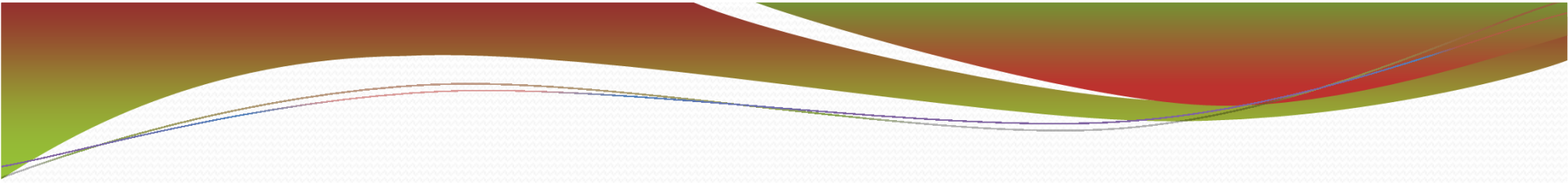


Study Committee 3 for Latin America and the Caribbean, and Meeting of Group SG₃RG-LAC

San Salvador, El Salvador
From February 16 to 18, 2011





Economic and Technical Factors of the Interconnection of Latin America and the Caribbean

Oscar A. Messano

Factores Económicos y Técnicos en la
Interconexión de Latinoamérica y Caribe
Oscar A Messano





Countries without NAPs

Transit Providers in the Region

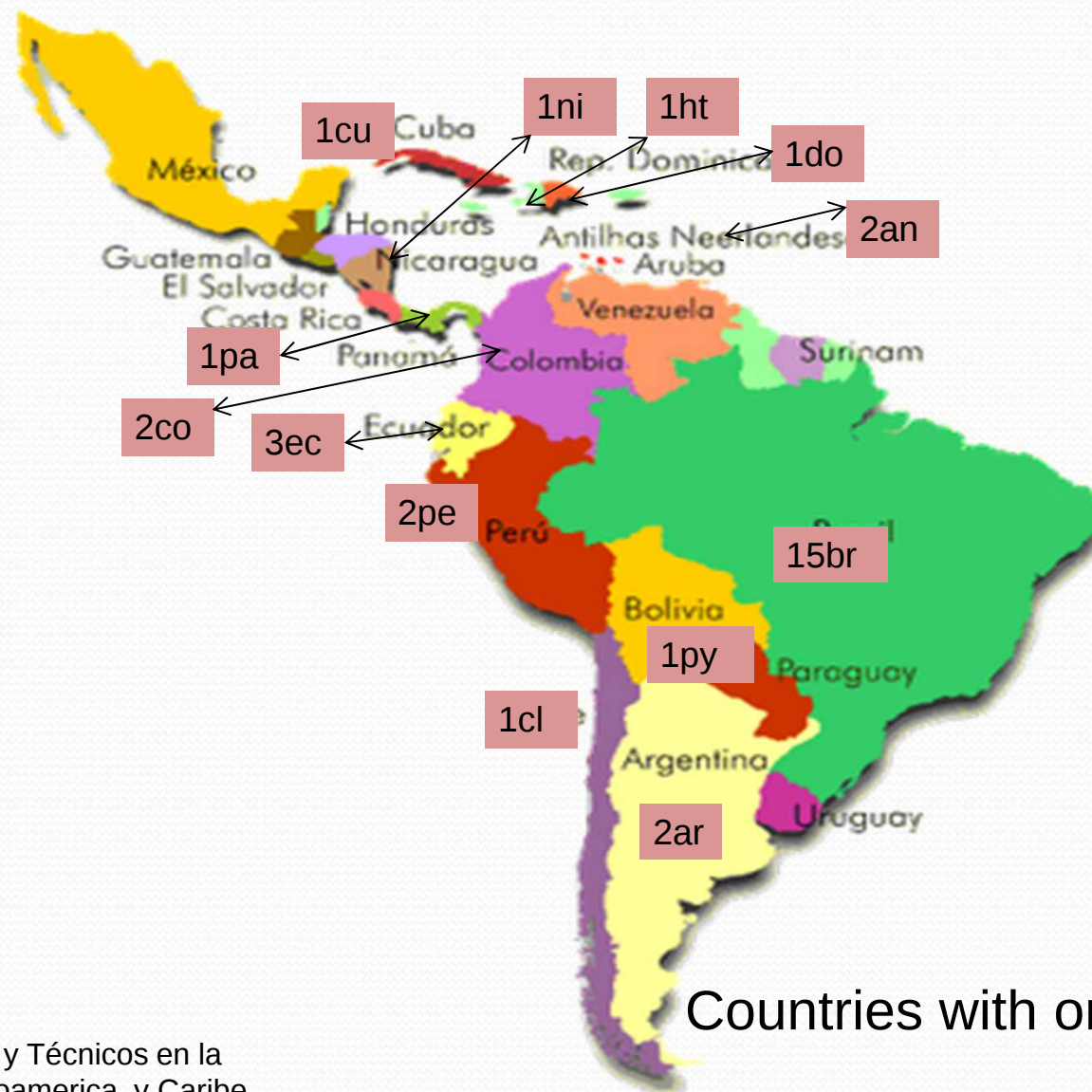
- Verizon Business
- Sprint
- GBLX
- TWIS
- Columbus Networks

Transit within the Countries

Ampath	AT&T
Auris	BR Telecom
Centenial	Clara
Columbus	Comsat
Cybernet	Digicel
Entel	Esnet
GBLX	GBnrt
Gilat	Global Carib
Grant	IFX
Internap	Internet2

Transit within the Countries

Level3	Metrored
Navega Newcom	NTT
Orange	FT
Savvis	Seabone
Sprint	TATA
Techtel	Telecom
Telesiwth	Telga
Telga	Terramark
Tnet	Twis
Verizon	XO



