IPv4 depletion & IPv6 deployment in the RIPE NCC service region

Kjell Leknes - June 2010
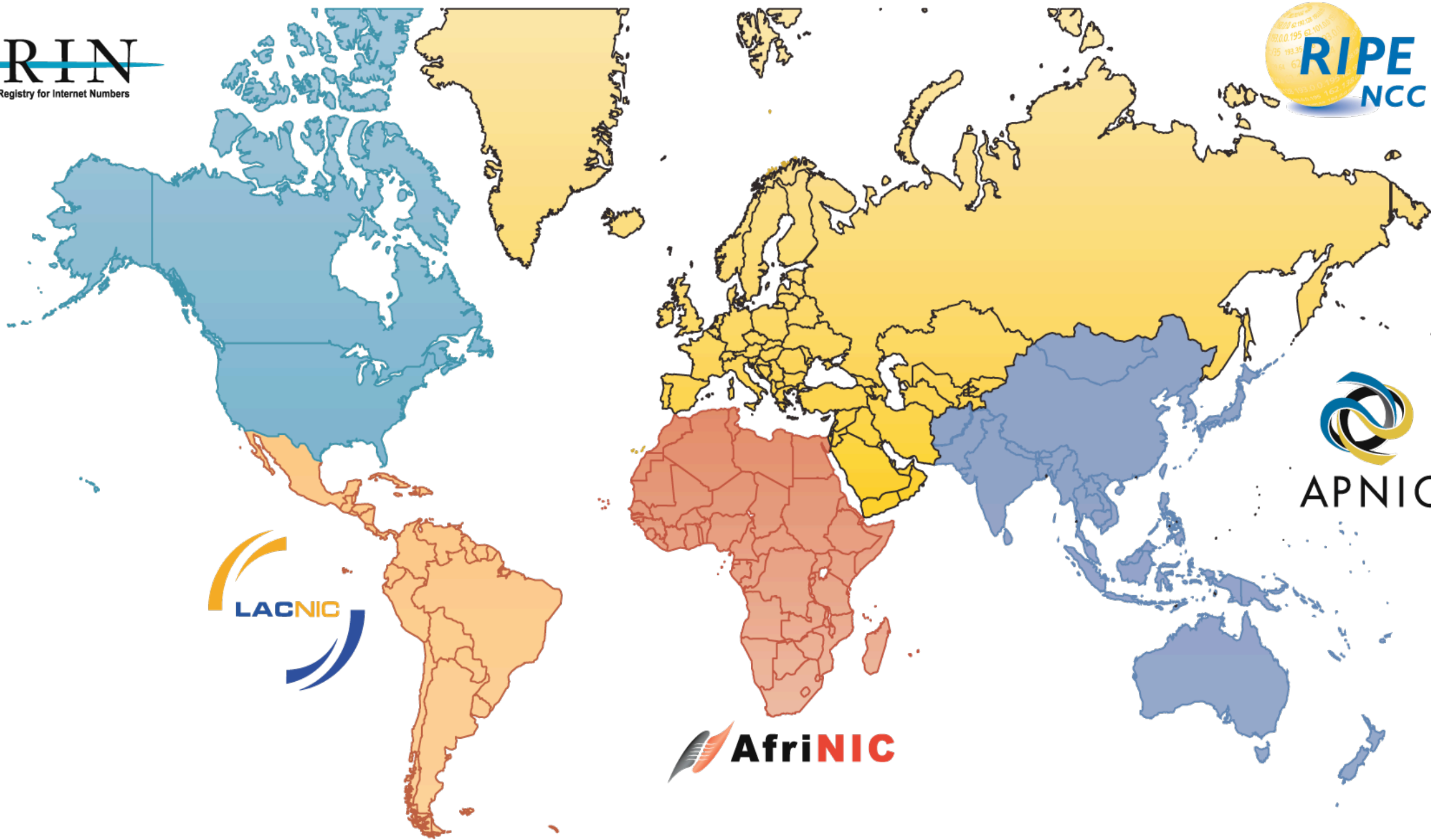
RIPE NCC

Outline

- About RIPE and RIPE NCC

- IPv4 depletion

- IPv6 deployment

- Engaging the community
  - RIPE NCC and the RIPE community
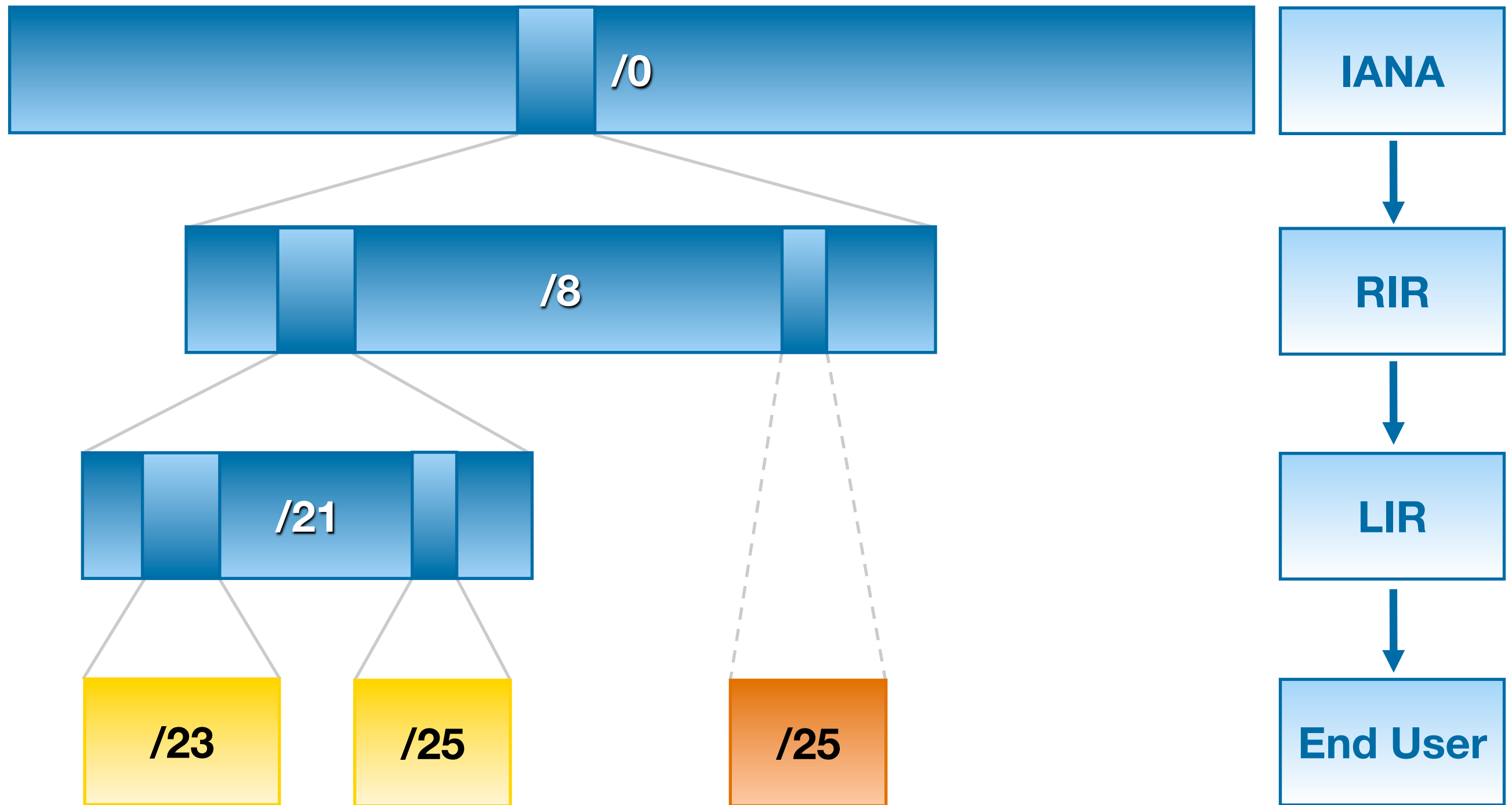 - Training courses
  - IPv6 Act Now

RIPE NCC

- Since 1992 in Amsterdam

- Independent not-for-profit organisation

- 6500+ members in 75 countries

- One of five Regional Internet Registries (RIRs)

- Does not make policies

The five RIRs

IP address distribution

