



# IPv4 Consumption and transition to IPv6

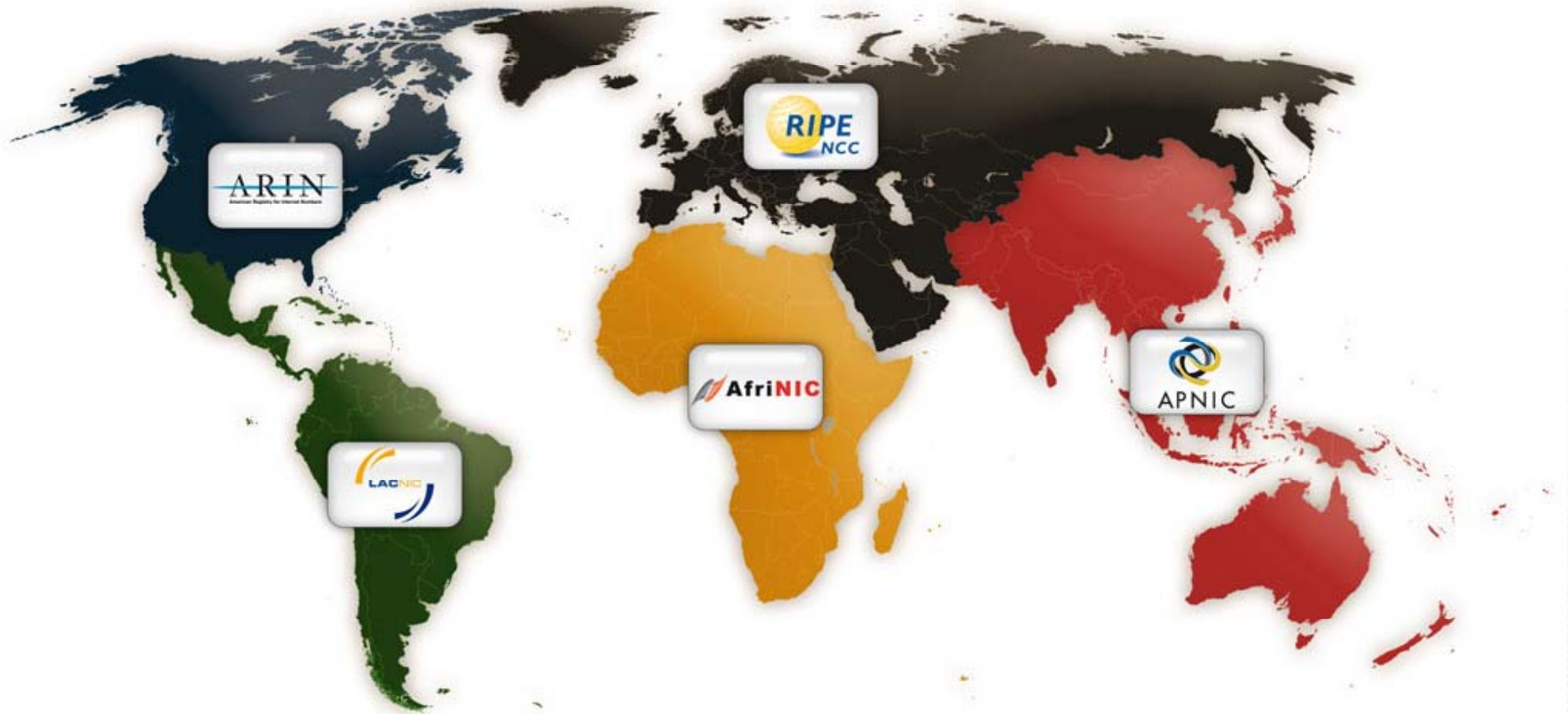
## LACNIC Campaign Latinamerica and the Caribbean in IPv6 1/1/11