Countries with one or more Naps

• Nicaragua

Nap Nicaragua – 15 Members

Founded 1995

AIN – Asociacion Internet Nicaragua

• Panama

Nap Interred Panamá 10 Members

Nap Panamericano S.A. N/I

Nap SENACYT N/I

Proyecto Mesoamérica – Plan Puebla

Colombia

Nap Colombia 15 Members

Founded 2000

Managed CCIT – Cámara Colombiana de
Informática y Telecomunicaciones

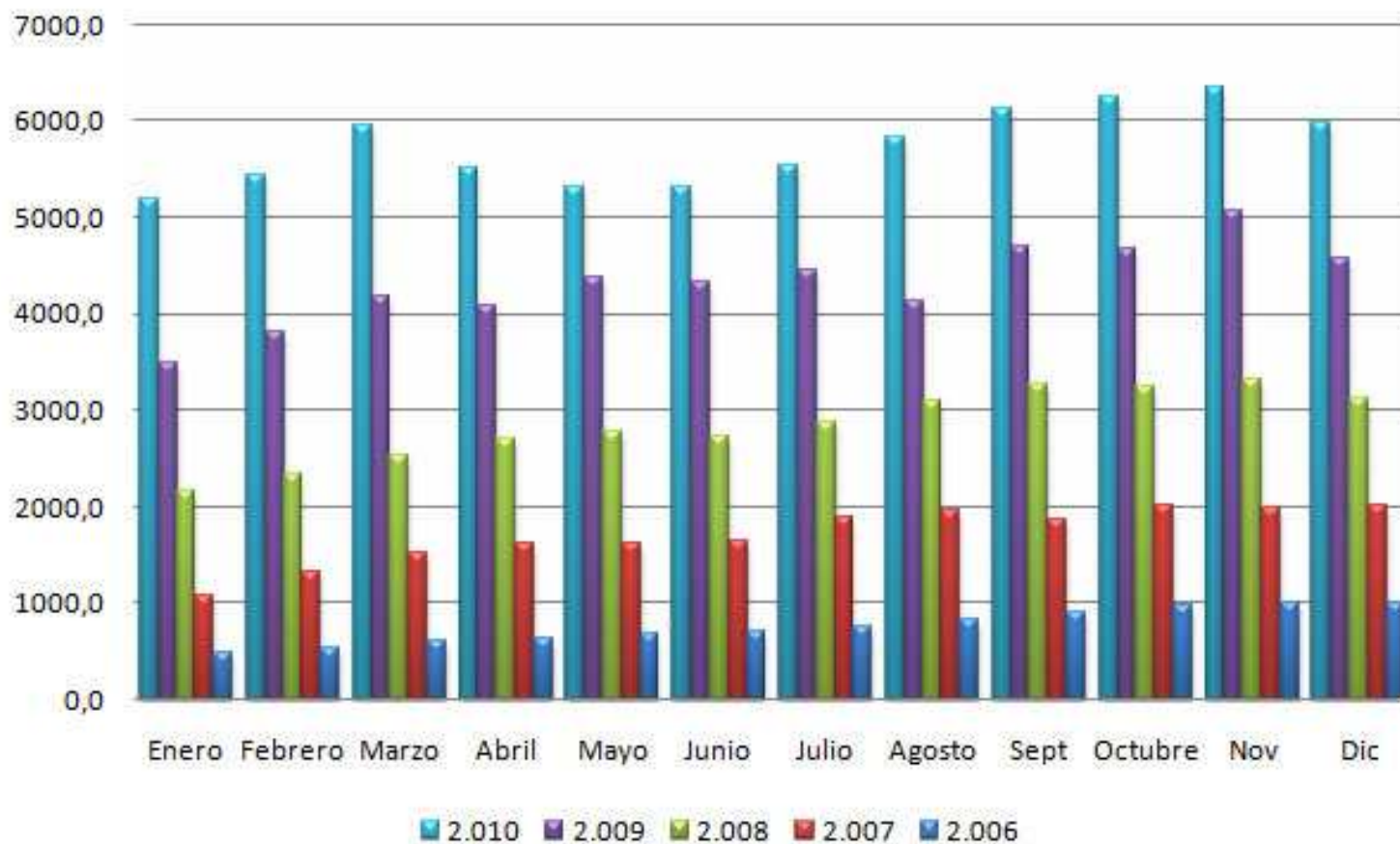
Nap CIM S/D

Nap de las Américas S/D

Founded 2008

Peak Monthly Traffic NAP COLOMBIA

**Tráfico Pico Mensual NAP Colombia
(Mbps)**



Colombia cont.

Internexa - ISA

Aside from participating in the Colombia NAP, has operations in:

Bolivia

Brasil

Colombia

Chile

Ecuador

Perú

Ecuador

Nap AEPROVI – 16 Members

Funded 2003

Asociación de Empresas Proveedoras de Servicios de Internet, Valor Agregado y Tecnología de la Información