Allocation   PA Assignment   PI Assignment

RIPE NCC services

- Distribute resources
  - IPv4
  - IPv6
  - AS numbers
- Training courses
  - LIR
  - Routing Registry
  - DNS for LIRs
  - IPv6

- Database Reverse DNS
- ENUM
- K-root name server
- E-learning
- RIPE Labs
- IPv6 Act Now website

RIPE community

- Policy forum
  - Not a legal entity
  - No official membership
  - Open to everyone

- One RIPE chairman and working group chairs

- No voting --> consensus

- Work done on mailing lists and at meetings by:
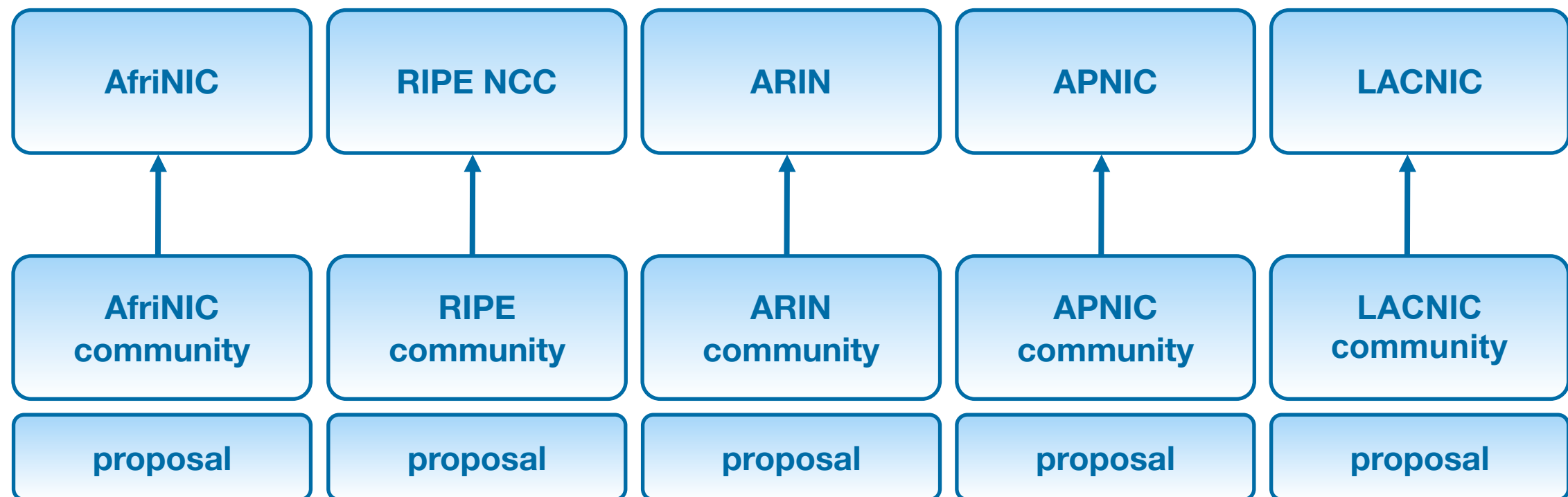 - Working groups
  - Task forces

