



The Gemini Observatory



Project Overview

NSF Grant Proposal

Gemini South/AmPATH Connection to
Internet2



Project Goal

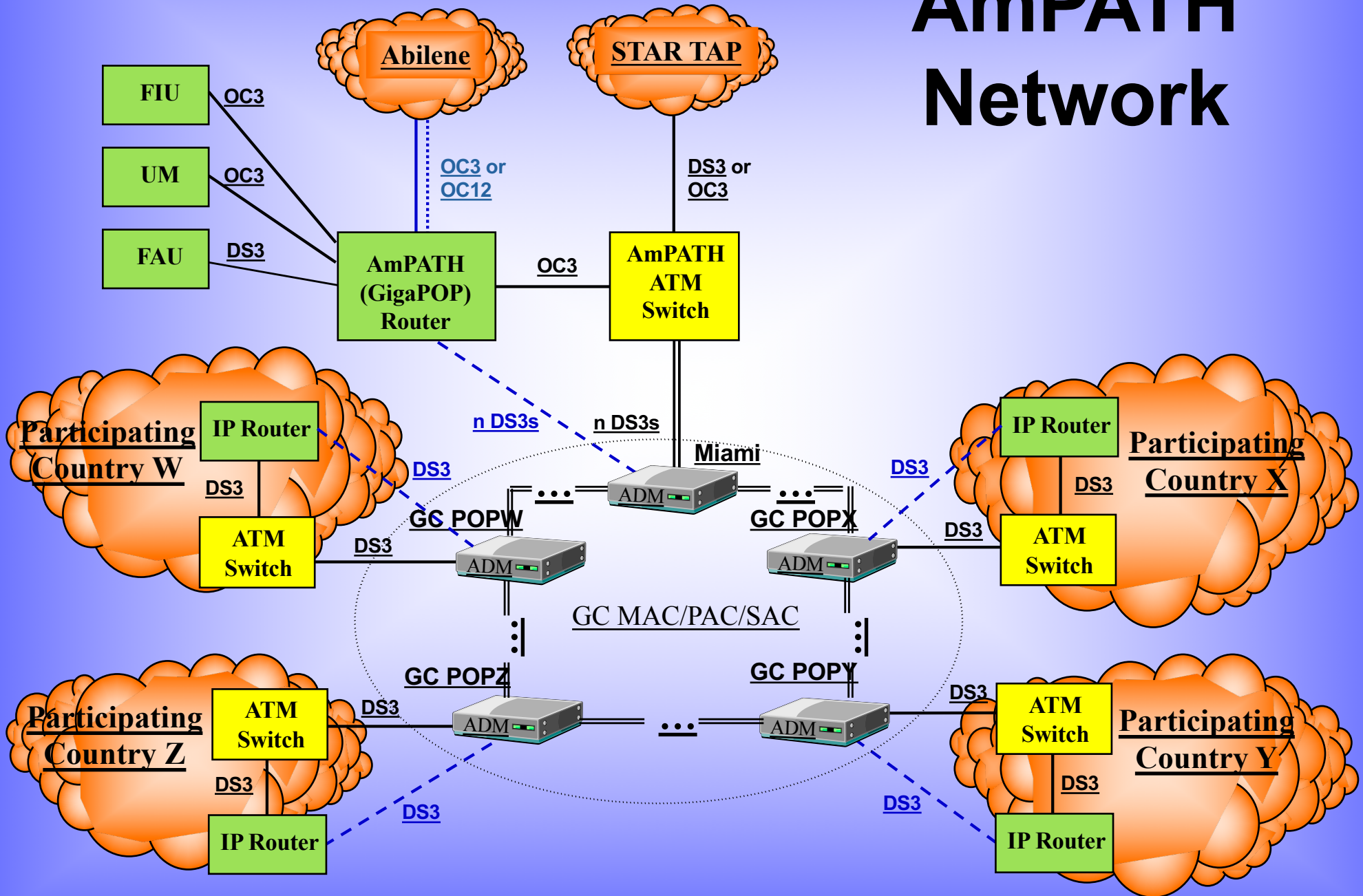
● Establish a high-speed connection from the La Serena base station, Chile, to US National Research Networks (NRNs) and non-US NRNs.

- Florida International University (FIU) proposes to connect the La Serena base station to Miami, Florida, where connectivity to US and non-US NRNs is available using Internet2's Abilene network.
- Provide end-to-end high-speed connectivity between Gemini North and Gemini South.
- FIU is in a unique position in being able to achieve this goal, because of its leadership role in the AmPATH project.

What Is AmPATH?

- The AmPATH project is a collaboration between FIU and Global Crossing (GC) to interconnect the R&E networks in South and Central America, the Caribbean and Mexico to Internet2 connected networks
- FIU and GC have signed an MOU where at least 9 countries receive a DS-3 of capacity for a period of 3 years

AmPATH Network



- Landing Points
- Initial Connectivity
- Planned Expansion
- Connecting Systems

South American Crossing



Global Crossing's Service Area

- Argentina
- Brazil
- Chile
- Columbia
- Mexico
- Panama
- Peru
- US Virgin Islands
- Venezuela
- Puerto Rico (?)

AmPATH Makes It Feasible!

- Gemini benefits because the AmPATH project provides *cost effective* infrastructure and connectivity
 - FIU operates the AmPATH POP in Miami
 - Partnerships have been established with GC, Lucent, Cisco Systems, and Abilene
 - FIU offers its leadership and expertise to the project

How We Make It So...