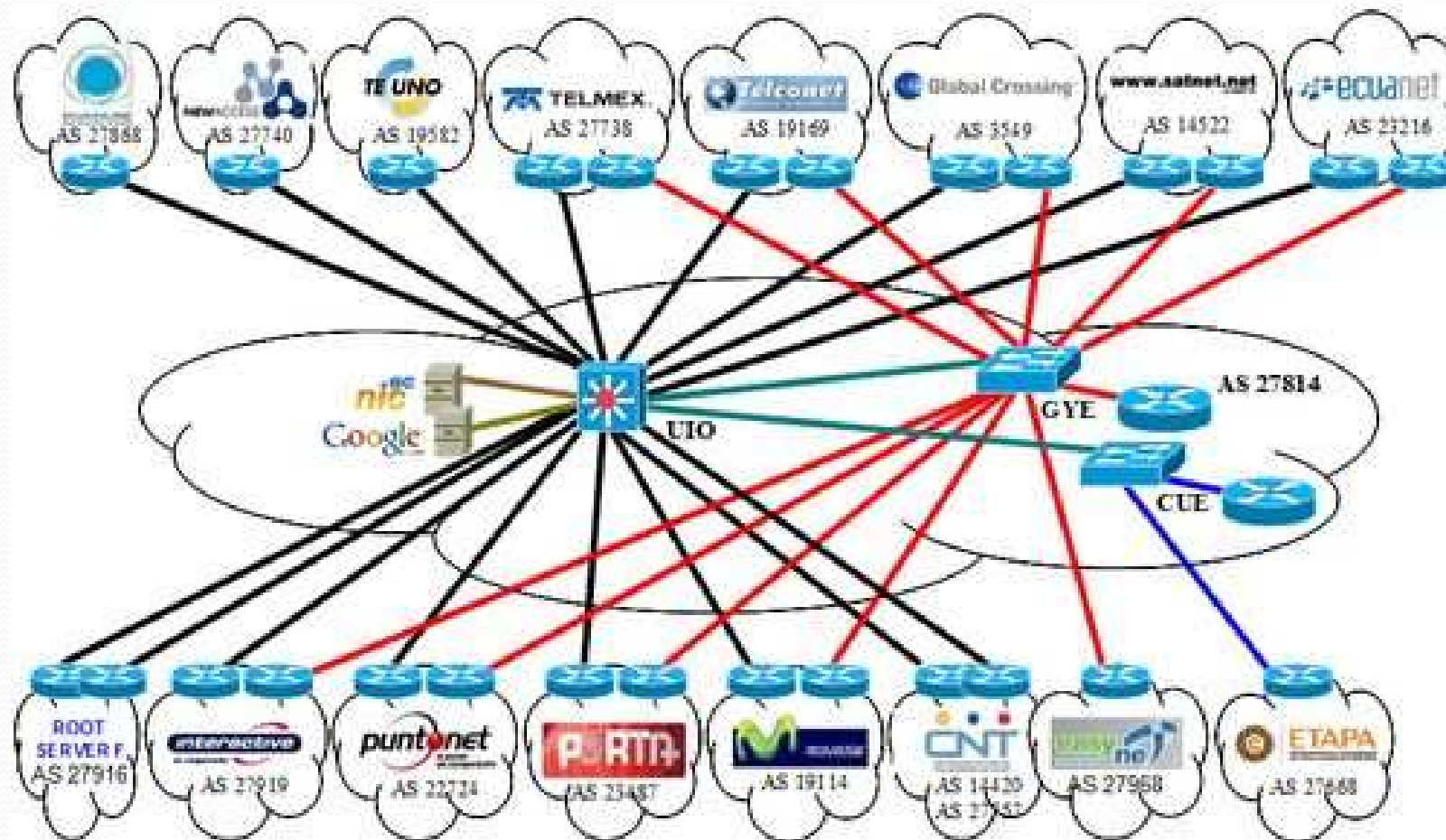
Non profit association

Naps in: Guayaquil

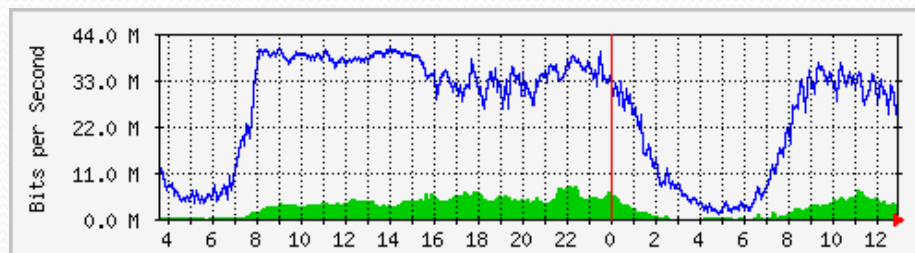
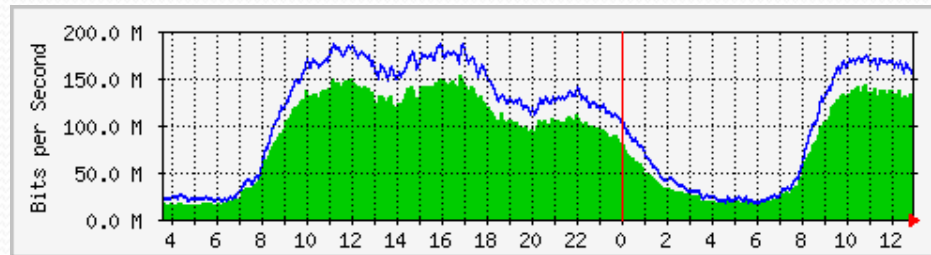
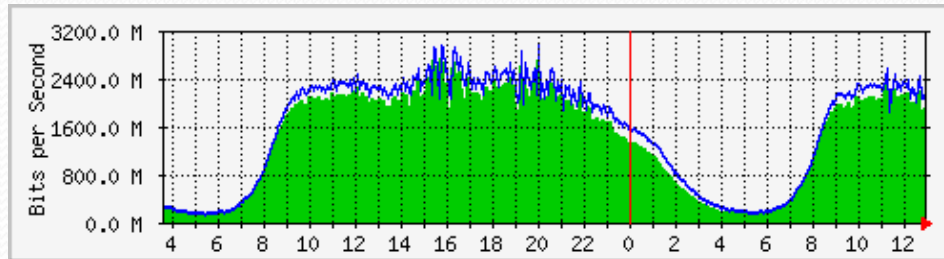
Quito

Cuenca

Ecuador



Graphics characteristics:
The statistics are updated every 5 mins



GREEN Incoming traffic to NAP in
Bits per sec.
BLUE outgoing traffic from NAP in
Bits per sec.

