



Landing in Latin America & Peering Landscape in Argentina

South America Region



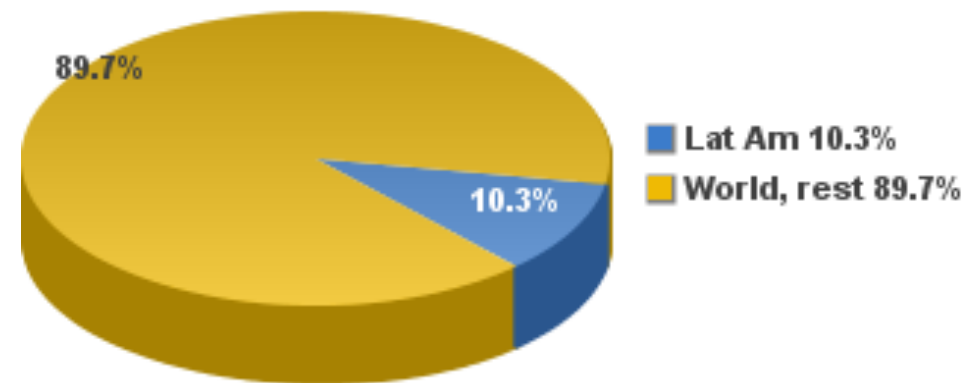
Regional Facts

World Population 7.350 B

Region Population 652 M - 9%



Internet Users in Latin America December 2017



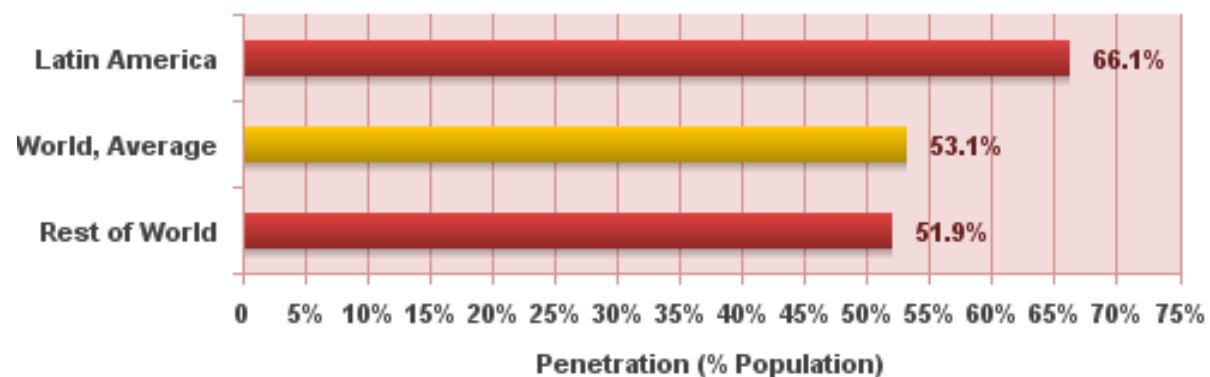
Source: Internet World Stats - www.internetworldstats.com
417,940,160 Internet users in Latin America in Dec 2017
Copyright © 2018, Miniwatts Marketing Group

Regional Facts

Average Internet Penetration 66%
Internet Users: 429 M



Latin American Internet Penetration December 2017



Source: Internet World Stats - www.internetworldstats.com/stats10.htm
417,940,160 estimated Internet users in Latin America in Dec. 2017
Copyright © 2018, Miniwatts Marketing Group

Regional Facts



World Country Size Ranking:

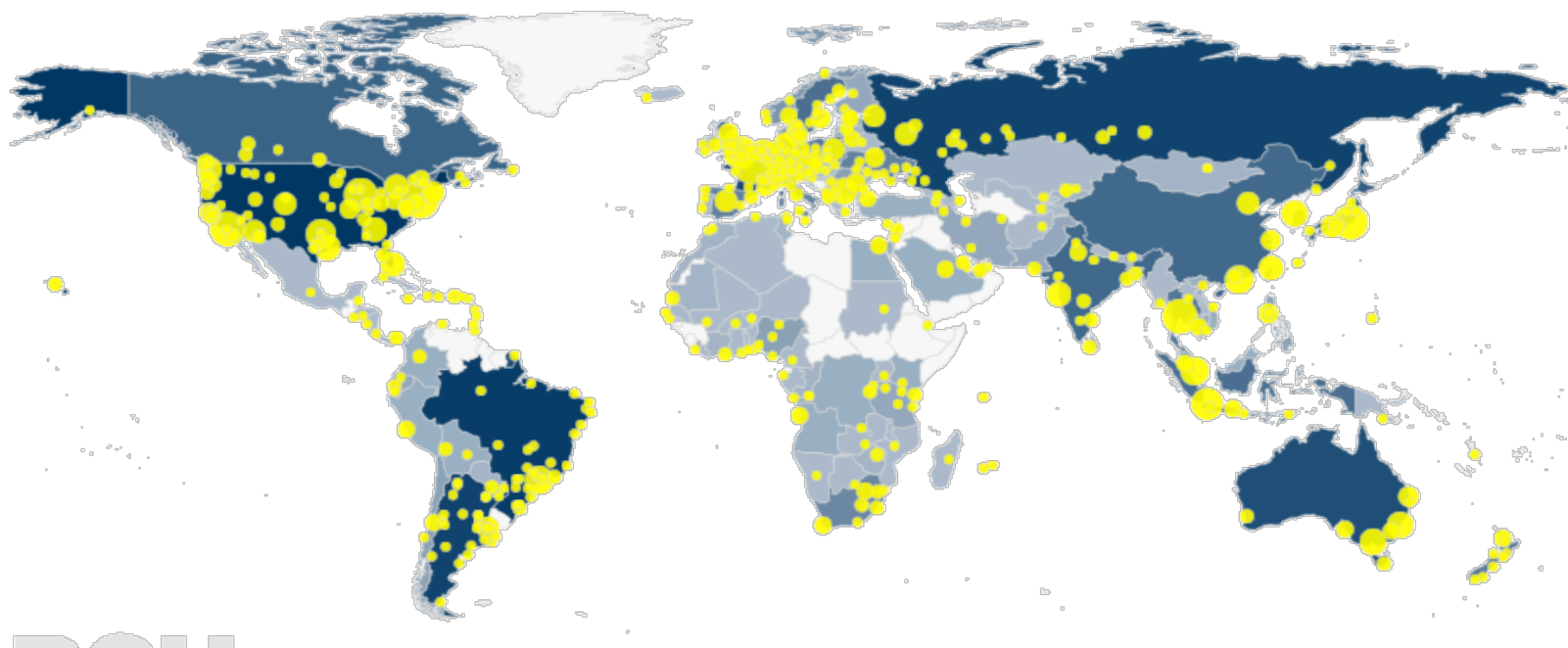
1. Rusia $\approx 17\,100\,000\text{ km}^2$
2. Canada $\approx 9\,970\,000\text{ km}^2$
3. China $\approx 9\,600\,000\text{ km}^2$
4. USA $\approx 9\,160\,000\text{ km}^2$
5. **Brazil $\approx 8\,515\,000\text{ km}^2$**
6. Australia $\approx 7\,690\,000\text{ km}^2$
7. India $\approx 3\,290\,000\text{ km}^2$
8. **Argentina $\approx 2\,780\,000\text{ km}^2$**