RIPE meetings

- Two RIPE meetings per year

- Plenary discussions
  - Wide ranging topics

- Working group meetings
  - More specific focus

- Policy discussions

- Exchange of views and information

- Interaction with other internet stakeholders
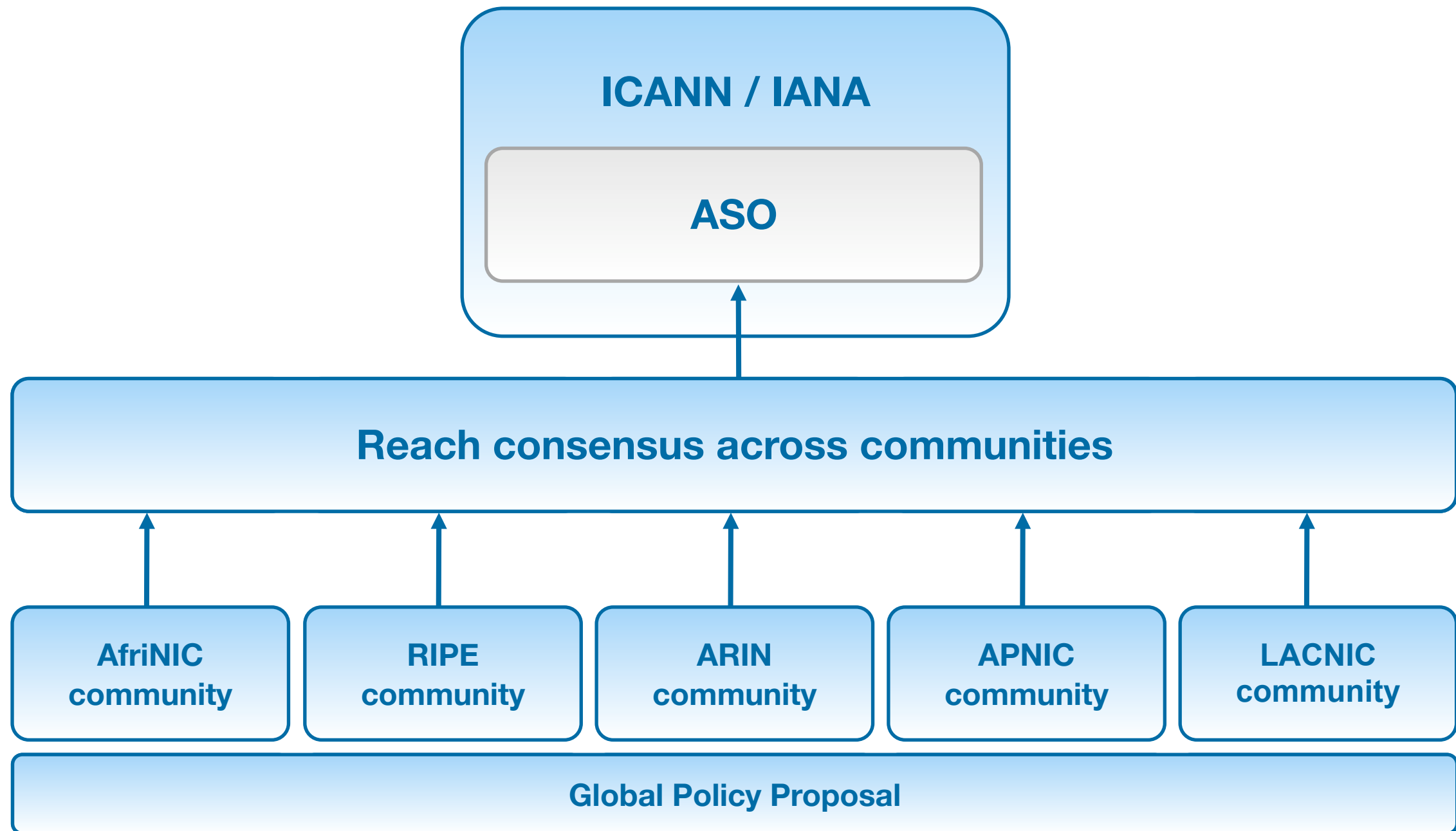
RIPE policy development