Peru

Nap Peru – 9 Members

Funded 2001

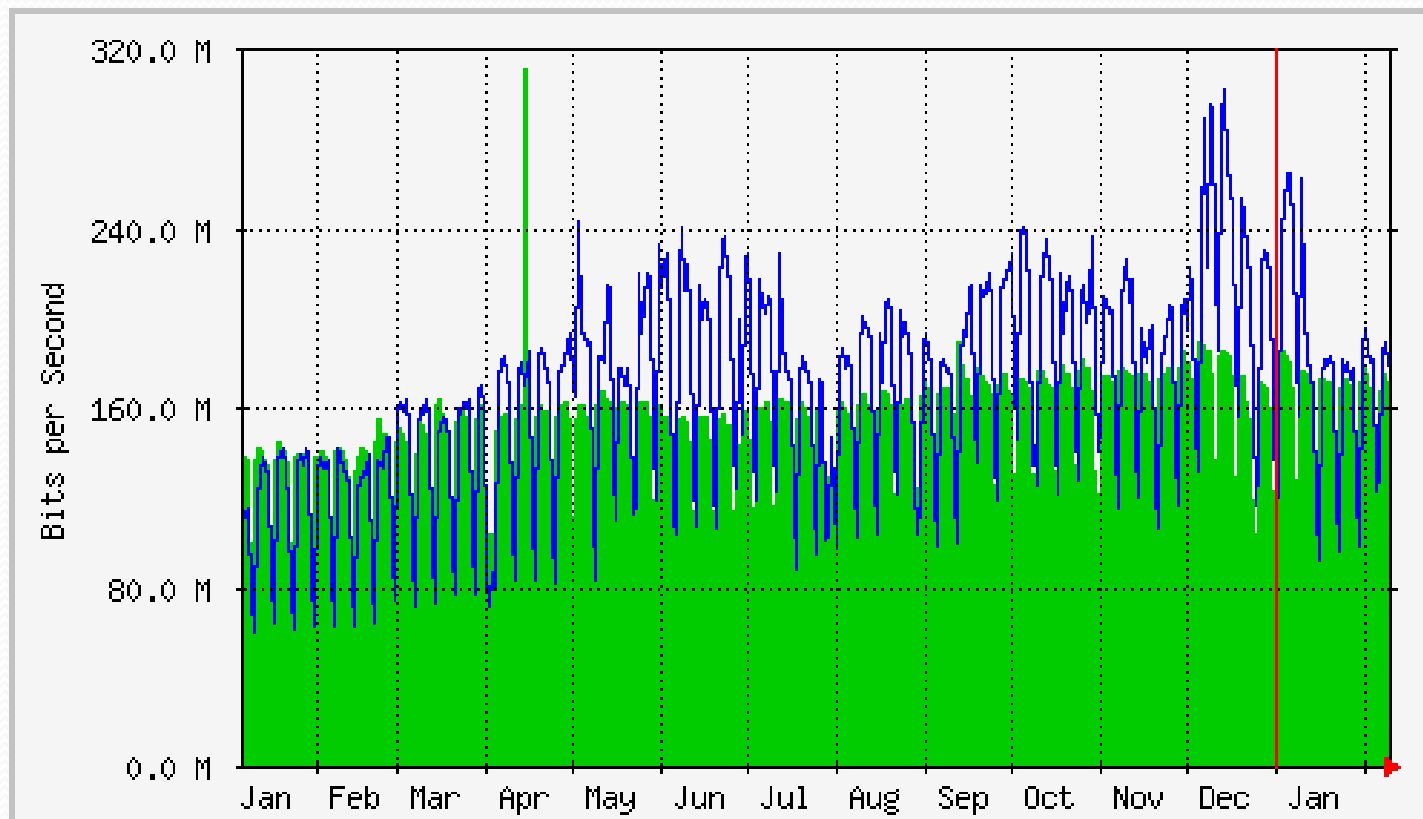
Private Entity

Nap Internexa

Private Entity

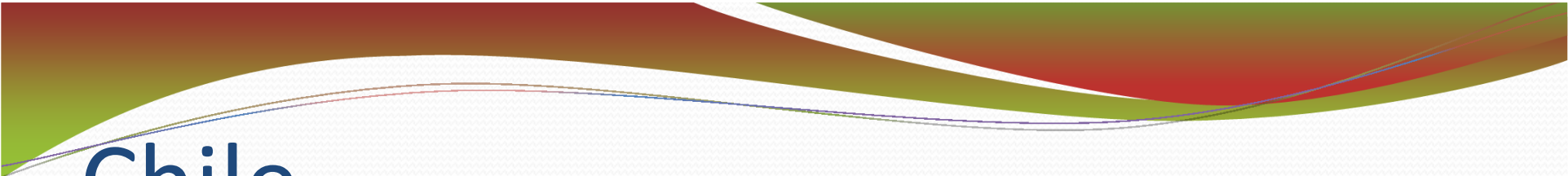
Peru

Telmex



Max.outgoing traffic 312.3 Mbps (31.2%)

Max.ingoin traffic 301.5 Mbps (30.2%)