World most Spoken Languages:

1) 1.2 Billion Chinese/Mandarin	4) 300 M Hindi
2) 400 M Spanish	5) 250 M Arabic
3) 360 M English	6) 215 M Portuguese

IXPs in the World

871 IXP



90 are in the Region - 10.33%

IXPs in Latin America & Caribe



23 Countries / 90 IXPs / 3.770 members

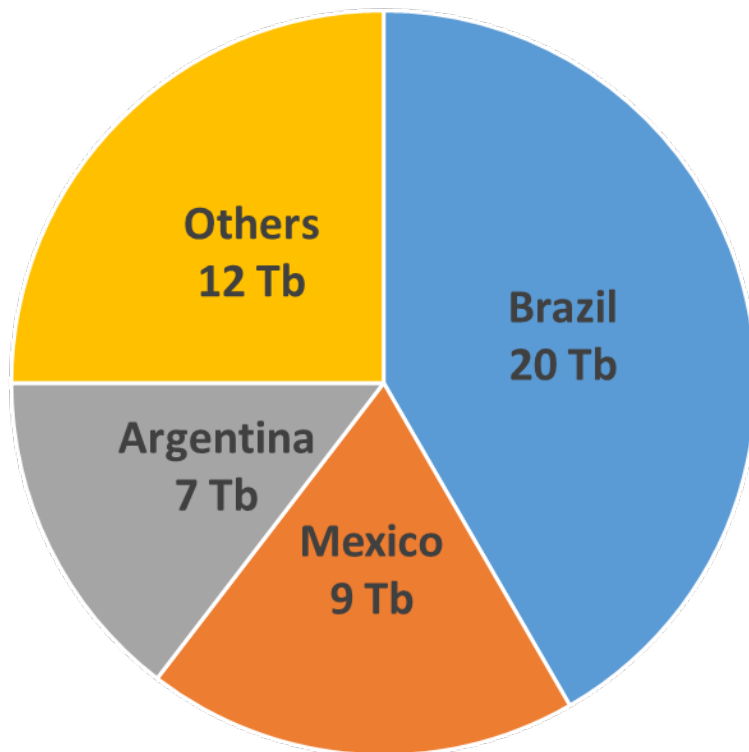
Brasil	33	2804
Argentina	27	415
Chile	7	74
Ecuador	4	51
Costa Rica	1	28
Colombia	1	21
Perú	1	15
Paraguay	1	15
R. Dominicana	1	15
Curazao	1	14
Bolivia	2	12
Panamá	1	11

México	1	10
Nicaragua	1	10
Granada	1	9
Belice	1	9
Honduras	1	8
Saint Martin	1	8
Trinidad & Tobago	1	8
Cuba	1	7
Santa Lucía	1	5
Jamaica	1	4
Dominica	1	4

