



IPv4 Exhaustion & IP Policy Development

Netnod meeting
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Overview

RIPE PDP (Policy Development Process)

Current Policy Issues

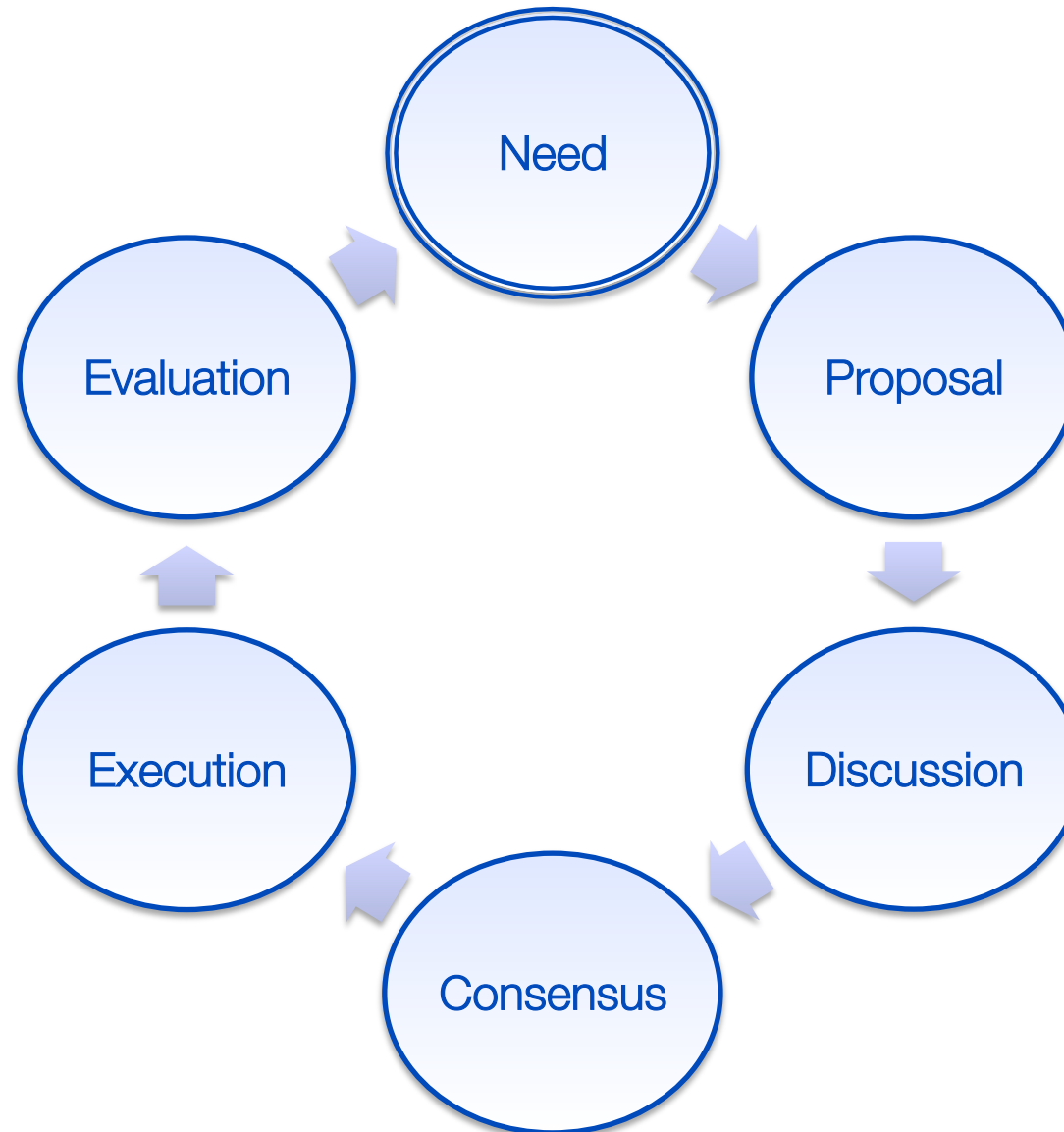
IPv4 Depletion

IPv6 and IPv4 Proposals