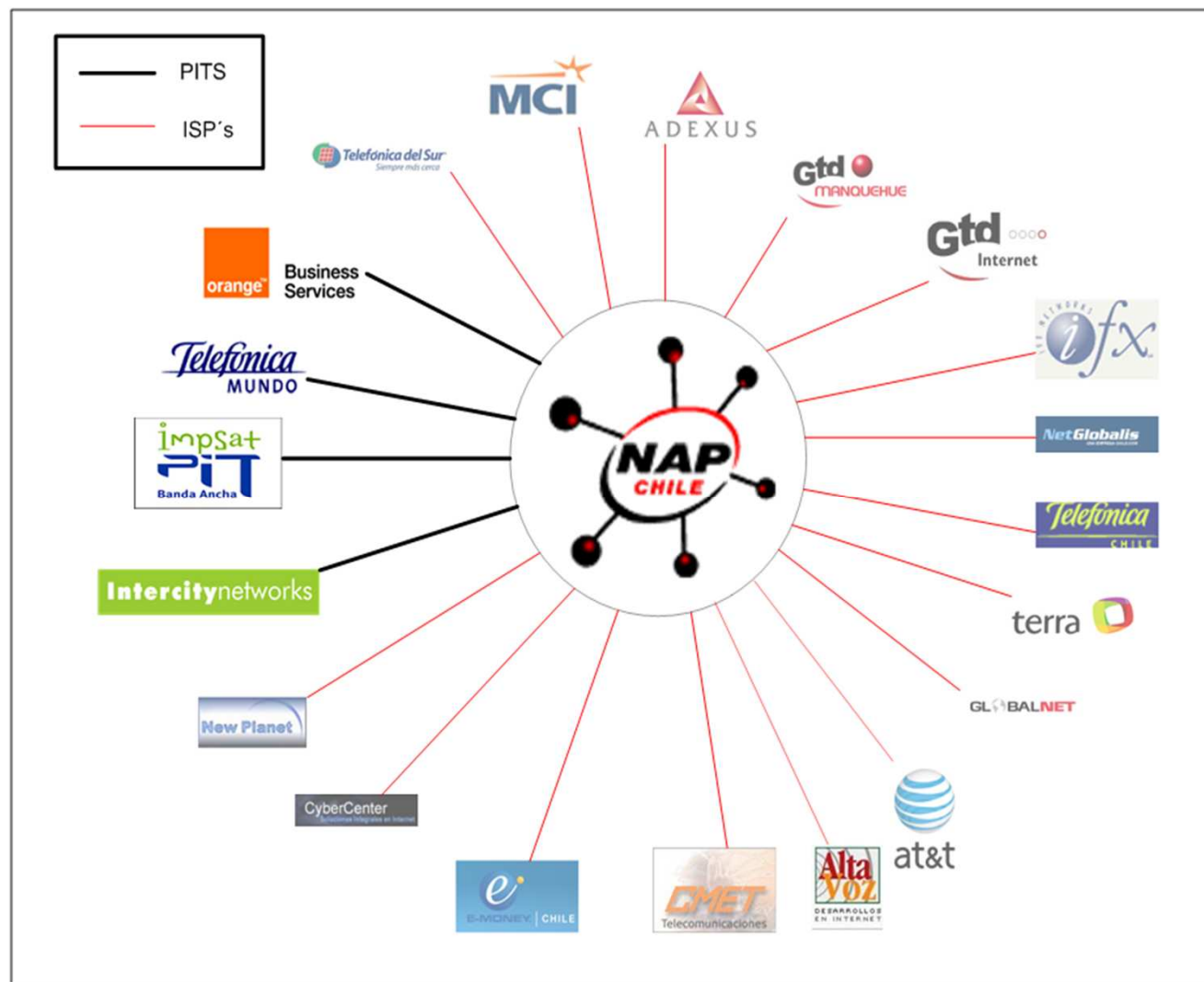


Chile

Nap Chile - 20 Members

Founded 1997

Private Entity



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Paraguay

Nap CAPADYI– 15 Members

Founded 2001

Cámara Paraguaya de Internet

Haiti

Nap Haiti – 4 Members

Founded 2009

AHTIC IT Association :
Association Haïtienne pour le
développement des TIC



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Telecommunications Infrastructure before the earthquake

1 Gb capacity through Dominican Republic
10 Gb of submarine cable in Port-au-Prince,
coming in from Bahamas

350 MB of pre-WiMAX and WiMAX

Servers of the .ht

Copy of Root server F

After the earthquake

The Nap continued to operate at 60%, traffic restricted to 128kb

The Nic .ht and Root Server mirror continued in operation

Text messages were received from people trapped in debris, which were resent to the local authorities for rescue coordination.

