



IPv6 in Latin America

IPv6 World Congress Meeting
Las Vegas, Nevada, U.S.
Azael Fernández Alcántara
February 2006



▶ CONTENTS

1. Introduction.
2. IPv6 in Latin America (6Bone)
3. IPv6 in Mexico
4. IPv6 in CLARA Network
5. IPv6 current status in Latin America.
6. References.



▶ BACKGROUND

- Since 1998, academic institutions of Brazil (RNP) and Mexico (UNAM) began research and first tests with IPv6.



IPv6 IN LATIN AMERICA

▶ Test bed Networks (Within 6Bone Project)

- **56** Nodes (1485 worldwide, i.e. **3.77%**).
 - 11 in Argentina (14)
 - 13 in Brazil
 - 3 in Chile
 - 6 in Colombia
 - 1 in Cuba
 - 3 in Dominican Republic
 - 16 in Mexico
 - 2 in Peru
 - 0 in Uruguay (1)



Countries with IPv6 nodes in 6Bone



Source: Web page of the UNAM's IPv6 Project

5

IPv6 IN LATIN AMERICA

▶ Test Prefixes (Within 6Bone Project)

- **8** pTLA (117 worldwide (26 Returned), i.e. **6.84%**)
 - Rede Nacional de Pesquisa, RNP, Brazil
 - Fibertel, Argentina
 - UNAM, Mexico
 - ITESM, Mexico
 - Compendium, Argentina
 - UDG, Mexico
 - UACH, Chile
 - RETINA, Argentina



▶ IPv6 in Mexico



▶ CLARA Network

- First packets crossed the Atlantic on August, 31 2004
- 18 LA-NRENs
- Big interest in IPv6



▶ CLARA Network



▶ IPv6 in CLARA

- **August 2005.**

Native IPv6 implemented in the backbone

- **November 2005.**

Multicast IPv6 implemented in the backbone



► Initial IPv6 Deployment in CLARA

To ABILENE

To GEANT



▶ NRENs connected with IPv6 (5 from 18)

- RETINA (Argentina)
- RNP (Brazil)
- REUNA (Chile)
- CUDI (Mexico)
- RAU (Uruguay)



▶ Next NRENs to connect with IPv6 (5)

- CEDIA (Ecuador)
- RAICES (El Salvador)
- RENIA (Nicaragua)
- RAAP (Perú)
- REACCIUN (Venezuela)