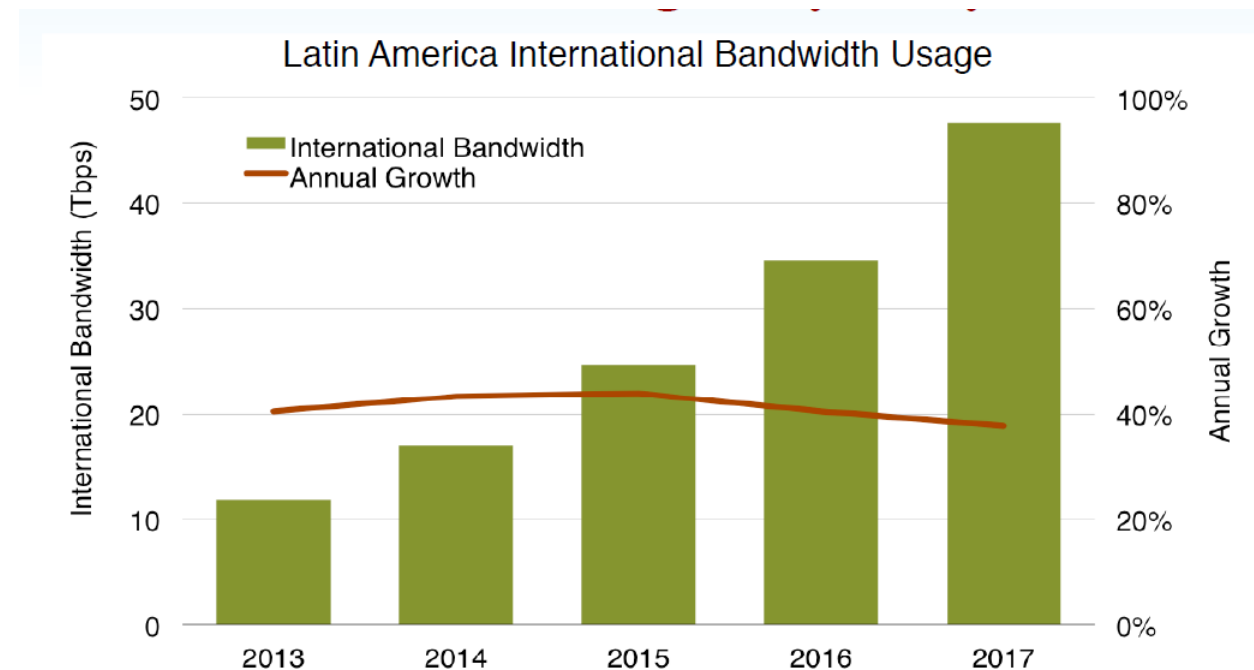
Regional Bandwidth

48 Terabytes

Latin America International Bandwidth Usage



Demand Doubling every 2 years



Source: Telegeography

Cultural Similarities

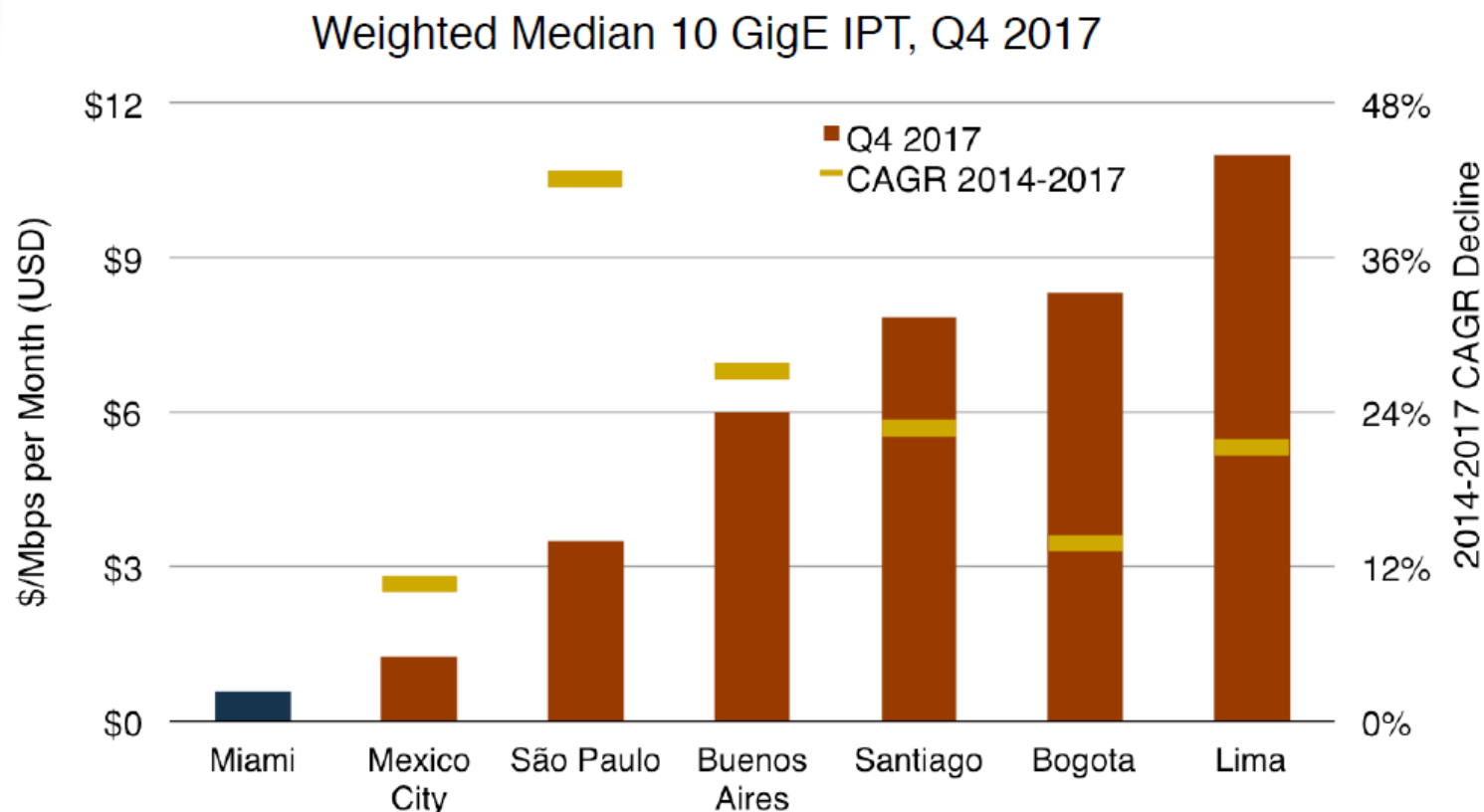


- **Language**
- **Market: Dominant incumbent**
- **Infrastructure: Poor**
- **Connectivity: Almost no connectivity between countries**
- **Import constraints**
- **Growth: Huge potential**

IP Transit Price in the Region

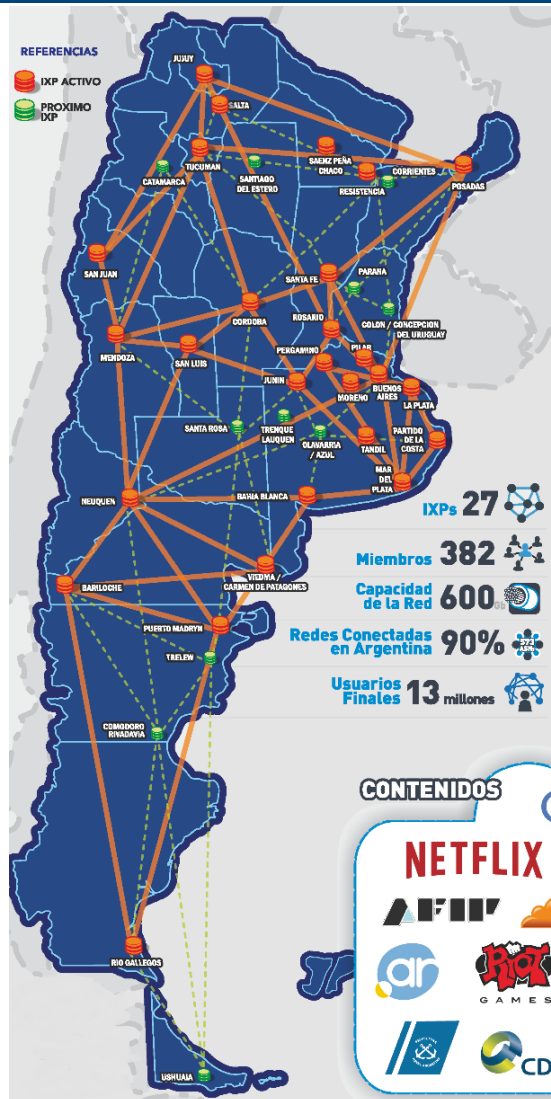
- Prices are still higher than other regions

IP transit price erosion continues



Source: Telegeography

CABASE IXPs in Argentina



CABASE

ASN 52376

CONTENIDOS



CABASE Peering Model



CABASE IXP: a unique model

- **All IXPs interconnected vs fragmentation**
- **Single Point of Traffic aggregation**
- **We promote Bigger exchanges**
- **Neutral, Collaborative, Non Profit**
- **Multilateral (reciprocal)**
- **Private Bilateral**

IXPs CABASE - Argentina



Q & A

*If you are considering **PEERING in ARGENTINA**
don't hesitate to come to **CABASE - ASN 52376***

IXPs CABASE - Argentina



Connect with Us

WWW.CABASE.ORG.AR

Hernan.seoane@cabase.org.ar

Some History ...