Nap Haiti – Who were active during the emergency

Max Larson Henry,

maxlarson.henry@transversal.ht

Stephane Bruno,

sbruno@websystems.ht

Reynold Guerrier,

reygue@htg.ht

Dominican Republic

Nap of the Caribbean

Founded 2008

Terremark World

Cuba

Nap Cuba 5 Members

Founded 2001

Netherlands Antilles

Nap OCIX Philipsburg - 8 Members

Founded 2008

Open Caribbean Internet eXchange

OCIX AGGREGATE TRAFFIC

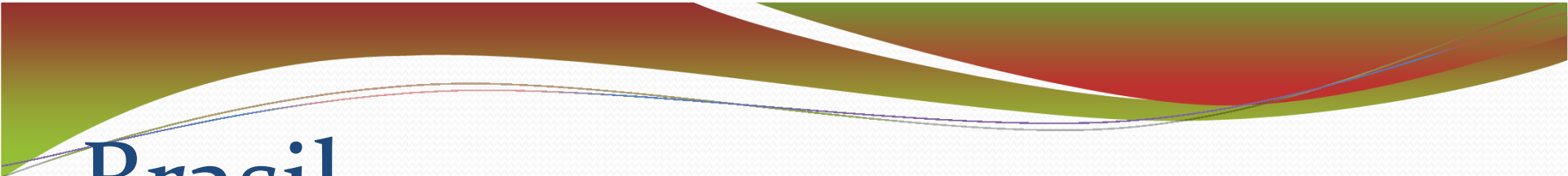
Nap CARIX Curacao – 7 Members

Founded 2009

Caribbean Internet eXchange

PTT Metro

Comité Gestor de Brasil



Brasil

Naps 15 PTT Metro - 457
Members

Founded 2004

CGIbr

PTT Metro Project

Comité Gestor de Internet

Nine representatives of the Federal Government

Four representatives of the corporate sector

Four representatives of the third sector

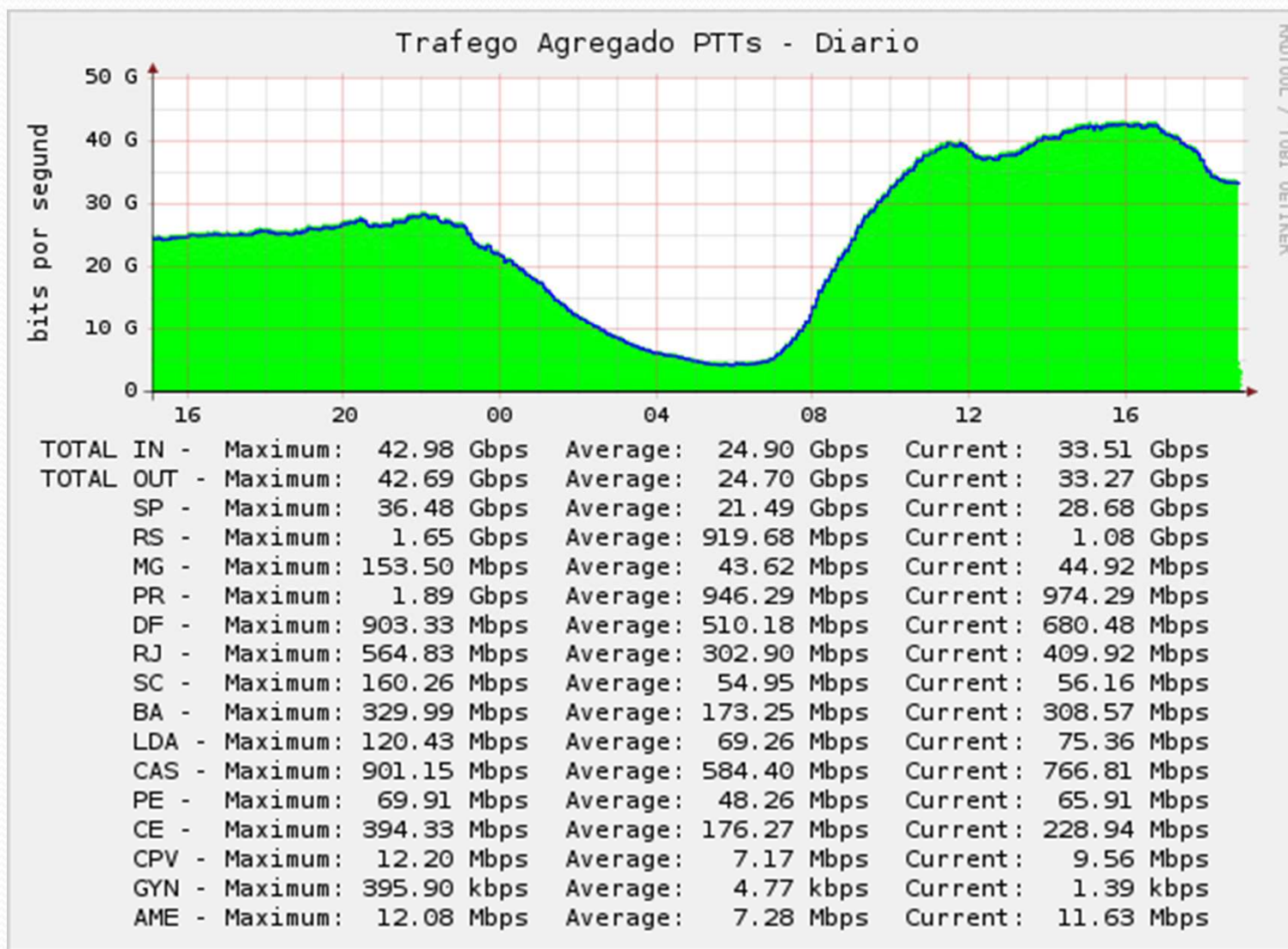
Three representatives of the science and technology community

One representative – Notable in Internet issues

Proyecto PTT Metro

- Americana (operando) Belo Horizonte (operando)
- Brasília (operando) Campina Grande (operando)
- Campinas (operando) Curitiba (operando)
- Fortaleza (operando) Florianópolis (operando)
- Londrina (operando) Goiânia (operando)
- Porto Alegre (operando) Recife (operando)
- São Paulo (operando) Rio de Janeiro (operando)
- Salvador (operando)

15 PTT Operando



PTT Metro Rules

- ASN; Own and operate an autonomous system
- Multilateral traffic agreement via RS, or direct bilateral relations
- Establish traffic exchange agreements with other participants
- Conecction to only one PIX
- Selection of Pix inmetropolitan area for interconnection
- Implement BGP4 routing protocol

