

# Internet Governance in Latin America: it is all about economics

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*The Future of Internet Governance after  
Dubai: Are we heading to a federated  
Internet?  
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## Are Latin American countries concerned about Internet governance?

- Most Latin America countries, except for Costa Rica, Peru, Colombia and Chile, signed the ITRs
- And yet most countries regularly participate in multistakeholder Internet Governance bodies and fora (e.g. ICANN's Government Advisory Committee (GAC), where the governments of Argentina, Mexico, Uruguay, as well as Colombia and Chile are frequent participants)
- What do the signatories (Brazil, Cuba, Dominican Republic, El Salvador, Guatemala, Mexico, Panama, Paraguay, Uruguay and Venezuela) have in common?
- Latin American countries signed the ITRs, primarily, because of their impact on telecommunications regulation (maritime communications, communications for the disabled, access for landlocked countries, disaster communications and international roaming tariffs)
- Internet governance is primarily a limited issue in terms of DPI with Venezuela, which partly explains why Colombia did not sign

## If the ITRs are not an issue, what are Latin American countries concerned about regarding the Internet?

- Fixed broadband has been growing at 18.33%, having reached 8.49% of total population (or 32.76% of total households) by 2012
- Wireless broadband has been growing at 111.25% moving from 0.58% in 2007 to 24.40% of population in 2012
- Several pieces of research indicate that broadband is a general purpose infrastructure, with a significant contribution to economic growth and social inclusion
- Limited adoption of broadband in the region is due, primarily, to affordability barriers: with a price elasticity of -1.88, a reduction of prices of 15% would generate an increase in fixed broadband penetration from 8.46% to 10.50% (or 36.75 % per household)
- The cost structure of broadband indicates that approximately 10% (in developed countries) and 30% (in developing countries) is comprised by transit costs required for internet interconnection
- In consequence, a reduction in transit costs could result in a decrease in prices to the consumers

# Total monthly Internet traffic In the 8 largest Latin American countries reaches 915 Petabytes, growing at 42% annually

TOTAL MONTHLY INTERNET TRAFFIC (in Petabytes)

| COUNTRY      | 2011       | 2012         | 2013         | 2014         | 2015         | 2016         | 2017         | CAGR 2012-2017 |
|--------------|------------|--------------|--------------|--------------|--------------|--------------|--------------|----------------|
| Argentina    | 102        | 127          | 162          | 215          | 292          | 435          | 514          | 32%            |
| Brazil       | 418        | 652          | 939          | 1,393        | 2,257        | 3,727        | 4,437        | 47%            |
| Chile        | 82         | 109          | 152          | 210          | 318          | 496          | 589          | 40%            |
| Colombia     | 53         | 75           | 101          | 138          | 209          | 339          | 430          | 42%            |
| Mexico       | 163        | 235          | 357          | 524          | 780          | 1,174        | 1,363        | 42%            |
| Panama       | 20         | 25           | 29           | 33           | 38           | 45           | 51           | 16%            |
| Peru         | 34         | 47           | 62           | 85           | 121          | 183          | 224          | 37%            |
| Venezuela    | 43         | 56           | 69           | 85           | 111          | 153          | 173          | 25%            |
| <b>TOTAL</b> | <b>915</b> | <b>1,325</b> | <b>1,871</b> | <b>2,683</b> | <b>4,125</b> | <b>6,553</b> | <b>7,781</b> | <b>42%</b>     |

Note: 1 PB= 1 Petabyte= 10<sup>15</sup> = 1 millón de Gigabytes

Source: TAS analysis

**THIS REPRESENTS 85 % OF TOTAL TRAFFIC**



# In 2012, 49% of total traffic is international, of which 85% flows to the United States



Source: TAS analysis

## A large portion of the international traffic flows to other Latam countries but interconnects in the United States

LATIN AMERICA: MONTHLY INTERNET TRAFFIC FLOWS (2012)  
(in Petabytes)

| COUNTRY   | LOCAL TRAFFIC | INTERNATIONAL CONTENT | TRAFFIC TO OTHER LATAM | TRAFFIC TO THE US | TOTAL TRAFFIC |
|-----------|---------------|-----------------------|------------------------|-------------------|---------------|
| Argentina | 6             | 38                    | 40                     | 43                | 127           |
| Brasil    | 163           | 130                   | 54                     | 305               | 652           |
| Chile     | 11            | 33                    | 11                     | 54                | 109           |
| Colombia  | 4             | 22                    | 11                     | 37                | 75            |
| Mexico    | 23            | 12                    | 6                      | 193               | 235           |
| Panama    | 1.3           | 1.3                   | 4                      | 18                | 25            |
| Peru      | 2             | 14                    | 6                      | 24                | 47            |
| Venezuela | 3             | 3                     | 17                     | 43                | 56            |