- **CABASE** was founded in **1989** and is the **ARGENTINE INTERNET ASSOCIATION**.
- **NON PROFIT** organization
- It has **450 members**
- 1995 first Internet Services in Argentina
- **1998** we inaugurated the **1rst PRIVATE IXP in LATIN AMERICA**, interconnecting ISPs, Coop, Academic and Government agencies
- **2008** launched **BROADBAND FEDERALIZATION** - Expansion

CABASE IXP Network Today



27

421

260

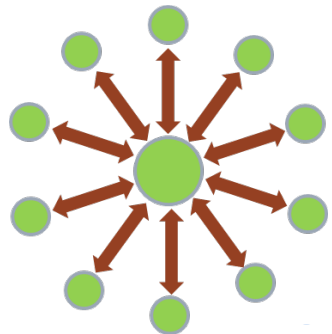
7

85%

Number of Active IXPs

27 IXPs

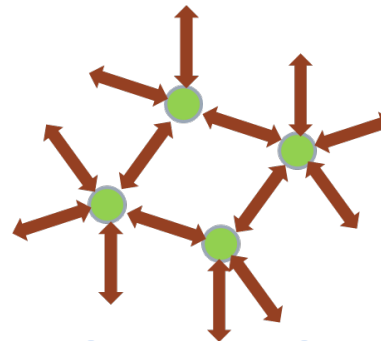
- All IXPs are interconnected
- Network of IXPs
- Regional Expansion
UY, PY, BO, CL



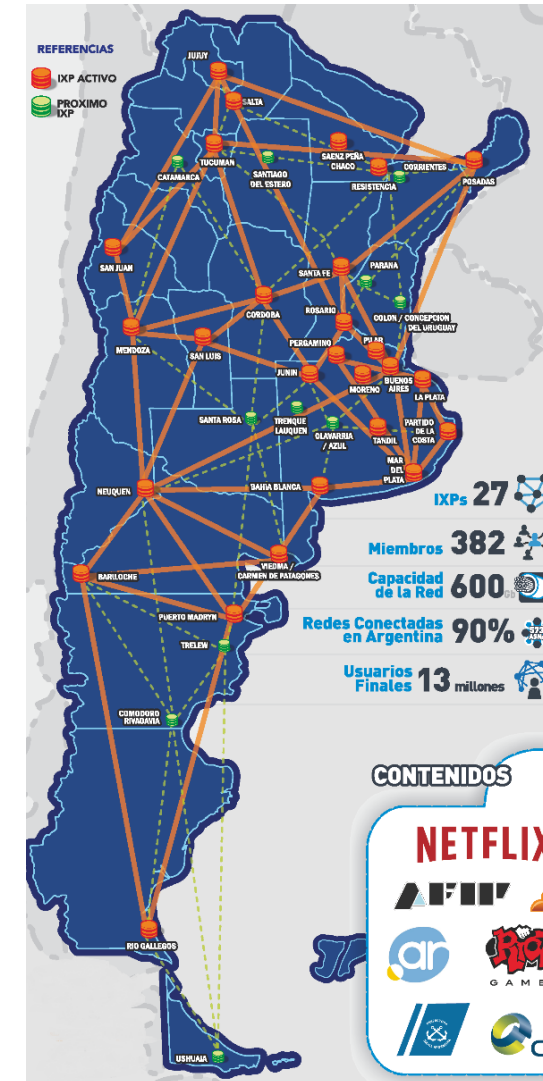
From Star to

+1

Central
Routing



Concentration Nodes



Number of Members by IXPs



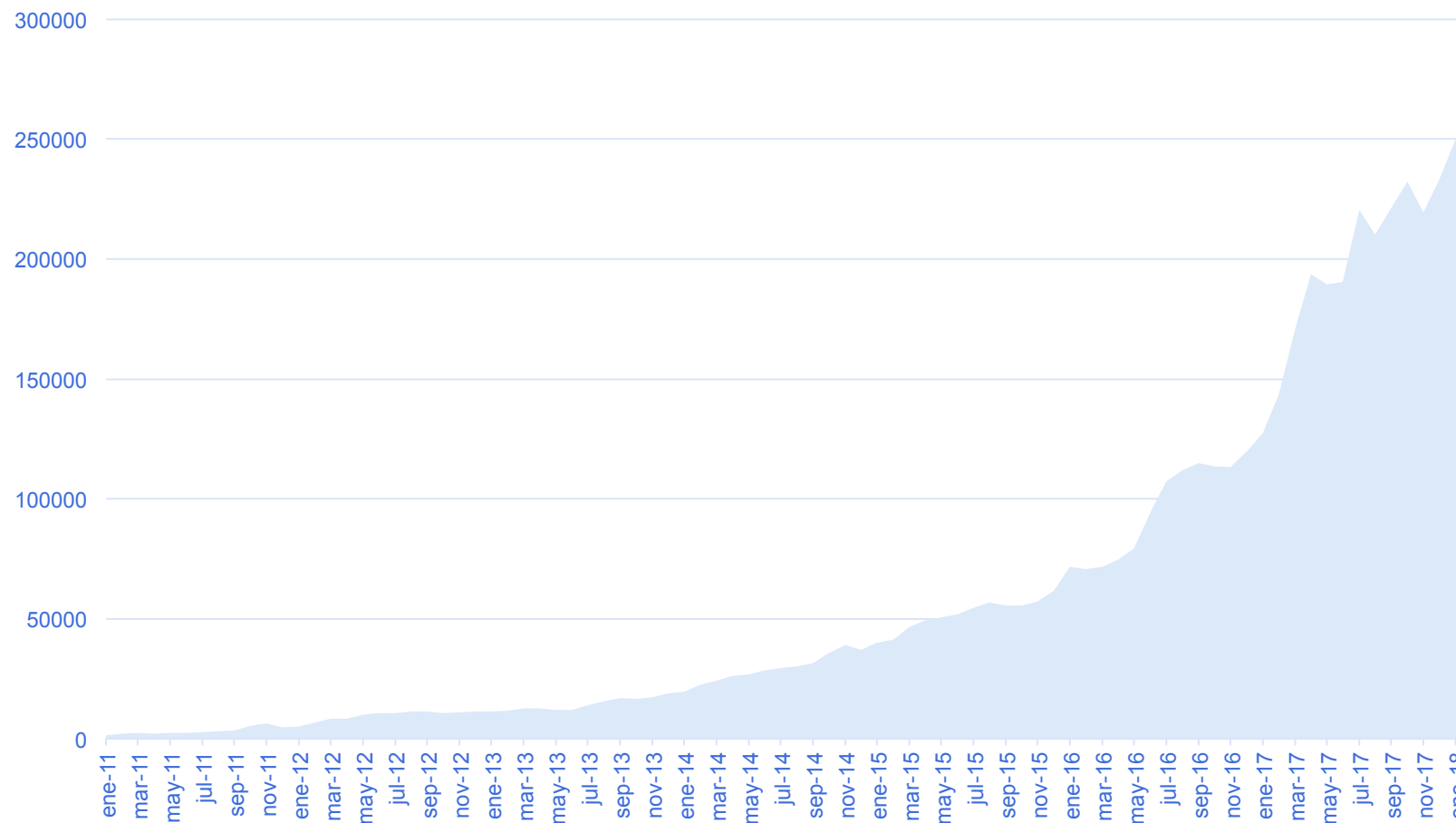
Buenos Aires	115	Bariloche	9
Cordoba	29	Puerto Madryn	9
Neuquen	24	Jujuy	9
Rosario	23	Pergamino	8
Mendoza	20	Junin	8
La Plata	17	Tandil	8
Bahia Blanca	15	Moreno – GBA W	8
Posadas	15	San Luis	7
Mar del Plata	13	Salta	7
Pilar – GBA North	13	Santa Fe	6
Resistencia	11	Viedma	6
Saenz Peña	11	Tucuman	5
De la Costa	10	Rio Gallegos	5
San Juan	10		