- Open
  - Anyone can participate
  - Policy meetings
  - Mailing lists

- Transparent
  - List discussions archived publicly
  - Meetings transcribed

- Bottom-up process
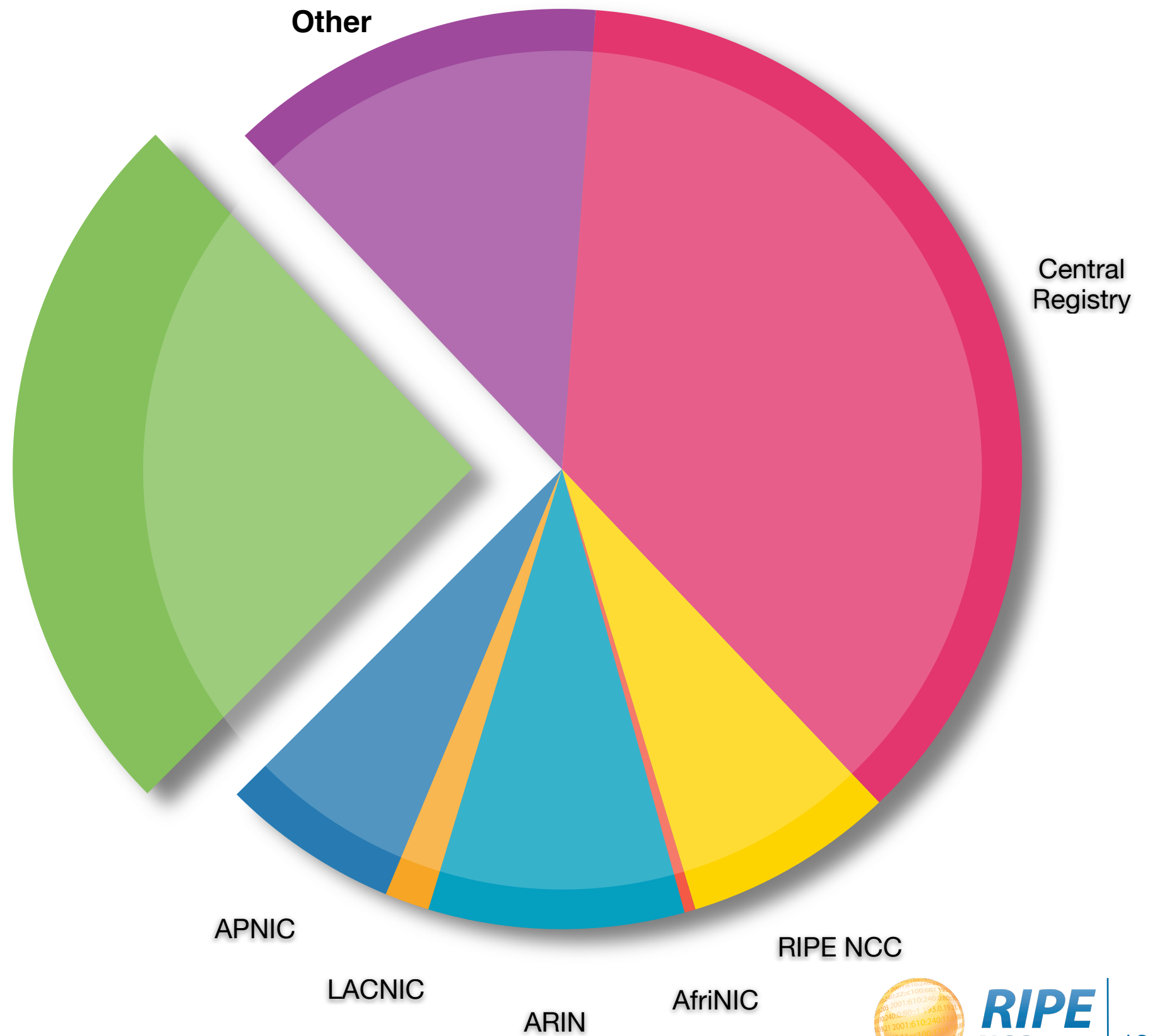 - By the Internet community

Global policy development

AfriNIC	RIPE NCC	ARIN	APNIC	LACNIC
↑	↑	↑	↑	↑
AfriNIC community	RIPE community	ARIN community	APNIC community	LACNIC community
proposal	proposal	proposal	proposal	proposal