IPv4 & IPv6 Address Allocations

IPv6 Routing

Policy Development Cycle



RIPE PDP Principles

Open

Anyone can participate

Policy meetings

Mailing lists

Transparent

Mailing lists archived

Meetings scribed

Developed Bottom-up

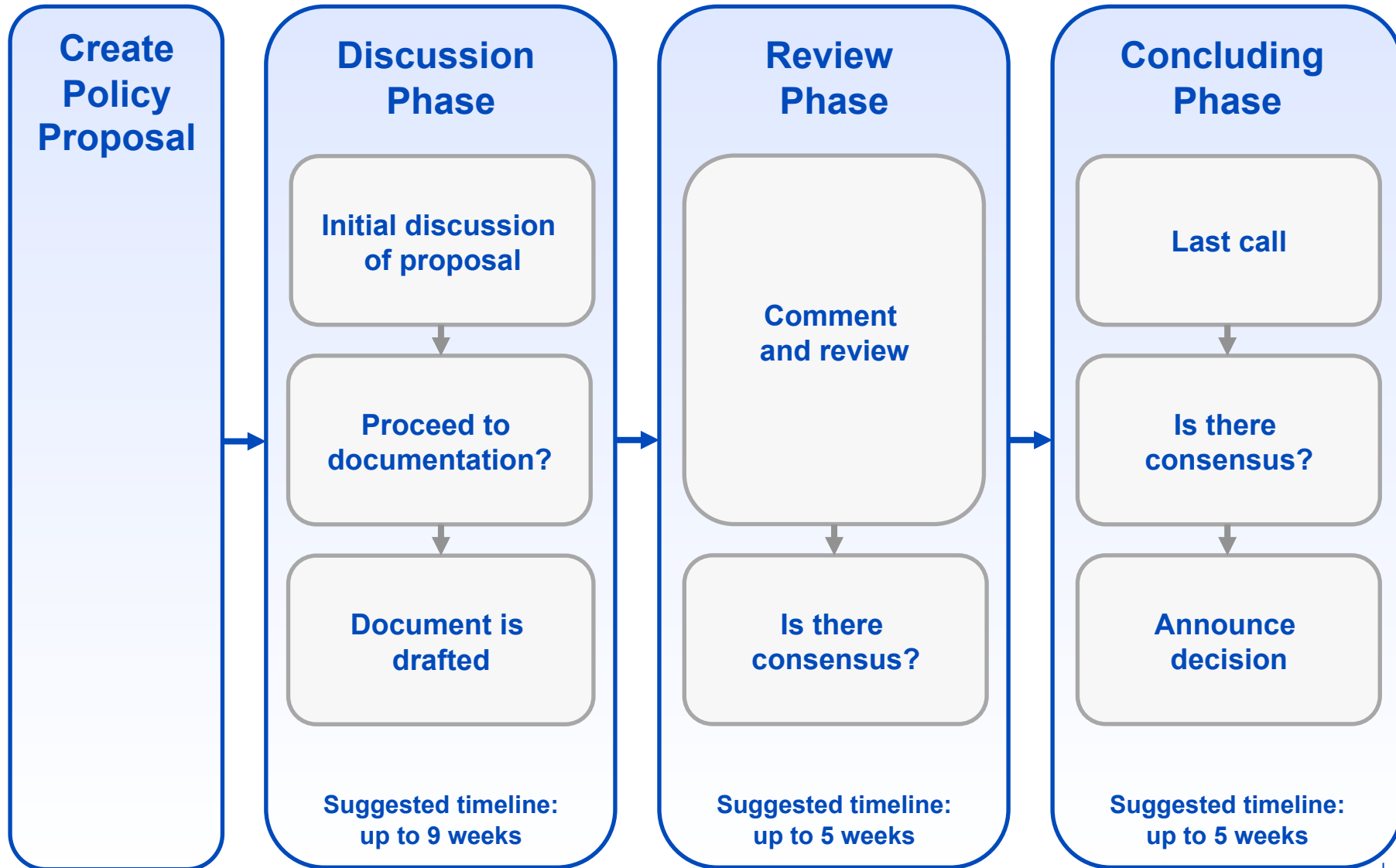
By the Internet Community