6<sup>th</sup> CIF, Oct. 2008

Port of Spain, TT

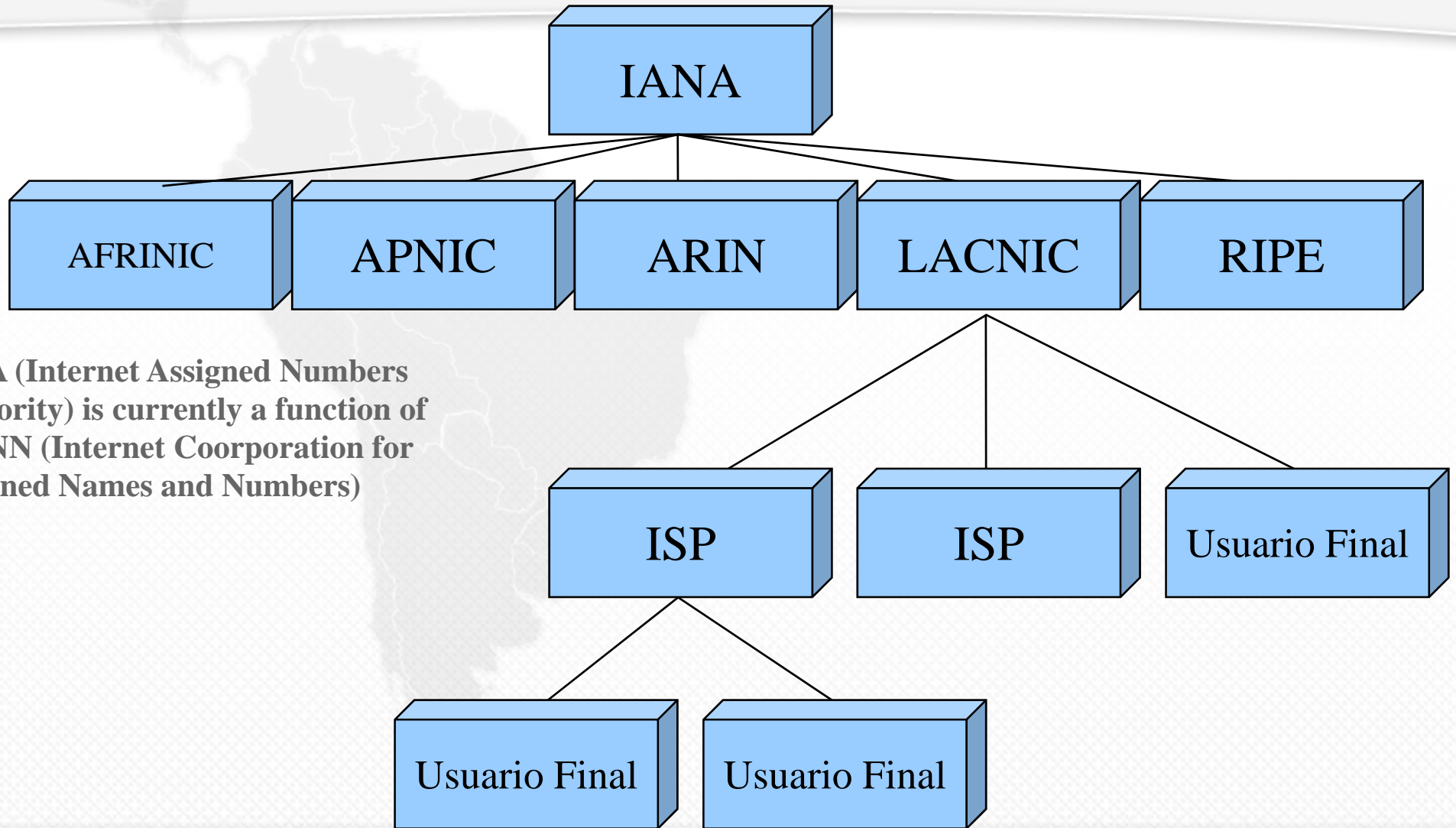


# Regional Internet Registries





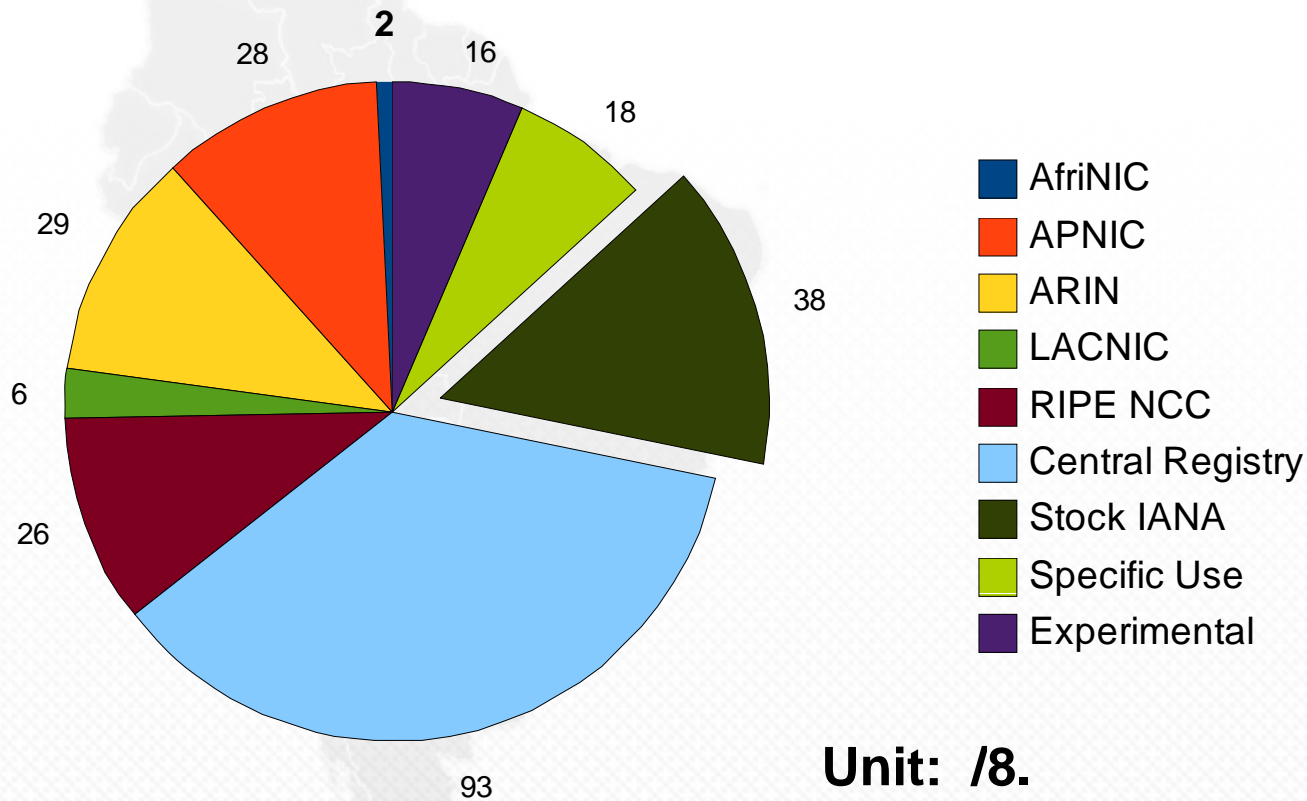
# Internet Number Resources Distribution



IANA (Internet Assigned Numbers Authority) is currently a function of ICANN (Internet Corporation for Assigned Names and Numbers)