- Establish a DS-3 connection between Miami and Santiago using Global Crossing's submarine and terrestrial network
- Connect the Gemini, CTIO and SOAR networks to the AmPATH POP in Miami
- Using Internet2's Abilene network for transit, provide connectivity to US & Non-US NRNs



**Gemini
CTIO
SOAR**

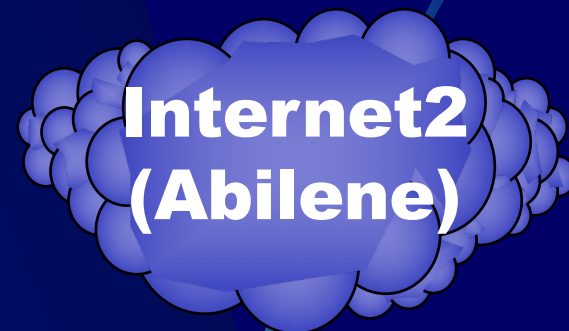
La Serena

DS3

**GC's POP
in Santiago**

DS3

Gemini South Connection to AmPATH



**Internet2
(Abilene)**

DS3

**AmPATH POP
(Miami)**

DS3

**GC's Terrestrial and
Submarine Network**

Proposed Timeline

Jun 2000

FIU & AURA Meet with NSF for proposal guidance

Jul 2000

Submit unsolicited proposal to NSF and Secure Funding

Sep 2000

Project planning

Oct 2000

Negotiate and procure hardware, circuits, port charges, NOC Services

**Develop implementation plan, reference materials,
web page content, and reports**

Nov 2000

Begin Implementation

Dec 2000

**Testing with 20 Mbps from La Serena to Miami and I2
provided that GC fiber crosses the Andes in time**

Mar 2001

Go Live with dedicated DS-3 bandwidth for Gemini South to Internet2

Proposed Budget

Description	Year 1	Year 2	Year 3	Total
Senior Personnel	94,440	97,273	100,191	\$291,904
Other Personnel	20,400	21,012	21,642	\$63,054
Fringe Benefits	33,482	33,708	34,720	\$101,910
Permanent Equip.	0	0	0	\$0
Travel	22,000	14,000	14,000	\$50,000
Other Direct Costs	402,340	391,834	392,529	\$1,186,703
Total Indirect Costs	102,213	79,741	81,185	\$263,139
Amount of Request	674,875	637,568	644,267	\$1,956,710
Cost Sharing	947,000	900,000	900,000	\$2,747,000

Gemini-AmPATH Horizon

- MOU for AmPATH project participants includes Letter of Commitment to continue funding their connection
- FIU will continue to provide leadership, technical resources and facilities beyond the 3-year project period
- Project continuity provides Gemini with resources for cost-effective connectivity

More Opportunities

- AmPATH can provide connectivity for other US funded projects in the Service Area. For example:
 - Atacama Large Millimeter Array (ALMA) Project—Chile
 - The Inter-American Institute for Global Change Research—Brazil
 - Yale Southern Observatory—Argentina

NSF Interests in the AmPATH Service Area

Award Description	Project Amount (Estimated)
ATM-9911348 The Inter-American Institute for Global Change Research located in Brazil (IAI) Agreement created an intergovernmental organization for the purposes of coordinating and promoting scientific research related to global change.	\$1,455,000
AST-9530473 Southern Hemisphere at the Yale Southern Observatory base at the Cesco Observatory at El Leoncito, Argentina . AST-9530474, 9217906, 8917638, 8917717, 9870972 8610591 Continues support \$493,323 \$57,365 \$303,302 \$235,000 \$253,100 \$421,900 \$265,000	\$2,028,990 (Collectively)
EAR-9709145 Patagonia Lake Drilling Project (PATO): Phase I a multi-disciplinary, international effort to recover, for the first time, long paleoenvironmental and paleoclimate records from three extra-Andean closed lake basins in Argentina .	\$596,368

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NSF Interests in the AmPATH Service Area

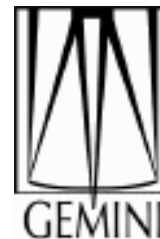
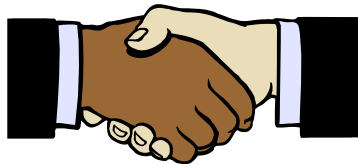
Active Awards in Puerto Rico

Award Description	Project Amounts (Estimated)
DUE-9753543 Collaborative for Excellence for Teacher Preparation	\$5,000,000
ESR-9711999 Statewide Initiative in Science, Mathematics and Technology (SSI Phase II)	\$4,458,300
HRD-9623943 Alliance for Minority Participation Phase II	\$3,950,000
EPS-9874782 Strategic Program to Achieve Sustainable Competitiveness (scientific infrastructure)	\$3,000,000
DEB-9705814 The Luquillo Experimental Forest II (Long-Term Ecology Research Program)	\$2,894,771
ANI-9976006 Connection to NSF's vBNS Network: A Proposal submitted by U. of P.R. Research Institutions and the National Astronomy and Ionosphere Center	\$1,400,000
DMR-9872689 Collaborative to Integrate Research and Education between the U. of P.R. and the U. of Pennsylvania	\$1,358,579

Partnership



FIU



The background is a deep navy blue. It features several thin, light blue lines that intersect at various angles, creating a geometric pattern. On the left side, there is a small, pixelated globe icon showing green and blue. Scattered across the upper half are several small, multi-colored star-like icons. The text "Thank You!" is centered in a bold, yellow font.

Thank You!