Federalization of Bandwidth NAPs CABASE

Argentina

Nap Cabase – 52 Members

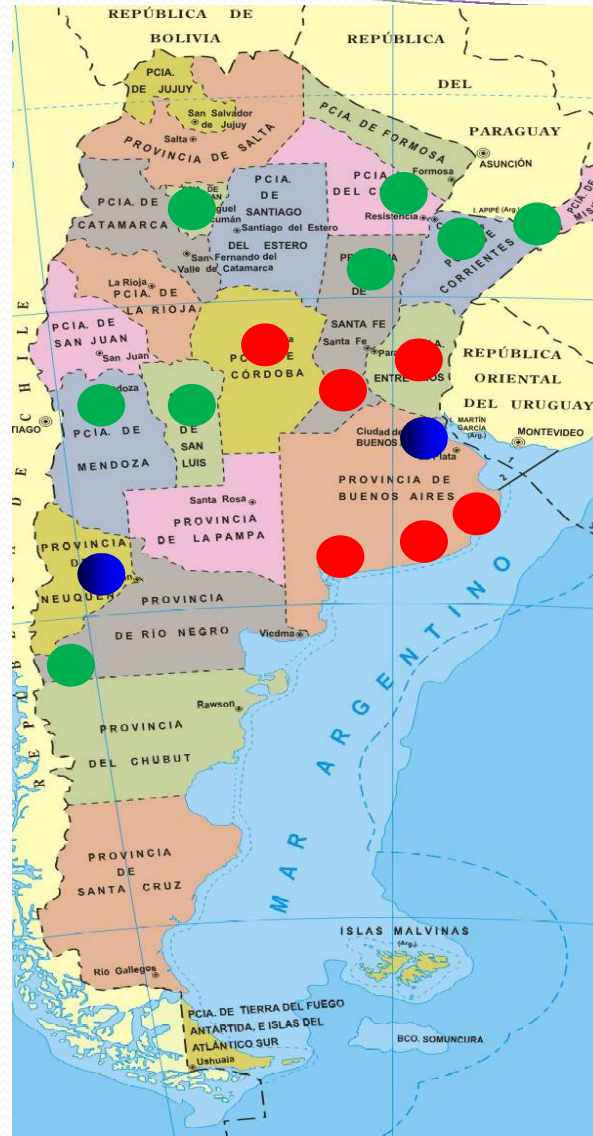
Founded 1996

Cámara Argentina de Internet

Nap Buenos Aires

Nap Neuquen

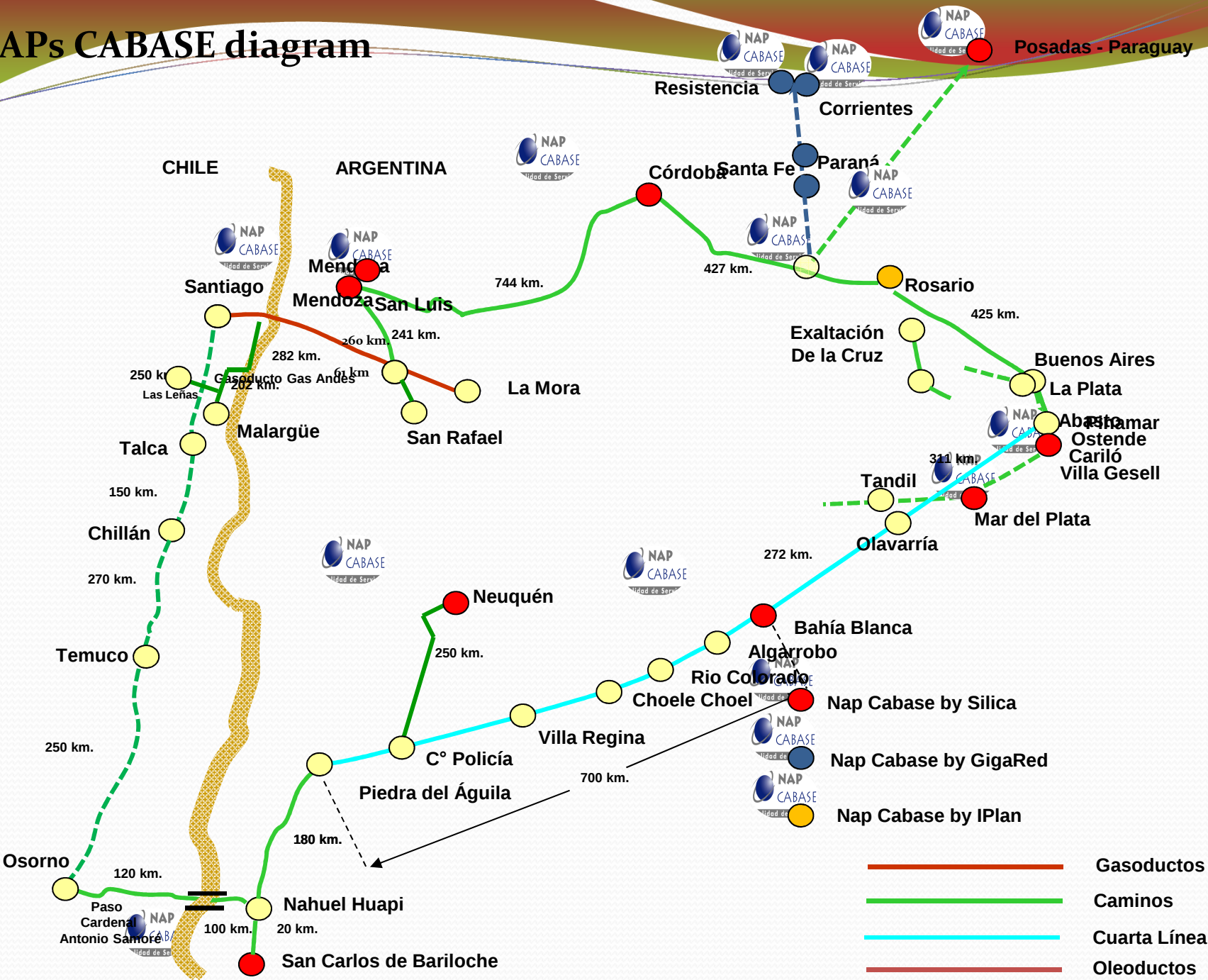
16 NAPs CABASE REGIONALES Argentina



BUENOS AIRES
 NEUQUÉN
 ROSARIO
 SANTA FE
 PARANÁ
 RESISTENCIA
 CORRIENTES
 COMPLEJO DE LA COSTA
 MAR DEL PLATA
 BAHÍA BLANCA
 BARILOCHE
 CÓRDOBA
 SAN LUIS
 MENDOZA
 POSADAS
 TUCUMAN

- In development
- Advanced construction
- Operating

NAPs CABASE diagram



Summary of the proposal

- The central idea is that CABASE have a 1 Gbit ring in phase 1, enlarging to 2,5 Gb in phase II and achieving a lambda of 10 Gbit in phase III
 - Value of Service. Three components:
 - Cost of IP transport
 - Cost of Setting Up in each City
 - Cost of Internet in Cabase

Values

sin Internet			Volumen de Tráfico del NAP							
			Precio de Transporte IP sobre Red de Silica para Cabase			NAP's de λ	NAPs > 2.5 Gb	NAPs > 1 Gb	NAPs > 500 Kb	NAPs > 100 Kb
Servicio	Ancho Banda	Precio por Mb	USD 1	USD 2	USD 5	USD 7	USD 10	USD 20		
λ 10 Gb BUE-SCL anillado	Mbs 10.000	USD 12	USD/Mb 13	USD/Mb 14	USD/Mb 17	USD/Mb 19	USD/Mb 22	USD/Mb 32		
> 2,5 Gb BUE-SCL anillado	Mbs 2.500	USD 24		USD/Mb 26	USD/Mb 29	USD/Mb 31	USD/Mb 34	USD/Mb 44		
> 1 Gb BUE-SCL anillado	Mbs 1.000	USD 36			USD/Mb 41	USD/Mb 43	USD/Mb 46	USD/Mb 56		
> 500 Mb	Mbs 500	USD 50				USD/Mb 57	USD/Mb 60	USD/Mb 70		
> 100 Mb IP	Mbs 100	USD 75						USD/Mb 95		

Precio de Internet Internacional Mayorista						
Por λ	Entre 2.5 y 10 Gb	Entre 1Gb y 2.5 Gb	Entre 500 Mb y 1 Gb	Entre 100 Mb y 500 Mb	Menor de 100 Mb	
USD/Mb 28	USD/Mb 30	USD/Mb 35	USD/Mb 40	USD/Mb 45	USD/Mb 55	Precio de Internet a Cabase según volumen compra