Documented

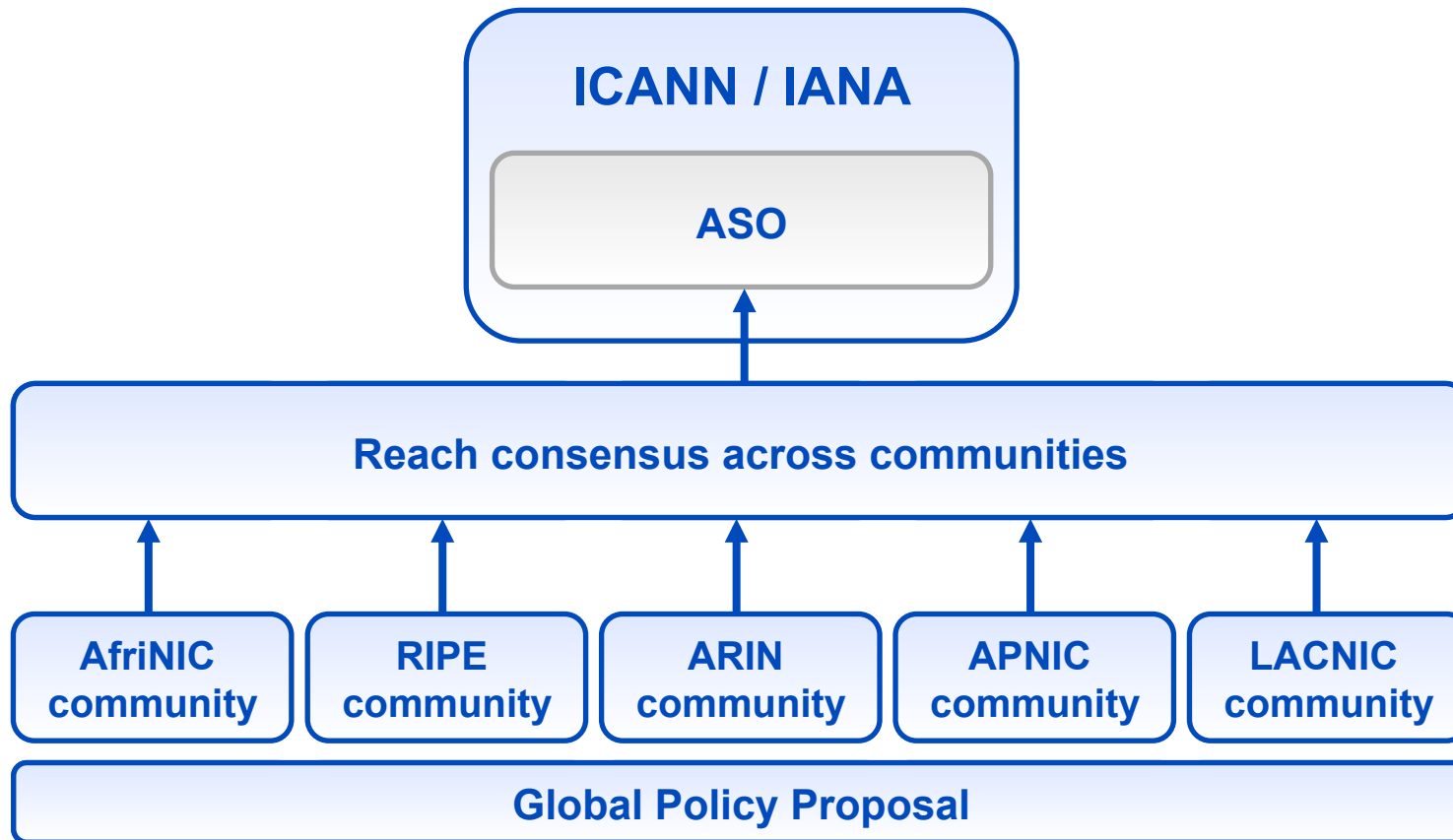
Formal Policy Documents

Implementation Procedures

Policy Development Process



Regional and Global Policy



RIPE PDP Current Issues

IPv4 depletion

Policy proposals

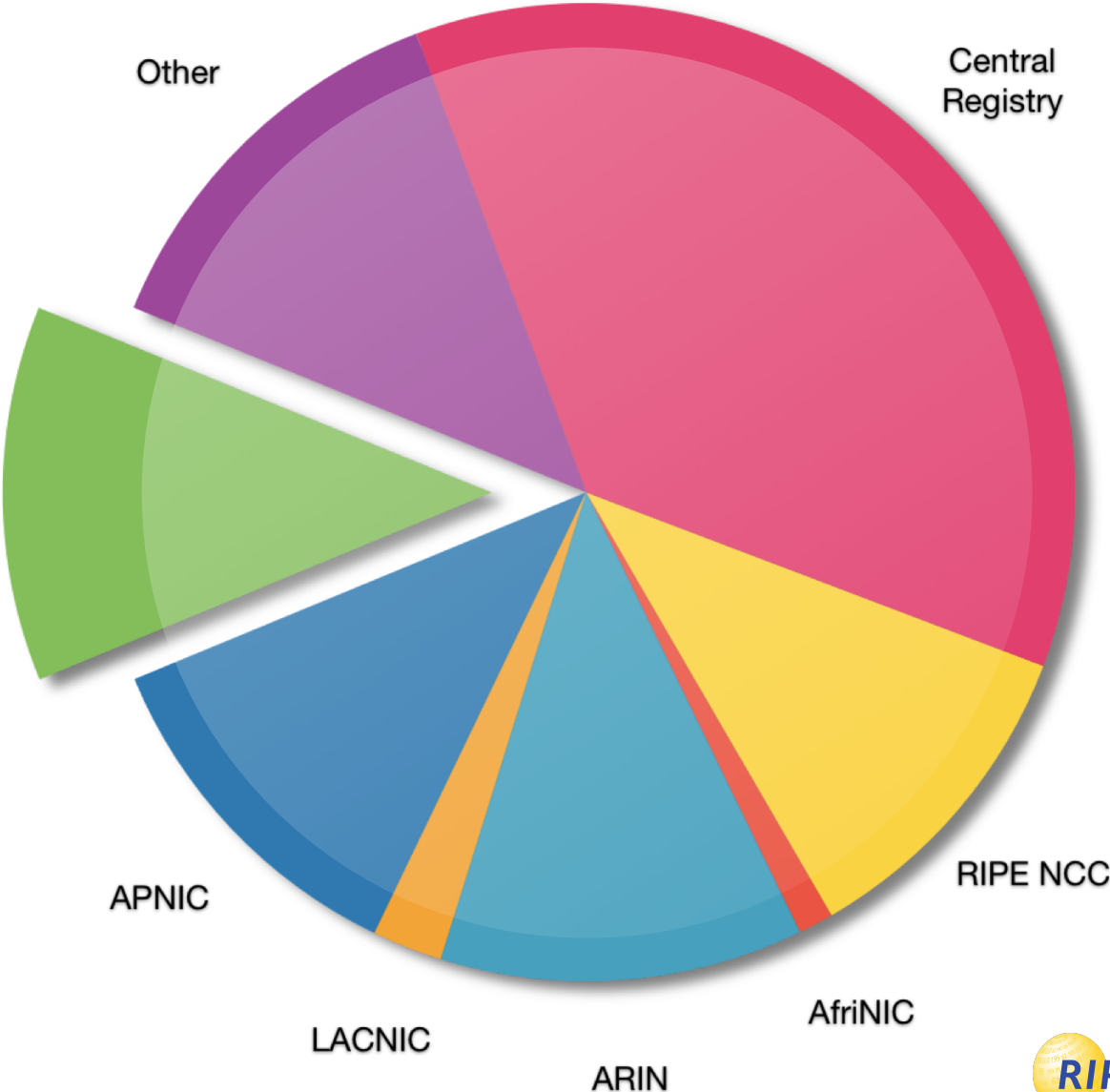
- Remove any remaining obstacles for IPv6 allocations

- Get ready for IPv4 endgame

- ... and sustained IPv4 usage

IPv4 Address Pool

12%
available



Depletion of IPv4 Free Pool

Global Perspective

Global Policy for the Allocation of the Remaining IPv4 Address Space (2008-03)