Source: TAS analysis

## First, Latin America countries perceive this situation as harming their balance of trade

### LATIN AMERICA: TOTAL ANNUAL TRANSIT COSTS (2010-2011)

| COUNTRY   | ANNUAL TRANSIT COSTS |
|-----------|----------------------|
| Argentina | US\$ 15,593,614 (*)  |
| Bolivia   | US\$ 11,147,528      |
| Brasil    | US\$ 74,869,631 (*)  |
| Colombia  | US\$ 24,233,756      |
| México    | US\$ 18,535,303      |
| Paraguay  | US\$ 12,039,330      |
| Perú      | US\$ 23,280,976      |
| Total     | US\$ 179,700,138     |

(\*) With national and regional IXP hosting content

*Source: TAS analysis*

## Second, Latin American countries consider that quality of service levels are being harmed by excessive latency

- Traffic projections for 2017 will exceed existing capacity, especially that of interconnection with the united states
- According to our projections, the highest growth traffic will be that of international content resident in cache (CAGR: 62%), while local traffic will grow at 58% and international traffic traffic will increase at 49%
- International traffic will increase five times, with 85% continuing to the US... which will require an augmentation in capacity
- However, the increase in infrastructure will not reduce latency
- This renders the need to bring content to Latin America and promote the deployment of interconnection points in the region



## Third, and more importantly, they perceive this interconnection architecture to stand in the way of lowering broadband prices

### ESTIMATE OF RESIDENTIAL TARIFF IMPACT OF A DECREASE IN TRANSIT COSTS

| DECREASE IN TRANSIT COSTS | INVERSE FUNCTION OF A DECREASE IN TRANSIT COSTS | IMPACT ON FIXED BROADBAND REAL TARIFF |
|---------------------------|---|---------------------------------------|
| 20 %                      | 25%   | -4.30%                                |
| 33 %                      | 50%   | -8.31%                                |
| 43 %                      | 75%   | -12.04%                               |
| 50 %                      | 100%  | -15.48%                               |
| 67 %                      | 200%  | -26.42%                               |
| 71 %                      | 250%  | -30.19%                               |

 EFFECT VERIFIED IN ARGENTINA

Source: TAS analysis

## According to a -1.88 price elasticity, expected broadband penetration to be reached as a result of price reductions is significant

### SENSITIVITY ANALYSIS OF BROADBAND PENETRATION INCREASE DRIVEN BY A REDUCTION IN TRANSIT PRICES

| Decrease in transit costs as a result of IXP deployment | Impact on broadband real tariffs | Growth expected in Percent of households connected to broadband |          |        |        |          |
|---|----------------------------------|---|----------|--------|--------|----------|
|   |                                  | Bolivia   | Colombia | México | Panamá | Paraguay |
| 20 %  | -4,30%                           | 0,48%   | 2,26%    | 2,35%  | 2,37%  | 0,59%    |
| 33 %  | -8,31%                           | 0,93%   | 4,37%    | 4,54%  | 4,58%  | 1,15%    |
| 43 %  | -12,04%                          | 1,35%   | 6,33%    | 6,58%  | 6,64%  | 1,67%    |
| 50 %  | -15,48%                          | 1,73%   | 8,14%    | 8,46%  | 8,54%  | 2,14%    |
| 67 %  | -26,42%                          | 2,96%   | 13,89%   | 14,44% | 14,57% | 3,66%    |
| 71 %  | -30,19%                          | 3,38%   | 15,88%   | 16,50% | 16,65% | 4,18%    |