Global policy development

ICANN / IANA

ASO

Reach consensus across communities

AfriNIC community

RIPE community

ARIN community

APNIC community

LACNIC community

Global Policy Proposal

IPv4 depletion

IPv4 address pool - June 2005

25%
available

Other

Central
Registry

RIPE NCC

AfriNIC

ARIN

LACNIC

APNIC

IPv4 address pool - Now

6%
available

Various

Other

RIPE NCC

AfriNIC

ARIN

LACNIC

APNIC

RIPE
NCC
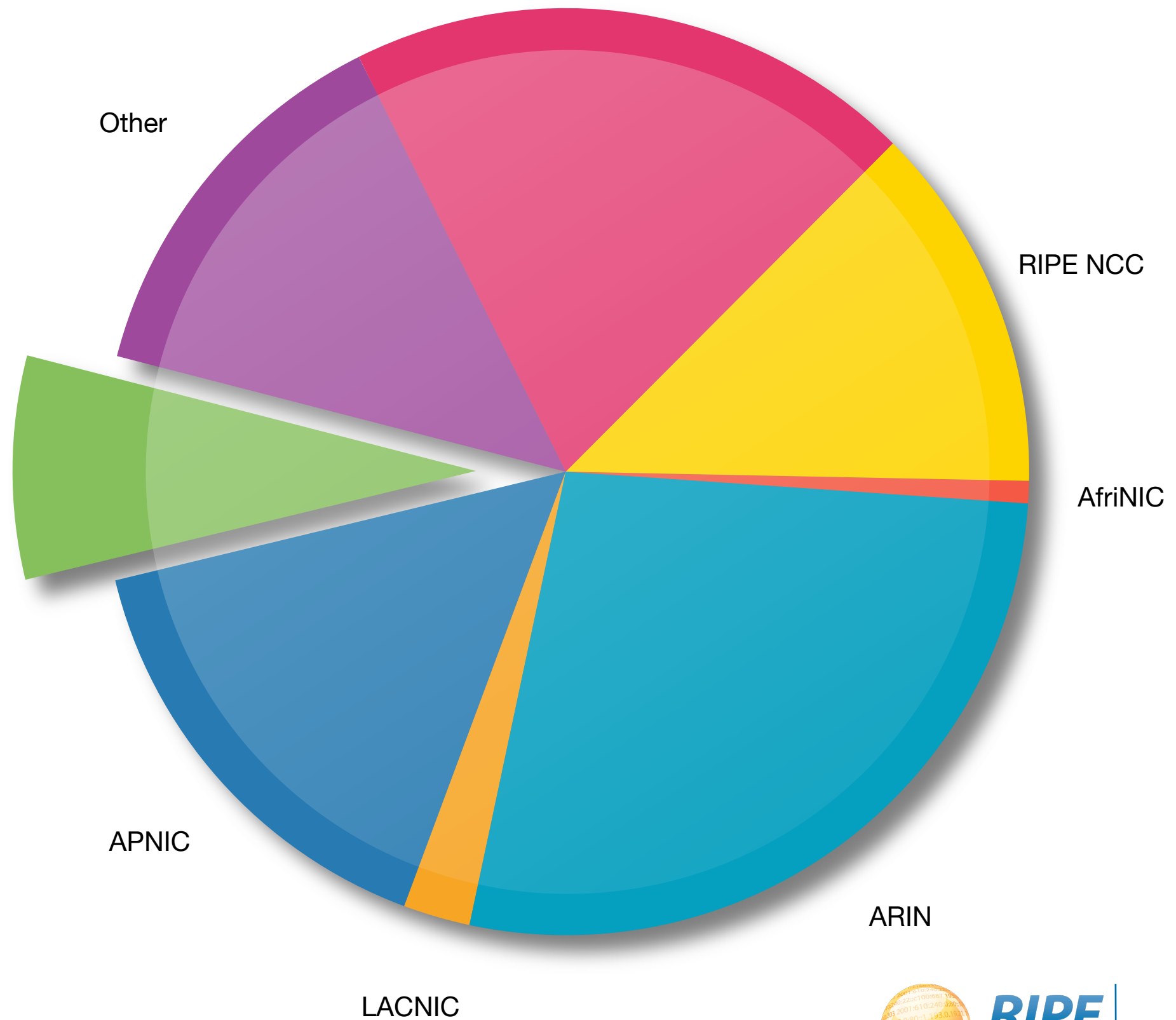
What we know

- RIRs are in total consistently consuming around 10 /8s each year

- There are 16 /8 blocks remaining in the global free pool in June 2010

- Projected exhaustion of the global IPv4 free pool August 2011

- IPv6 adoption is the only way to ensure continued Internet growth

IPv4 address pool projections
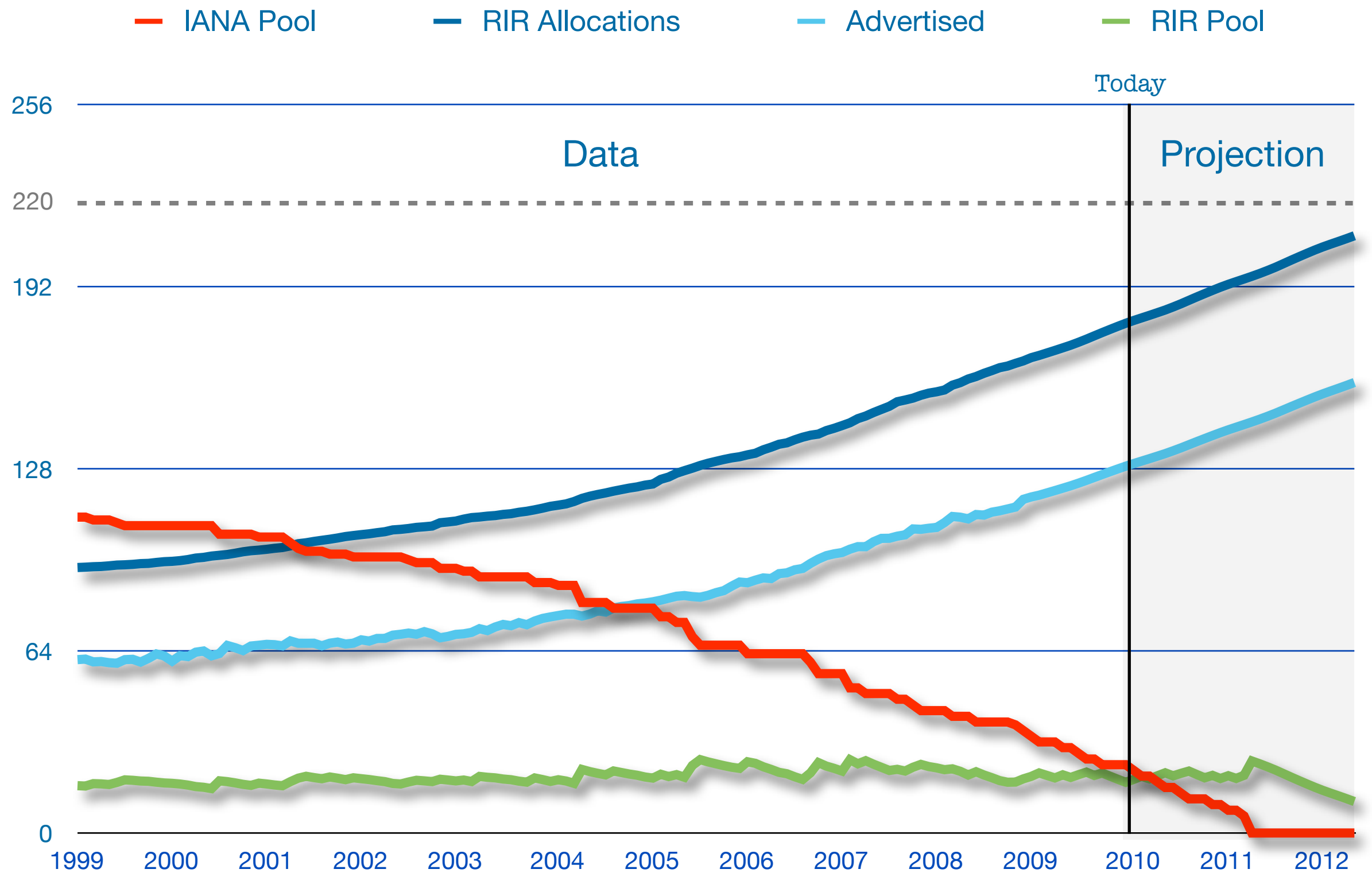
IPv4 allocation reduction

- RIPE NCC currently allocates up to 12 months

- As of 1 July 2010 - 9 months

- As of 1 January 2011 - 6 months

- As of 1 July 2011 - 3 months

IPv4 reclamation

- RIPE NCC reclaim addressing based on:
  - Non payment
  - Returned by LIR
  - LIRs pending closure

- RIPE NCC has so far reclaimed 5,730,304 IPs

The last /8

- LIRs may receive only one allocation

- Max allocation size /22 (1024 IPs)

- Only available to LIRs having an IPv6 allocation

- /16 (65 536 IPs) will be reserved for unforeseen
    circumstances

IPv6 deployment

Getting an IPv6 allocation

- Must be an LIR

- LIR must plan to deploy IPv6 within 2 years

- Minimum allocation size /32
  - 65536 /48's

- Customer assignments (end sites) between:
  - /64 (1 subnet)
  - /48 (65536 subnets)

- Every subnet should be a /64

- Announce as single prefix recommended

Getting IPv6 provider independent (PI) space

- To qualify you must:

