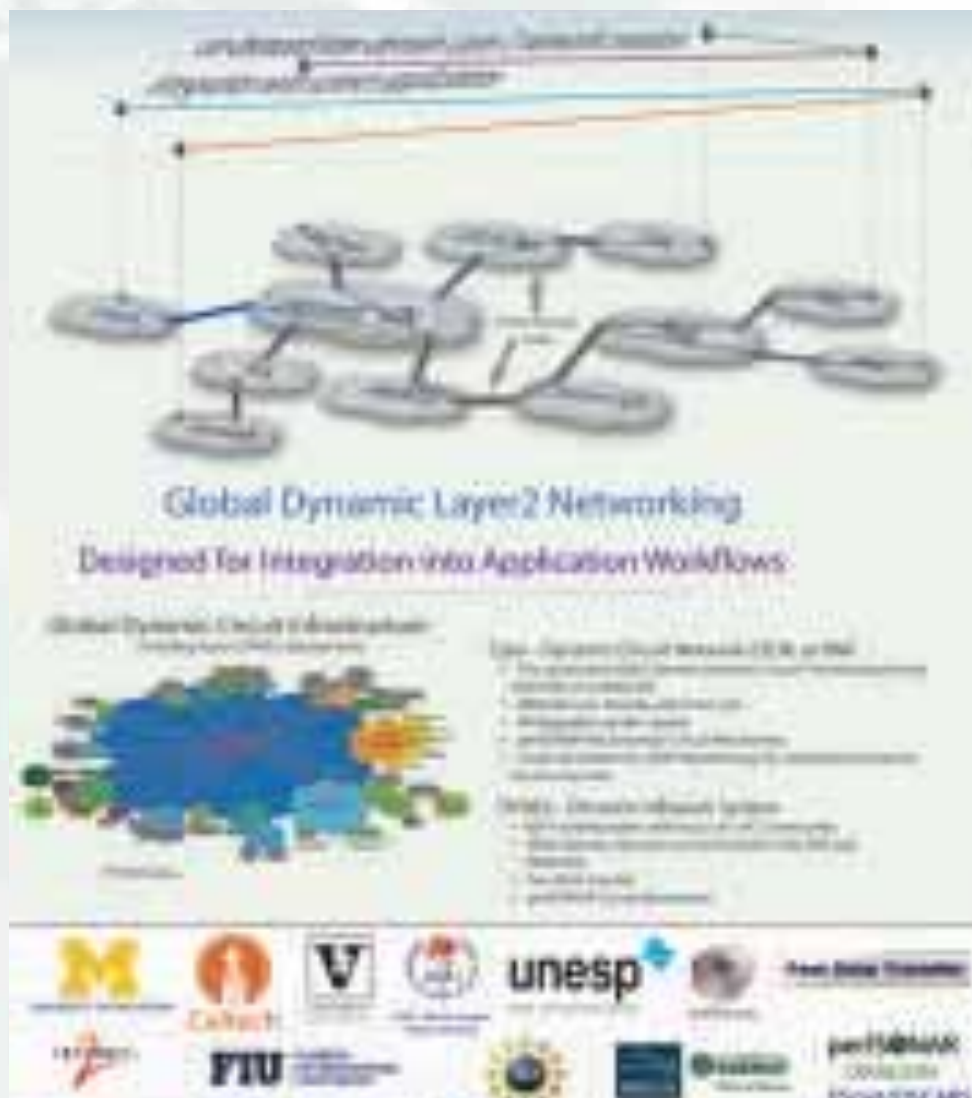


About AmLight

- AmLight is an NSF IRNC Production Network (ProNet) award for USA-Latin America science & engineering research and education, OCI-0963053
- AmLight aims to enhance science research and education in the Americas
 - Interconnecting key points of aggregation
 - Providing operation of production infrastructure
 - Engaging U.S. and western hemisphere science and engineering research and education communities
 - Creating an open instrument for collaboration
 - Maximizing benefits of all investors

Hybrid Network Services

- OSCARS IDC implemented on AmLight East
 - Collaboration with DYNES and DyGIR projects, RNP, FLR and Internet2
- Dynamic circuit provisioning capability between RNP, AMPATH and Internet2 ION
- Demonstrated dynamic provisioning at GLIF



OpenFlow/SDN Activities

- Network virtualization technology
- Deploying OpenFlow on AmLight
 - Coordinating with Internet2, Indiana University, GENI, RNP and ANSP
- Connecting OpenFlow projects via AmLight to GENI and NDDI networks

Monitoring of Hybrid Network Services

- Deploying passive monitor at AMPATH
 - Data Collection and Analysis servers ordered
 - DAG cards ordered
- Adaptin passive monitor for AmLight operations environment
 - Monitoring and reporting hybrid network flows
 - Adding support for OpenFlow