421
Members

IXP Network Traffic Evolution



IXPs Traffic Evolution



Exponential Growth



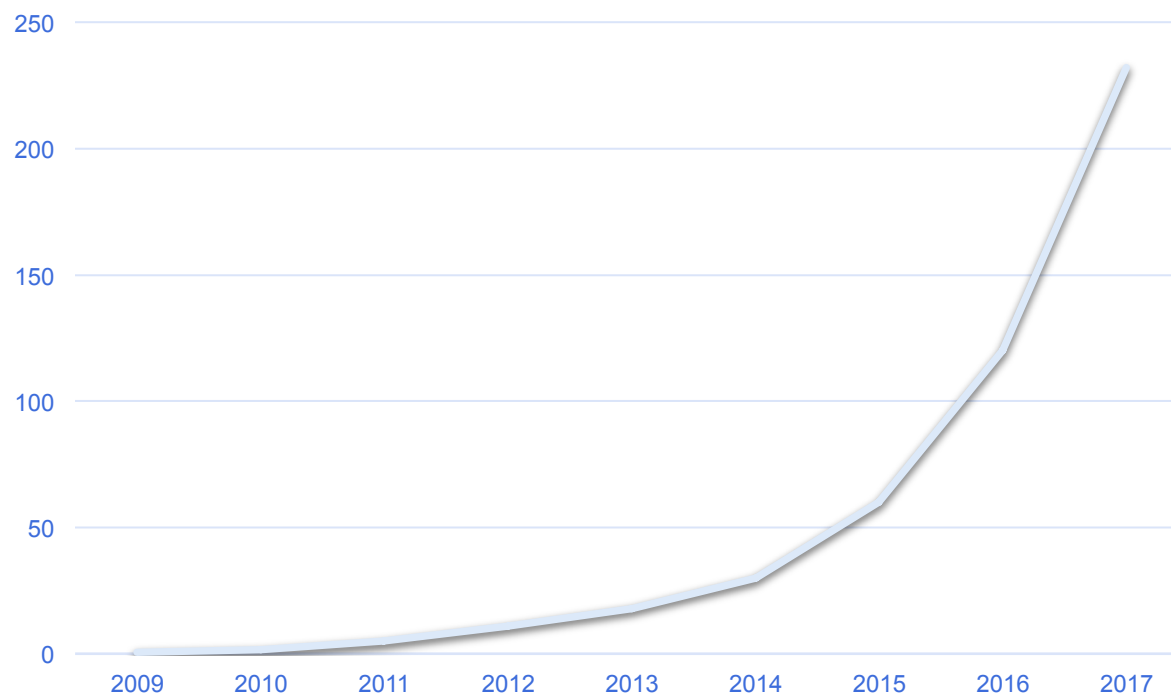
Capacity **600** Gbps

Yearly Growth

X 2

260 Gb

TRAFFIC VOLUME



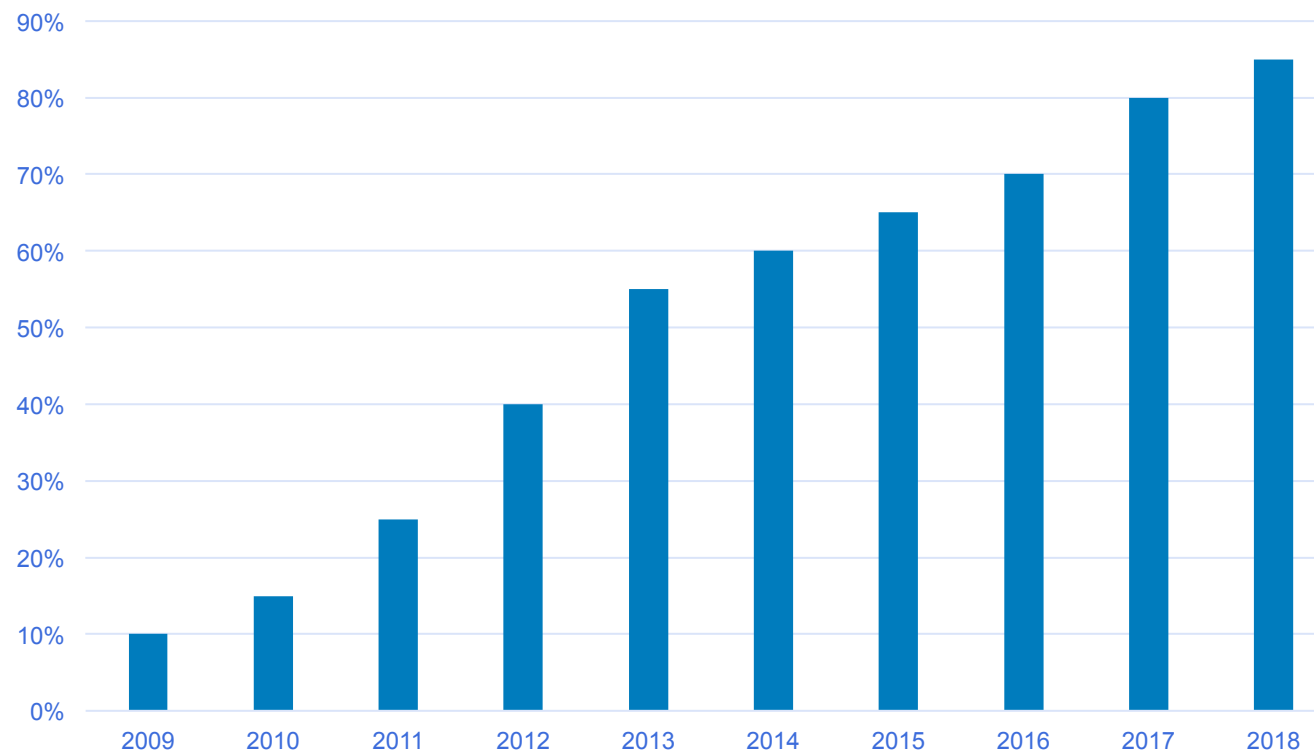
Member Traffic



% of ISP Traffic exchanged at the IXP

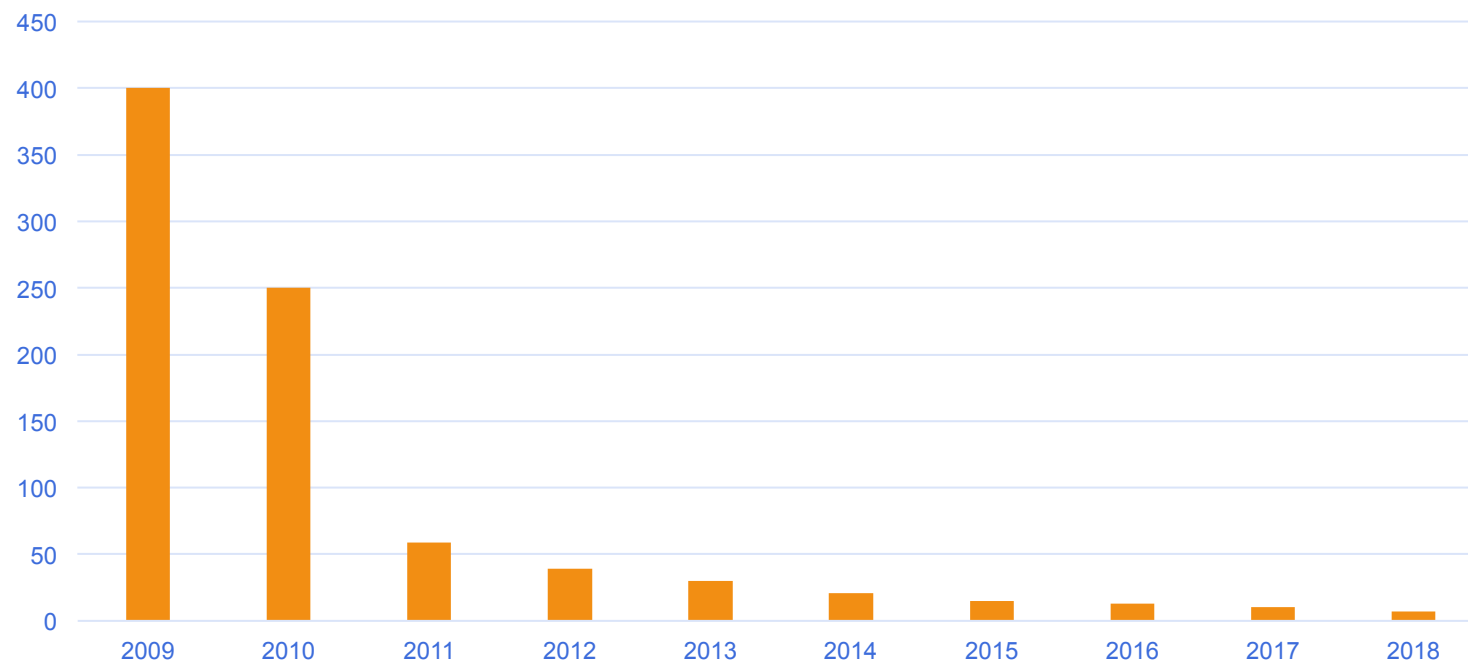
85%

TIER 1



Bandwidth Pricing

Price USD x Mb



Transport Price Reduction

CABASE IXP Network Today



27 NAPs ✓

421 Members ✓

260 Gbps ✓

7 USD ✓

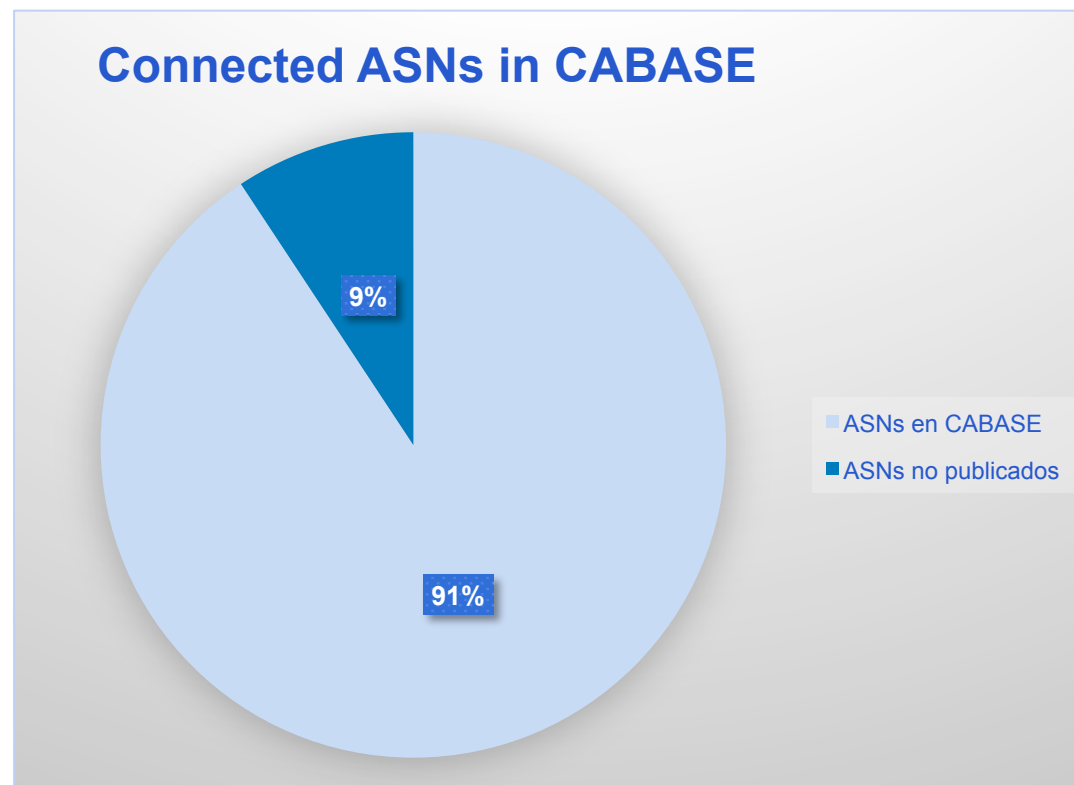
85% Exchanged traffic ✓

Connected Networks in CABASE

LACNIC allocates the ASNs in the Region

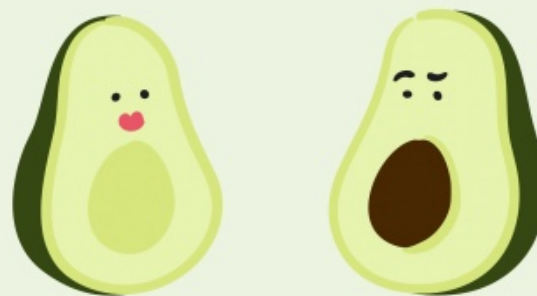
- **ASNs assigned to Argentina: 850**
- **Published in CABASE IXP network: 771**

91%



IXPs and CDNs

You're my
better half.



IXPs and CDNs



WHAT DOES CABASE IXP DO FOR A CDN?

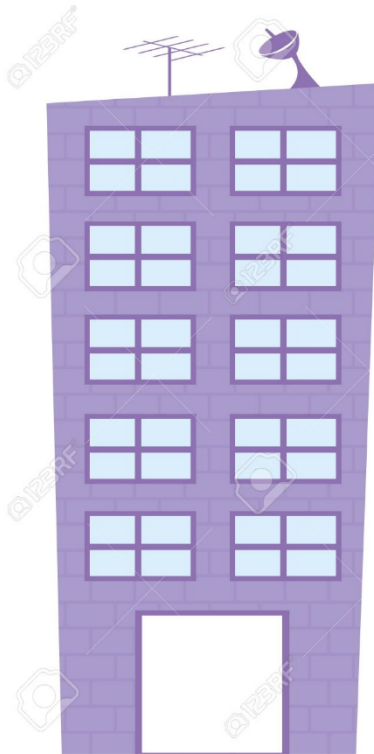