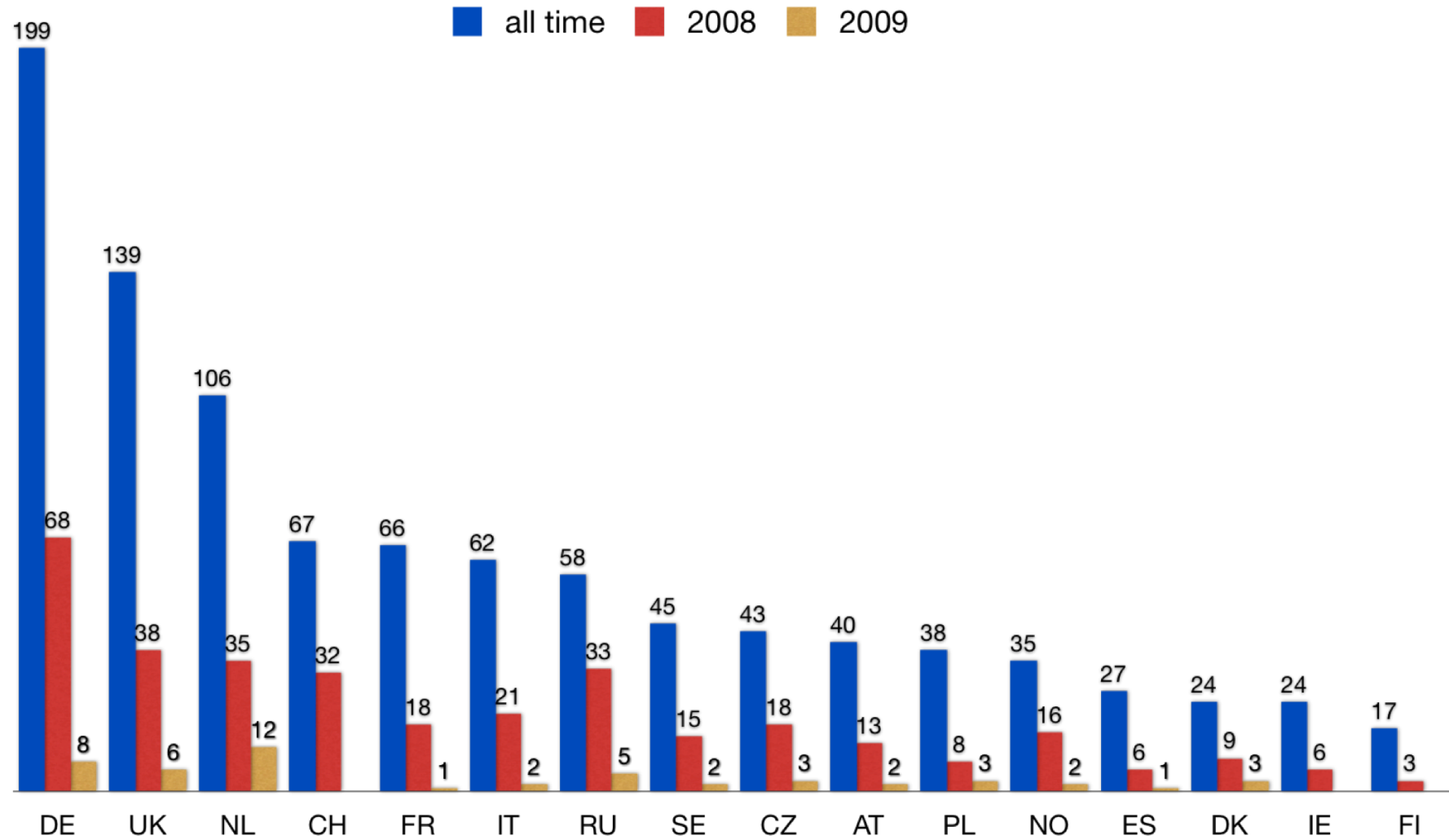
Accepted by all regions and documented

<http://www.ripe.net/ripe/docs/ripe-436.html>

Distribute the last 5 /8s evenly among RIRs (N=1)