			Volumen de Tráfico del NAP							
Con Internet	Precio de Transporte IP + Internet sobre Red de Silica para Cabase			NAP's de λ	NAP's > 2.5 Gb	NAP's > 1 Gb	NAP's > 500 Kb	NAP's > 100 Kb	NAP's < 100 Mb	
	Servicio	Ancho Banda	Precio por Mb	USD 1,00	USD 2,00	USD 5,00	USD 7,00	USD 10,00	USD 20,00	
	☐ 10 Gb BUE-SCL anillado	Mbs 10,000	USD 12	USD/Mb 13	USD/Mb 44	USD/Mb 52	USD/Mb 59	USD/Mb 67	USD/Mb 87	
	> 2,5 Gb BUE-SCL anillado	Mbs 2,500	USD 24		USD/Mb 56	USD/Mb 64	USD/Mb 71	USD/Mb 79	USD/Mb 79	
	> 1 Gb BUE-SCL anillado	Mbs 1,000	USD 36			USD/Mb 76	USD/Mb 79	USD/Mb 79	USD/Mb 79	
	> 500 Mb	Mbs 622	USD 50				USD/Mb 79	USD/Mb 79	USD/Mb 79	
	> 100 Mb IP	Mbs 100	USD 75						USD/Mb 79	

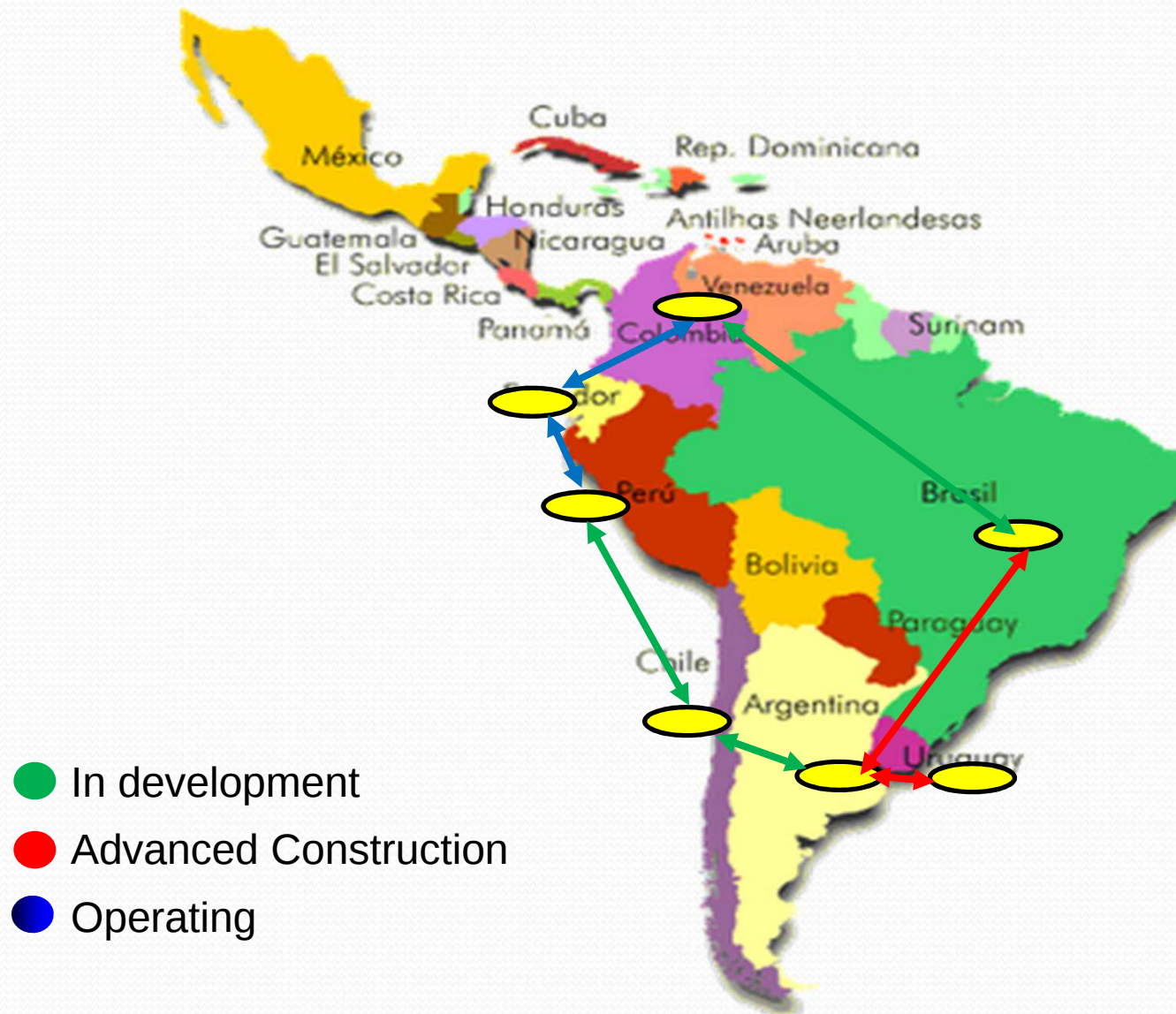
Requirements

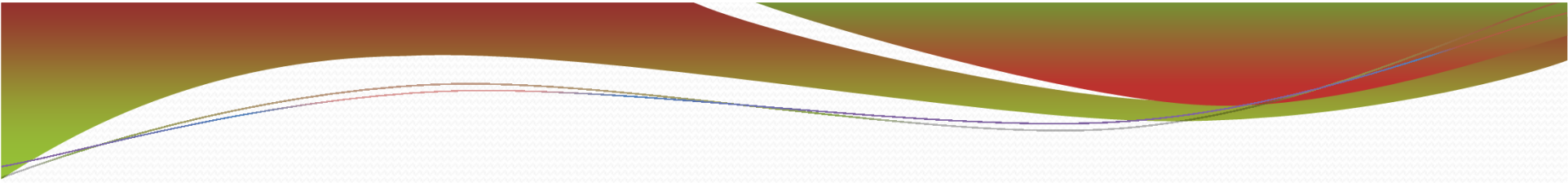
Own an ASN.

Own block of IP addressed.

Become a member of CABASE.

BACKBONE REGIONAL





Muchas Gracias

Thank you very much

Muito obrigado