    - Demonstrate you will multihome

    - Meet the contractual requirements

- Minimum assignment size /48

- Can only be used for infrastructure

IPv6 allocations and announcements
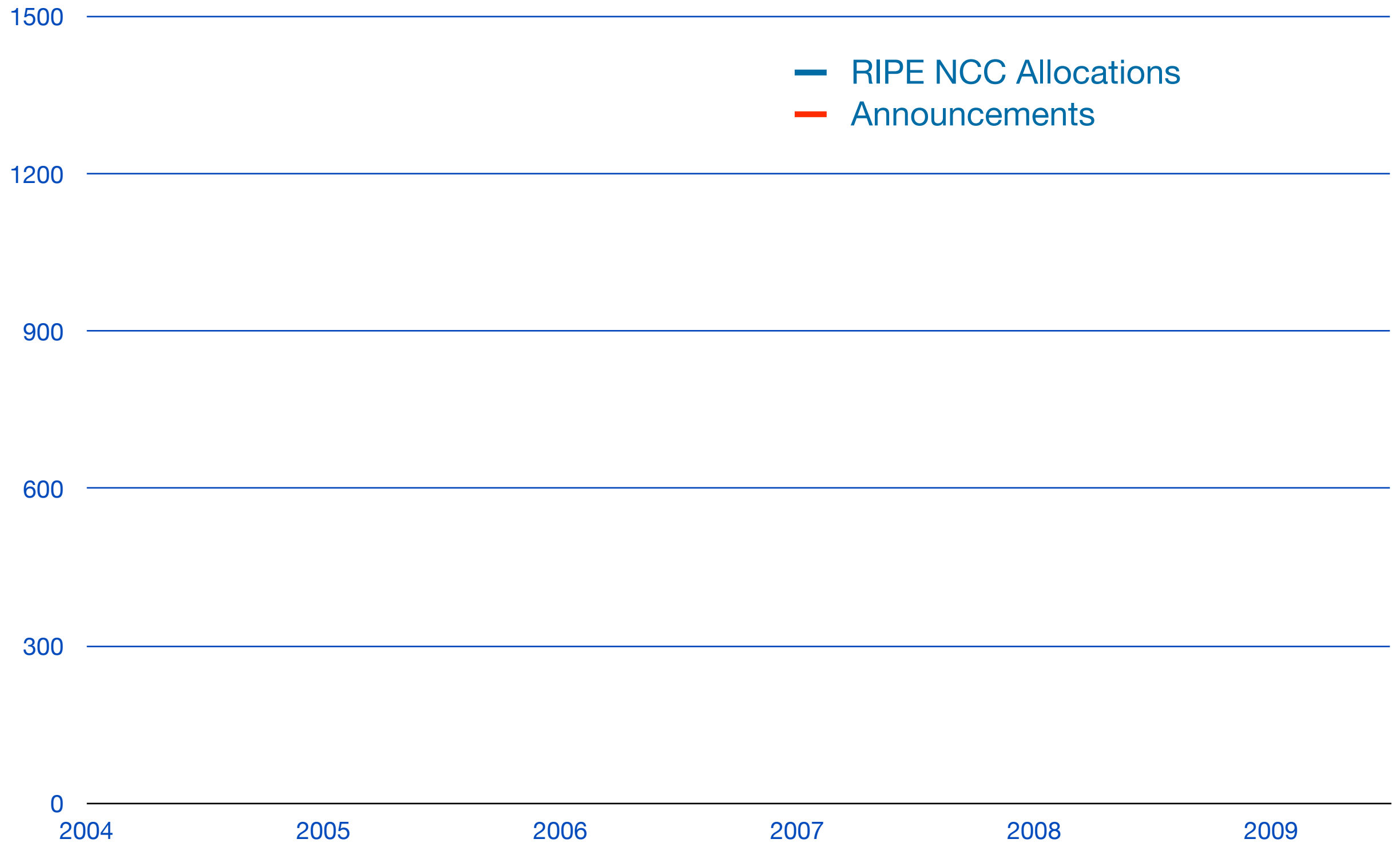
IPv6 allocations and announcements
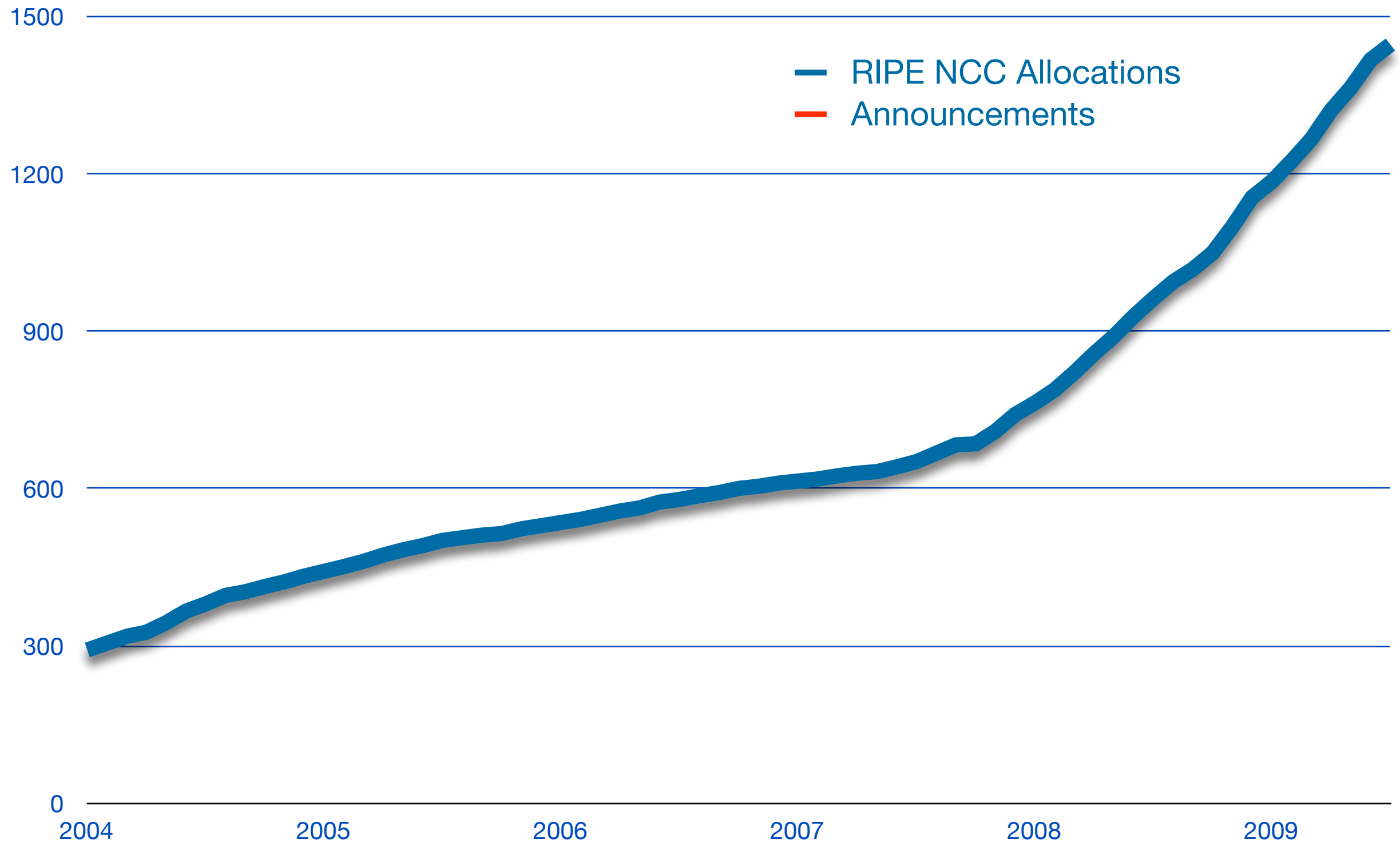
IPv6 allocations and announcements