Awaiting the Global PDP to conclude

IPv6 Allocations per Country



Remove Obstacles to IPv6

Proposal 2006-02: IPv6 Allocation Policy

IPv6 Allocation criteria altered

No more requirement for assignments to *others*

No more requirement for 200 customers

New End Site definition

LIRs internal assignments count as End Site

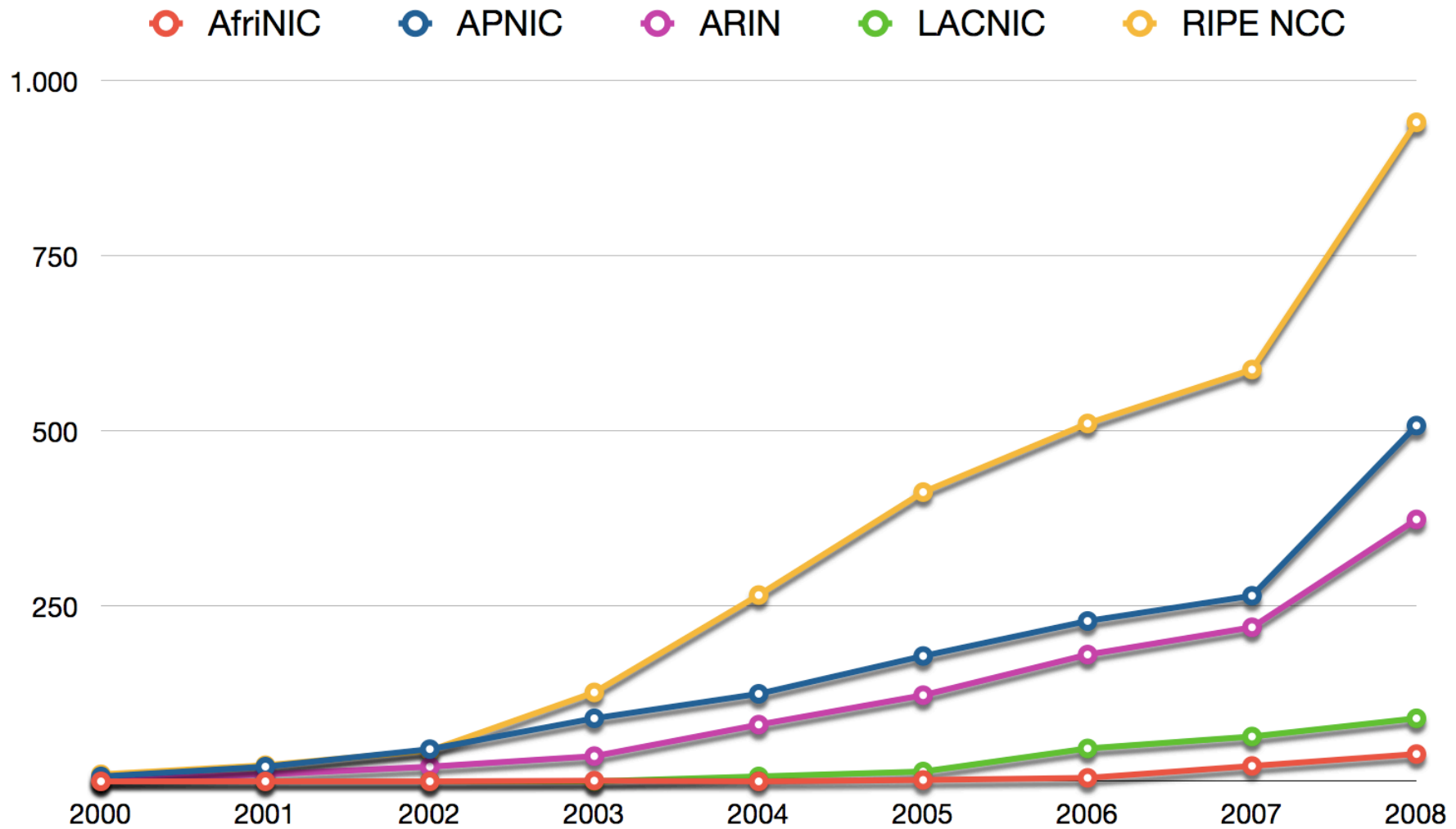
LIRs: Plan to make sub-allocations to others or assignments to End Sites