# Current distribution of IPv4 addresses

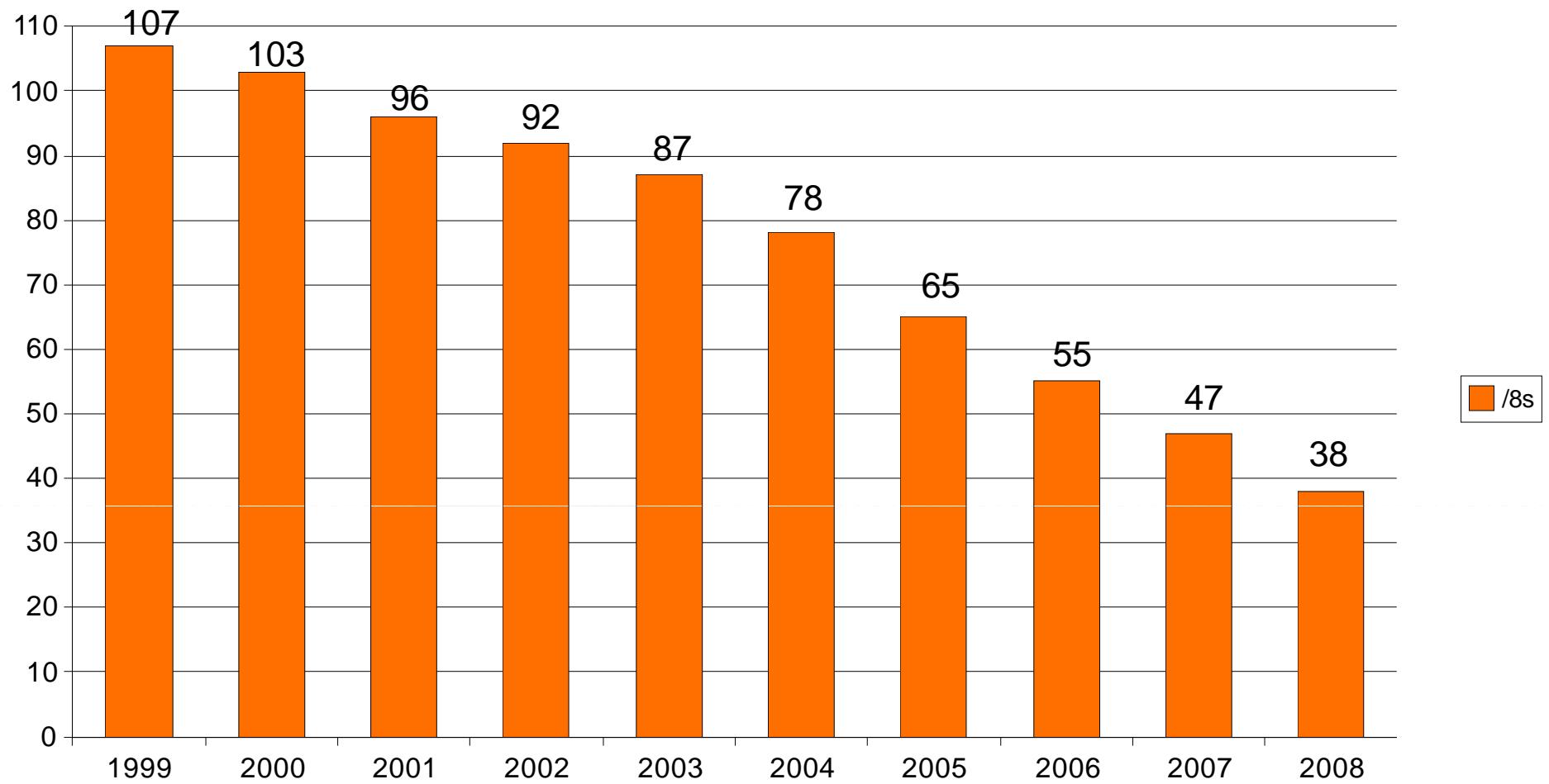


**Unit: /8.**

**A /8 = 1/256 of the total IPv4 addresses space.**



# IANA Stock Evolution





## What could happen?

- ◆ There will be IPv4 addresses for many years. (in different ways).
- ◆ Difficulties for allocating big (and not so big) contiguous blocks.
- ◆ IPv6 could not be broadly used until IPv4 is exhausted or until there are adequate economic incentives.
- ◆ At some point, there could be “only IPv6” users.
- ◆ NAT Use Increases
- ◆ Secondary/Gray Market



## LACNIC activities on IPv6 in the Region

- ◆ **To facilitate the adoption of policies.**
- ◆ **Waiver of IPv6 Related Service Fees**
- ◆ **Research Funding**
- ◆ **Promotion activities**
- ◆ **Training**



## Promotion activities

### ◆ LAC IPv6 TF

- ◆ Coordination and collaboration among interested parties in the adoption of IPv6
  - ◆ <http://www.lac.ipv6tf.org/>

### ◆ FLIP - 6

- ◆ LAC IPv6 Forum. Knowledge and experience exchange. The 6th meeting of this foro was held last May in Bahia, Brazil.