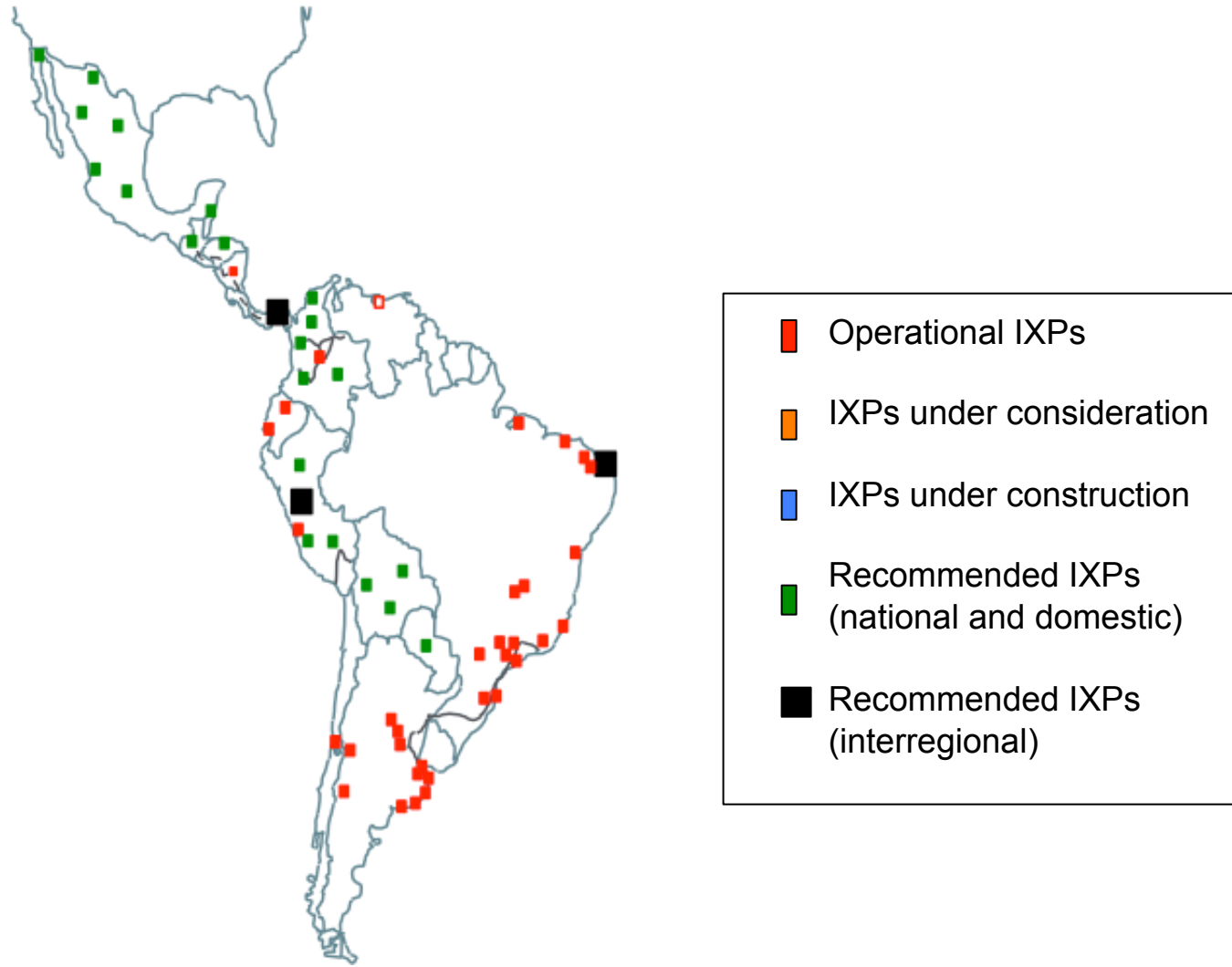
Source: TAS analysis

## So what are Latin American countries planning on doing?

| PLANNED ACTIONS  | DEPLOYMENT   | OBJECTIVE  |
|--|--|--|
| I: Deploy three interregional interconnection centers in Panama, Brazil and Peru to bring traffic back to the region | <ul style="list-style-type: none"> <li>Central American node: Panama, connected to national IXPs in Costa Rica, Honduras, Guatemala, El Salvador and Nicaragua)</li> </ul>   | Reduce the “tromboning” effect by means of creating interregional interconnection points |
|  | <ul style="list-style-type: none"> <li>Andean Node: Peru interconnected to IXPs in Ecuador, Chile, Brazil and Bolivia</li> </ul>   |  |
|  | <ul style="list-style-type: none"> <li>Brazilian node: interconnected with PTT network in Brazil</li> </ul>  |  |
| II: Deploy local IXPs within key countries to interconnect local traffic   | <ul style="list-style-type: none"> <li>Colombia: Medellín, Cali, Barranquilla, Pereira, Bucaramanga, Villavicencio</li> <li>México: Tijuana, Monterrey, Mérida, Querétaro, Guadalajara, Ciudad Juárez</li> <li>Bolivia: Santa Cruz, La Paz, Cochabamba</li> <li>Perú: Arequipa, Trujillo, Cuzco</li> </ul> | Provide national interconnection traffic to maximize local traffic                       |
| III: Deploy IXPs within landlocked countries   | <ul style="list-style-type: none"> <li>Bolivia</li> <li>Paraguay</li> </ul>  | Reduce international traffic   |

The result will be a regional network of IXPs aimed at conveying local Internet traffic and reducing broadband prices

### REGIONAAL IXP INFRASTRUCTURE



# Is this going to result in the right impact?

## THE LARGER THE INTERCONNECTION INFRASTRUCTURE, THE LOWER THE TRANSIT PRICES

| LOCALIDAD   | TRAFICO DE IXP  | PRECIO PROMEDIO MENSUAL DE PUERTO GigE |
|---|---|--|
| Londres <ul style="list-style-type: none"><li>LINX</li><li>LONAP</li></ul>                              | <ul style="list-style-type: none"><li>885 Gbps</li><li>20 Gbps</li></ul>                                  | \$ 3,13                                |