- Improves end user QoE, offering the Shortest Path
- Offers a Single Point of traffic aggregation
- CABASE distributes the content to all the IXP Network
- Offers an alternative to incumbents facilities
- Becomes a site compliant with Net Neutrality.

WHAT DOES A CDN DO FOR CABASE IXP?

- It makes it attractive for ISPs to connect to
- It reduces bandwidth costs
- It improves QoE to ISP end users (speed & latency)

Peering Costs

NON PROFIT



**Monthly
EXPENSES**

=

IXP



**APPORTIONMENT
of EXPENSES**

IXPs Points Allocation Table



<u>CAPACITY</u>	<u>EQUIVALENCIES</u>
Up to 100 Mb	2 Points
1 Gb	6 Points
2 Gb	9 Points
10 Gb	26 Points
20 Gb	39 Points
40 Gb	65 Points
80 Gb	93 Points
100 Gb	126 Points
Bilateral Connection	1 additional Point Each
1 Rack Unit	1 Point

Port Cost Examples



IT PROMOTES BIGGER EXCHANGES

Capacity	IXP Points	Monthly Value	Unit cost x Mb
100 Mb	2 Puntos	USD 65	USD 0,65
200 Mb	3 Puntos	USD 99	USD 0,50
1 Gb	6 Puntos	USD 200	USD 0,20
2 Gb	9 Puntos	USD 300	USD 0,15
10 Gb	26 Puntos	USD 860	USD 0,08
20 Gb	39 Puntos	USD 1.290	USD 0,06

Reference Value:
**1 POINT
= USD 33**

IXPs Costs and Funding

**The more we are,
the cheaper it gets !**

IXP FUNDING it done by:

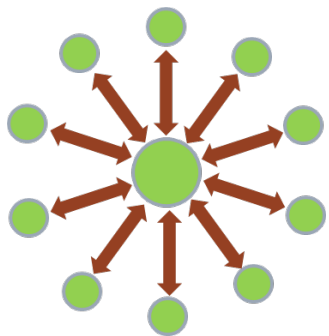
- **MEMBER CONTRIBUTIONS**
- **DONATIONS**



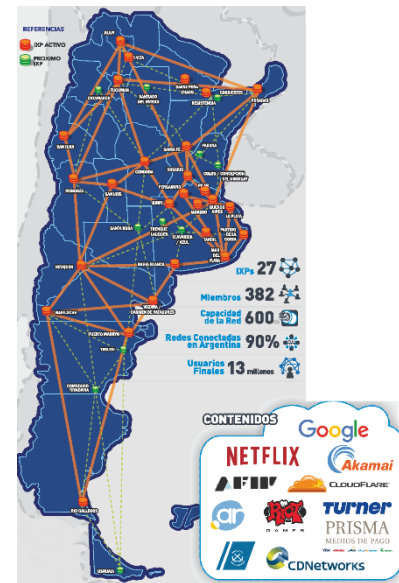
Interconnection Cost Between IXPs



- **CABASE acts as a “Notary Public”** measuring the interconnected IXP traffic
- **Reports the monthly usage per member**
- **Carriers invoice directly to ISP**
- **We promote more than 1 Carrier x IXP**



***CABASE IXP does not buy or sell
We only report usage***



Participating Carriers



SILICANETWORKS



metrotel



CenturyLink®



Decision Making



“Bottom Up”

Defined by the participating members

Very good results ...