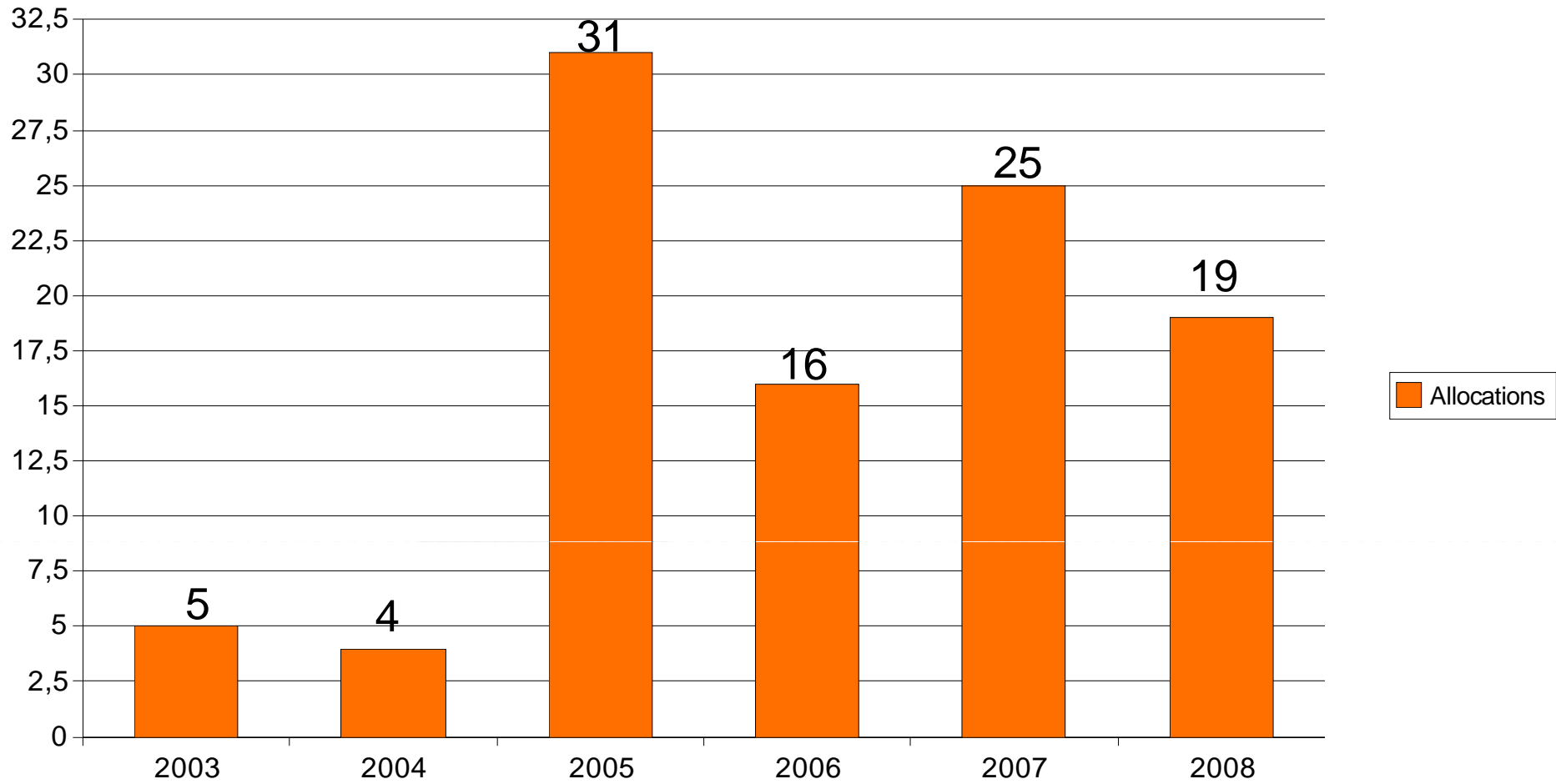


## Promotion Activities

- ◆ IPv6 Tour 2005 (10 countries - 3000 participants)
- ◆ 2007 – Presentations given in 11 countries (plus CTU, ICANN, CITELE, etc.)
- ◆ 2008 –
  - ◆ Scheduled activities in 13 countries.
  - ◆ 6DEPLOY and own resources.



# IPv6 allocations in LACNIC region



14 allocations in the Caribbean



# Metrics

- ◆ Available in <http://portalipv6.lacnic.net/en/ipv6/statistics/ipv6-0>
- ◆ To measure the adoption of IPv6
  - ◆ Number of allocations
  - ◆ Number of routes
- ◆ Useful for analyzing the impact of LACNIC campaigns



# IPv6 national task forces

- ◆ There are currently 8 task forces in the region.
  - ◆ Cuba <http://www.cu.ipv6tf.org/>
  - ◆ Brasil <http://www.br.ipv6tf.org/>
  - ◆ México <http://www.mx.ipv6tf.org/>
  - ◆ Perú <http://www.pe.ipv6tf.org/>
  - ◆ Argentina <http://www.ar.ipv6tf.org/>
  - ◆ Colombia <http://www.co.ipv6tf.org/>
  - ◆ Panamá <http://www.pa.ipv6tf.org/>
  - ◆ Uruguay
- ◆ Coming soon
  - ◆ República Dominicana
  - ◆ Ecuador
  - ◆ Venezuela



## Reflections

- ◆ **IPv6 will not replace IPv4 neither in the short term nor in the midterm. Both protocols will coexist for many years.**
- ◆ **The policies for receiving IPv6 addresses are not an obstacle. Neither the associated costs. They aim to facilitate IPv6 adoption.**
- ◆ **IPv6 is ready for its utilization. As any other technology, it is something live that will be improved along the time. But it is ready.**
- ◆ **Many efforts should be focused in promotion and training.**
- ◆ **It is also a very good opportunity for innovation.**



# Policy discussion

- ◆ **There are several proposal being discussed in the RIRs' open policy forums.**
  - ◆ To encourage adoption of IPv6
  - ◆ For facilitating the transfer of IPv4 addresses between organizations.
  - ◆ For distributing one part of the remaining unallocated pool.
  