| Hong Kong <ul style="list-style-type: none"><li>HKIX</li></ul>  | <ul style="list-style-type: none"><li>71 Gbps</li></ul>   | \$ 8,45 - \$ 15,96                     |
| Sao Paulo <ul style="list-style-type: none"><li>PTT Sao Paulo</li></ul>                                 | <ul style="list-style-type: none"><li>83.6 Gbps</li></ul>   | \$ 16,27 - \$ 25,66                    |
| New York <ul style="list-style-type: none"><li>Equinix</li><li>Any2</li><li>NYIIX</li><li>TIE</li></ul> | <ul style="list-style-type: none"><li>990 Gbps</li><li>100 Gbps</li><li>93 Gbps</li><li>80 Gbps</li></ul> | \$ 3,50                                |

## VERIFIED EFFECTS

- Carriers drop their prices to defend against local interconnection
- ISPs typically deliver faster speeds of access
- ISPs transfer some of the producer surplus to consumers

Sources: IXP websites, Telegeography

## What is the role envisioned by Latin American governments?

- As expected, several approaches driven by ideological cleavages
  - Venezuela, Bolivia pushing for more pro-active participation (DPI, state-ownership of IXPs)
  - Liberal “multistakeholderism” driven by Costa Rica, Peru, Colombia, Chile, Ecuador (?)
  - Middle of the road (Brazil pushing for enforcement of compelling incumbents to interconnect, Argentina in a tug-of-war with non-profit cooperative that operates a network of IXPs)
  - Some countries trying to figure it out (e.g. Mexico, Colombia)
- But some consensus around key lines (government funding, QOS monitoring, financial stimuli)

# What is the potential for the emergence of a “regionalized” Internet?

- Content issues
  - CDNs are rapidly moving cached content to the region
  - Governments/private sector have strong directives to develop local content (big question mark)
- Infrastructure
  - Submarine cable capacity increasing, driven by Telmex and other carriers
  - Terrestrial backbones deployed with government funding in Brazil, Argentina, Peru, Mexico, and Colombia
- Political concurrence for the emergence of a regionalized internet will take some time
  - Too many ideological cleavages (Colombia vs. Venezuela,
  - Too many geopolitical rivalries (Brazil vs. Argentina)
  - Potential role of neutral countries (Panama, Ecuador)