...with no state intervention

How to Participate in CABASE



- 1. Own an ASN**
- 2. Own an IP BLOCK**
- 3. Subscribe as CABASE MEMBER**
- 4. Exchange in the MULTILATERAL PEERING**

CABASE IXP is Peering Friendly



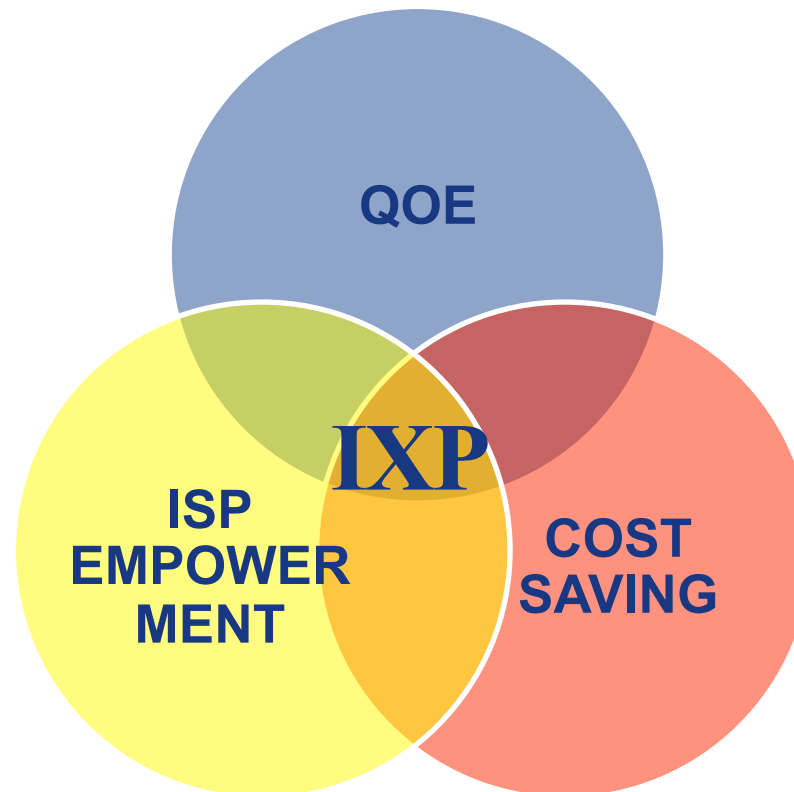
If you considering PEERING in ARGENTINA don't hesitate to come to CABASE

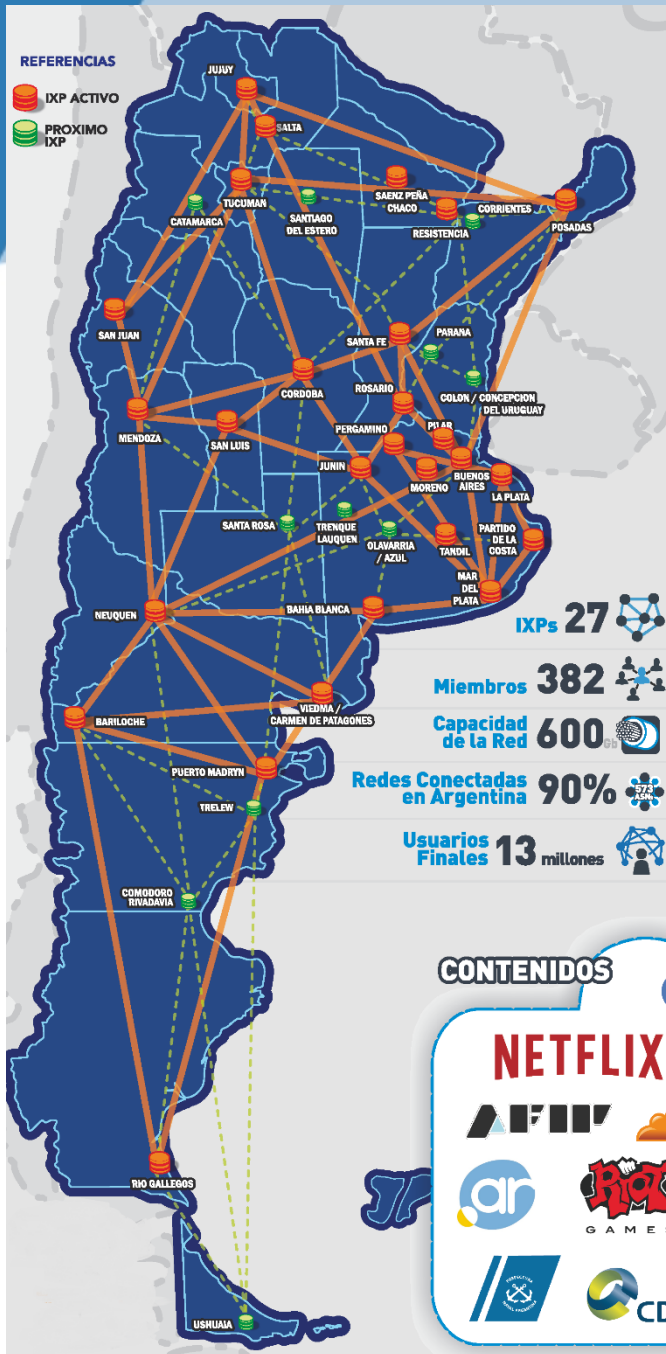
- 1. NEUTRAL**
- 2. COLLABORATIVE (we get together to improve)**
- 3. NON PROFIT**
- 4. MULTILATERAL (reciprocal)**
- 5. WE WELCOME CDNS and CONTENT PROVIDERS**

CABASE IXP Model



CABASE IXPs play a key role for INTERNET development, as we optimize cost and QoE simultaneously, attract Content, and include both big and small ISPs.





CONTENIDOS

IXPs CABASE

- BUENOS AIRES
- NEUQUÉN
- ROSARIO
- SANTA FE
- MENDOZA
- PARTIDO DE LA COSTA
- BAHÍA BLANCA
- CÓRDOBA
- LA PLATA
- MAR DEL PLATA
- POSADAS
- BARILOCHE
- MADRYN
- SAN LUIS
- JUNIN
- PERGAMINO
- TUCUMAN
- Saenz Peña - CHACO
- NGB - PILAR
- OGB - MORENO
- JUJUY
- SALTA
- TANDIL
- VIEDMA
- RESISTENCIA
- SAN JUAN
- RIO GALLEGOS



Comming Soon:

- CORRIENTES
- COMODORO RIVADAVIA
- OLAVARRIA / AZUL
- VENADO TUERTO
- TRELEW
- COLON / CONCEPCION
- USHUAIA

LAC-Peering Forum



LAC-PEERING FORUM

- **WHEN:** April 30th
- **WHERE:** PANAMA
- Hotel Hard Rock Panamá Megapolis
- <http://peeringforum.lat/>

lacnic **29**
30 abril / 4 mayo 2018
Ciudad de Panamá, Panamá