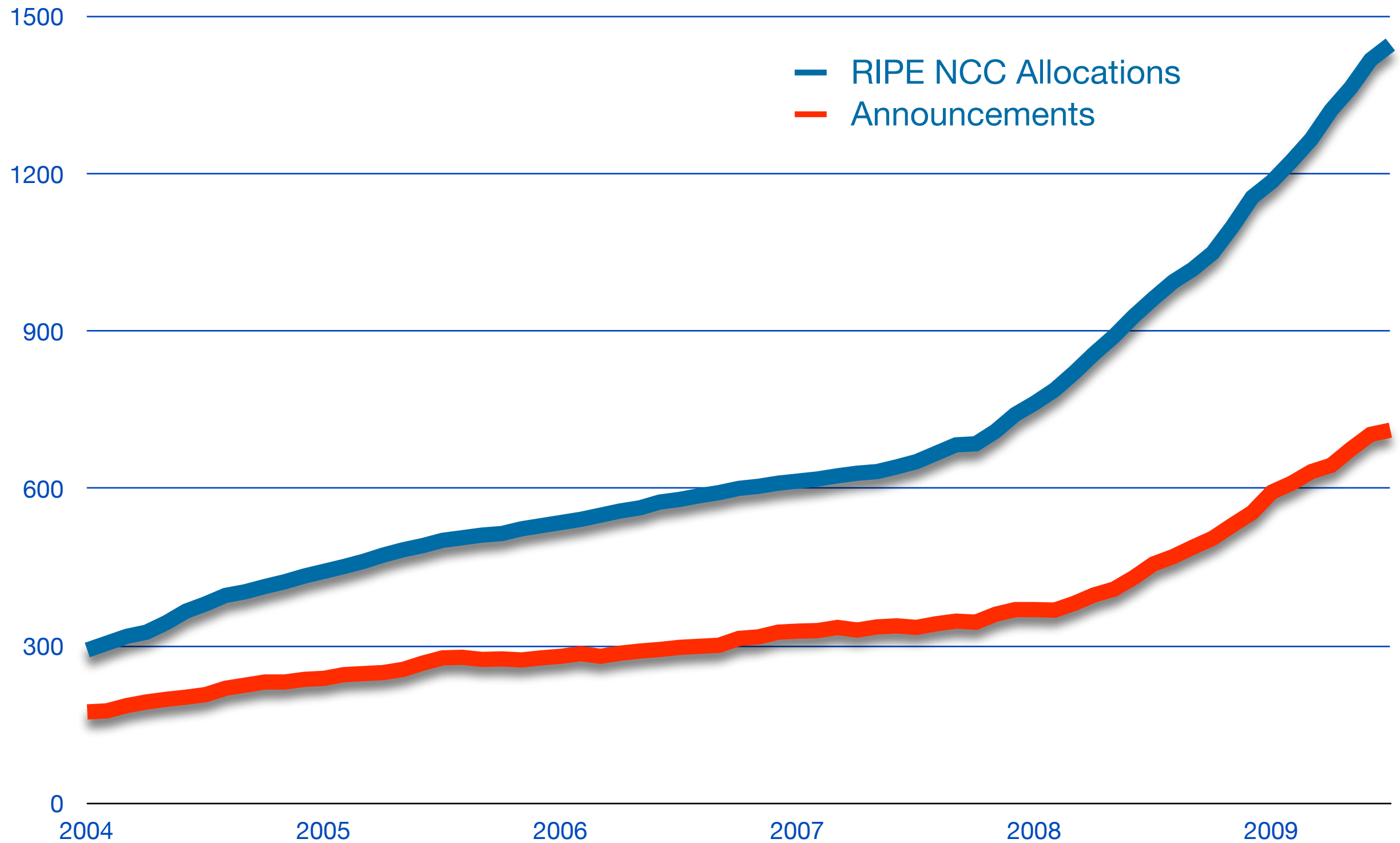
Engaging the community

- RIPE / RIPE NCC events
    - RIPE IPv6 working groups
    - RIPE cooperation working group
    - RIPE NCC government roundtables

- Other fora:
    - Internet Governance Forum (IGF)
    - OECD
    - ITU events
    - European Commission (EC)

- IPv6 Act Now website

www.IPv6ActNow.org

Questions?