IPv6 current status in Latin America and the Caribbean

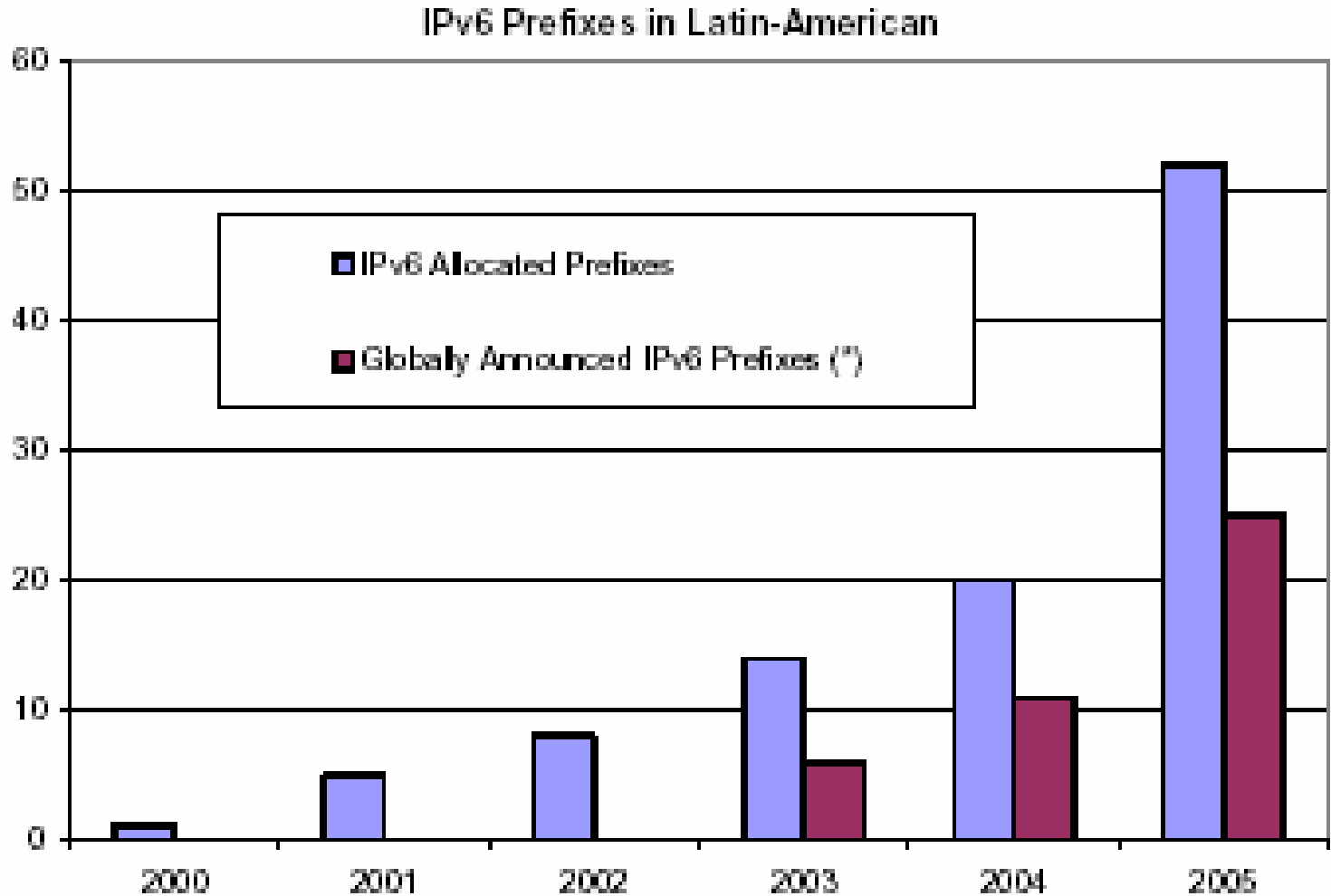


▶ BACKGROUND

- Since 2000 academic institutions, and later the first ISPs got their own production prefixes from ARIN.
- Later on, with the creation of LACNIC in 2002, the number of allocations has grown, in 2005 it duplicated.



▶ IPv6 Prefixes in Latin America



Source: IPv6 survey paper

16

▶ IPv6 STATUS

- Many 6Bone nodes still working in Latin America.
- Different 6Bone phase-out dates.
- According to a prediction 2008-2009 (20-30% of IPv6 traffic)



▶ Latin American and Caribbean IPv6 Task Force

- LACIPv6TF
- Formed in 2004



▶ LAC IPv6 TF ACTIVITIES

- 3 Latin American IPv6 Forums (FLIPs-6) from 2004-2005
- In 2005 the “IPv6 Tours” organized by LACNIC, took place in 10 countries.
- More than 2000 attendees



▶ Latin American IPv6 Task Forces

- Brazil
- Cuba
- Mexico
- Peru

- Others in process



IPv6 IN LATIN AMERICA

► Production Networks

- **57-7** sTLA's (1026 worldwide, i.e. **5.55%**)
 - UNAM, Mexico
 - AVANTEL, Mexico
 - ITESM, Mexico
 - RNP, Brazil
 - AXTEL, Mexico
 - PROTEL, Mexico (Returned)
 - UNINET, Mexico (Returned)
 - Brazil / Dominican R.
 - Chile / Argentina
 - Uruguay / Paraguay
 - Venezuela / Costa Rica



IPv6 IN LATIN AMERICA

► Production Networks

Position	Country	Visible	Allocated	Visible Percentage
1	Mexico	5	12	9.09%
2	Brazil	4	7	7.27%
3	Argentina	4	6	7.27%
4	Peru	0	5	0.00%
5	Venezuela	1	4	1.82%
6	Uruguay	3	3	5.45%
7	Cuba	3	3	5.45%
8	Dominican R.	1	3	1.82%
9	Chile	2	3	3.64%
10	Costa Rica	1	2	1.82%
11	Nicaragua	0	1	0.00%
12	Panama	1	1	1.82%
13	Guatemala	1	1	1.82%
14	Paraguay	0	1	0.00%
15	Haiti	0	1	0.00%
16	Colombia	0	1	0.00%
17	Bolivia	0	1	0.00%