- ◆ **Any adopted or rejected proposal has impact in our communities, and in your businesses.**
  
- ◆ **Participation is very important.**
  - ◆ Information about how to participate in LACNIC policy development processes is available in the brochures.



## Scenarios

- ◆ **Different possible scenarios based in what measures are taken and what policies are adopted.**
- ◆ **It is not possible to ensure that the access to IPv4 addresses in secondary markets (grey markets) will be equitable.**
- ◆ **There are a lot of things to do, but the most important is to work in IPv6 deployment and adoption.**



# Actions from governments

## eLAC-2010 (proposed by LACNIC)

- ◆ *“Carry out actions geared towards promoting the adoption of the IPv6 protocol at the public and private levels with a view to making all public services offered via the IP protocol, as appropriate, available on IPv6 and ensuring that the main State infrastructure and applications are IPv6-compatible. Actions to be implemented will, to the extent possible, include the early implementation of requirements to ensure that government procure equipment and applications that are IPv6-compatible.*

.”

<http://www.elac2007.org.sv/en/docs/sansalvadorcommitment-verfinal.pdf>





# Actions from governments

**CITEL/CCP1 RESOLUTION - March 2008.**

## **RECOMMENDS:**

- ◆ **Those Administrations that have not yet done so to adapt their procurement systems so that all communications equipment for which bids will be invited, or procured directly, mandatorily have the capacity to support IPv6;**
- ◆ **That within the scope of organizations with responsibility for communications in each country, groups of experts are formed as “IPv6 Task Forces,” as was mentioned above regarding certain countries;**
- ◆ **That the States, in conjunction with the private sector and the academic sector, carry out activities to promote IPv6 in their respective countries;**
- ◆ **That actions are carried out in coordination with the private sector and the academic sector in order to achieve the deployment of IPv6 so as to fulfill the eLAC2010 goals;**
- ◆ **That the Member States of CITEL share, at the upcoming meetings of PCC.I, actions adopted to promote the deployment of IPv6 in their countries.**



# Recommendations

- ◆ To share experiences and information about governmental actions in the next meetings
  - ◆ **Promotion**
  - ◆ **Governmental Purchasing**
  - ◆ **Coordination with the Industry.**
  - ◆ **Research**
- ◆ CITEL, CIF, CTU, ECTEL, LACNIC, ARIN as a collaborative frameworks.
- ◆ To work toward eLAC-2010 goals achievement.
- ◆ Public-private collaboration.
  - ◆ **Set up National multistakeholder Task Forces.**
- ◆ IPv6 in LA&C region for 1/1/11



## Useful links

- ◆ **LACNIC IPv6 PORTAL**

- ◆ <http://portalipv6.lacnic.net/en>
- ◆ <http://portalipv6.lacnic.net/en/ipv6/ipv6-en/gobierno>

- ◆ **The IPv6 portal**

- ◆ <http://www.ipv6tf.org/>
- ◆ [http://www.ipv6tf.org/index.php?page=meet/policy\\_recommendations](http://www.ipv6tf.org/index.php?page=meet/policy_recommendations)

- ◆ **IPv6 Task Force Latinoamericana**

- ◆ <http://www.lac.ipv6tf.org/>

- ◆ **ARIN IPv6 Information Center**

- ◆ <http://www.arin.net/v6/v6-info.html>



## Portal IPv6 - LACNIC

- ◆ One person dedicated full time to update the portal
- ◆ Information very useful for different stakeholders
  - ◆ **Governments, Academy, ISPs, etc.**
- ◆ How to do? information.
- ◆ Theoretical and practical information
- ◆ Stats
- ◆ Information about events and interesting links
- ◆ Available in english, spanish and portuguese



# Stats

- ◆ Available in <http://portalipv6.lacnic.net/en/statistics/ipv6-0>
- ◆ For analyzing the adoption of Ipv6
  - ◆ Number of allocations
  - ◆ Number of routes announced
- ◆ Useful for monitoring the impact of LACNIC's campaigns