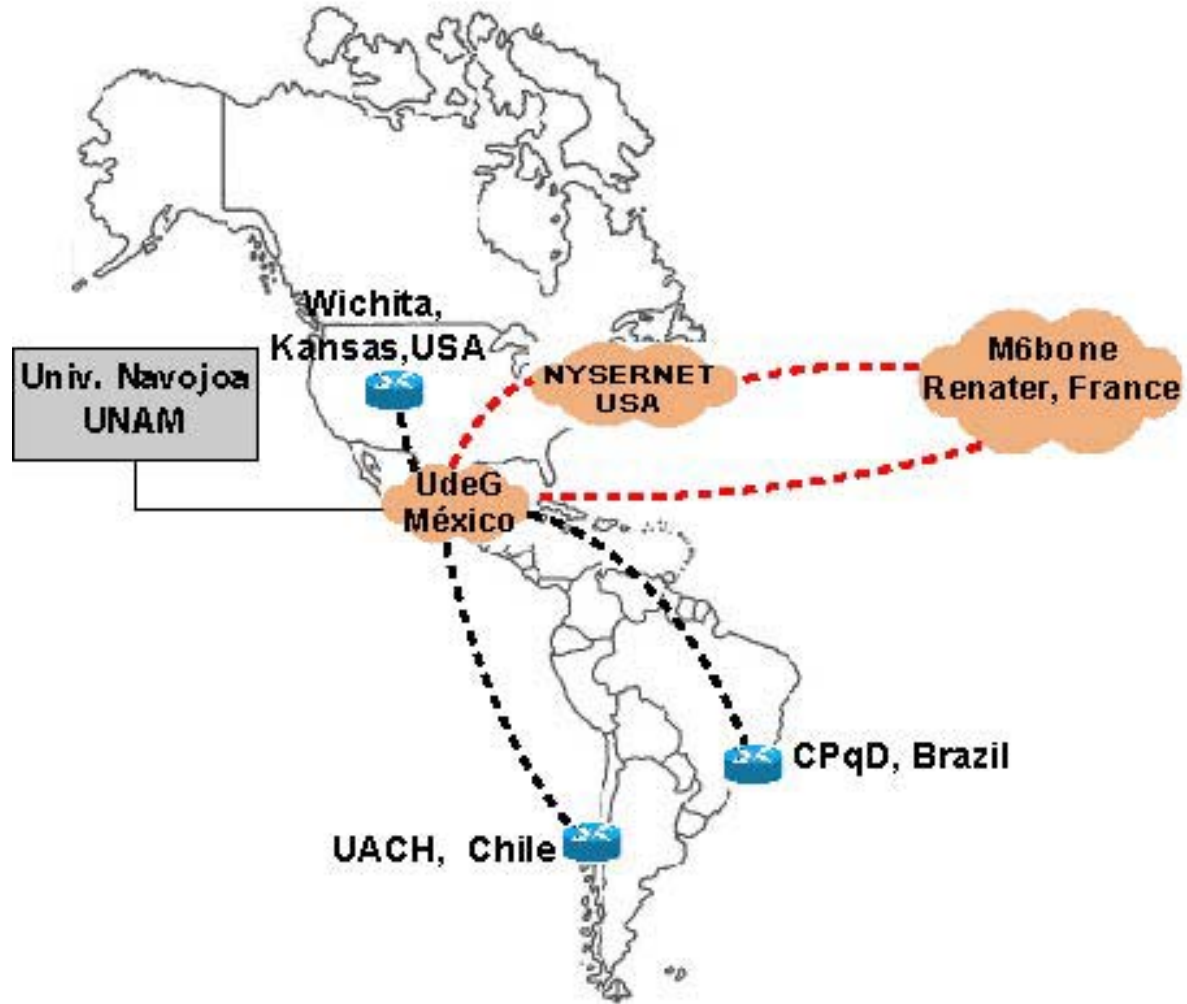
Source: SixXS Ghost Route Hunter

▶ PROJECTS

- IPv6 Applications development.
- VoIPv6 or SIP with IPv6.
- Videoconference.
- Remote control of devices.
- Multicast IPv6 (Opera Oberta).



▶ M6Bone in Latin America



▶ Possible uses of IPv6

- Military.
- Projects:
 - National and international Grids.
 - Environmental monitoring (volcanic, etc).
 - Mobile IPv6



▶ NECESSARY IPv6 PROMOTION in:

- Governmental IPv6 support. (Promotion Council)
- IPv6 Traffic Exchange Points
- Native IPv6 networks.
- Demo services.
- More Research and Develop Projects.
- Creation of different WGs.
- Spanish documentation.
- Training and educative Programs.



► DRIVERS of IPv6

Users of many addresses and the always-on services:

- Wireless networks (MIPv6, 3G ?, WiMax, etc.)
- ADSLv6, PLC, etc.
- Research and home networks.
- Online games, etc.





References



▶ REFERENCES

- www.6bone.net
- lac.ipv6tf.org
- www.lacnic.net
- www.ipv6.unam.mx
- www.ipv6.retina.ar / www.ipv6.cl
- www.rnp.br/en/ipv6 / www.rau.edu.uy/ipv6
- www.redclara.net/03/06_05.htm





El Nuevo Internet: Internet para Todos Calidad, Movilidad y Seguridad

- [Inicio](#)
- [Acerca de IPv6](#)
- [Grupo de Trabajo](#)
- [Noticias](#)
- [Eventos](#)
- [Documentos](#)
- [Suscripción](#)
- [Otros Sitios](#)
- [Solo Miembros](#)

Bienvenido al Capítulo Mexicano del Foro IPv6

Jueves 14 de Abril del 2005



Cumbre Mundial de IPv6 2005 en España

Eventos

[Eventos Próximos y pasados](#)
[Presentaciones y Documentos](#)

[Grupo de Trabajo de IPv6 para América Latina y el Caribe](#)

Noticias IPv6



Ha dado inicio la Fase II del programa oficial "IPv6 Ready" del Foro IPv6.



En el "IPv6 Cluster" Europeo se encuentran las últimas noticias de IPv6.



Leer las últimas noticias desde la revista japonesa Style.



Thanks for your attention !

azael@ipv6.unam.mx