Proposal 2006-01: IPv6 for End Users

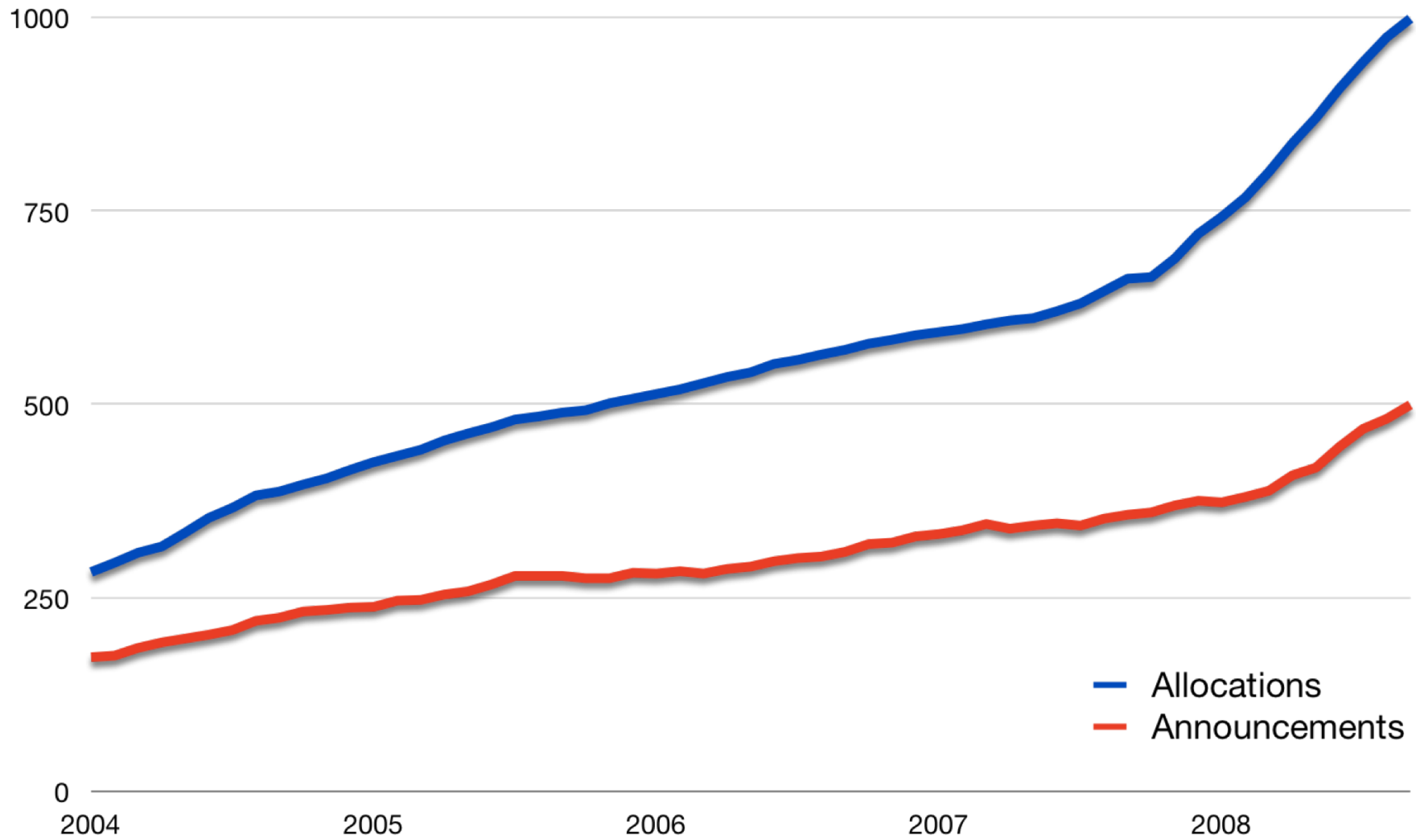
Provider Independent Address Space

Moving towards consensus

IPv6 Allocations



IPv6 Routing



RIPE Region Specific

Direct Internet Resource Assignments to End Users from the RIPE NCC (2007-01)

Contractual relationship for all independent number resources to an End User

Have a contract with

- a sponsoring LIR **or**
- the RIPE NCC

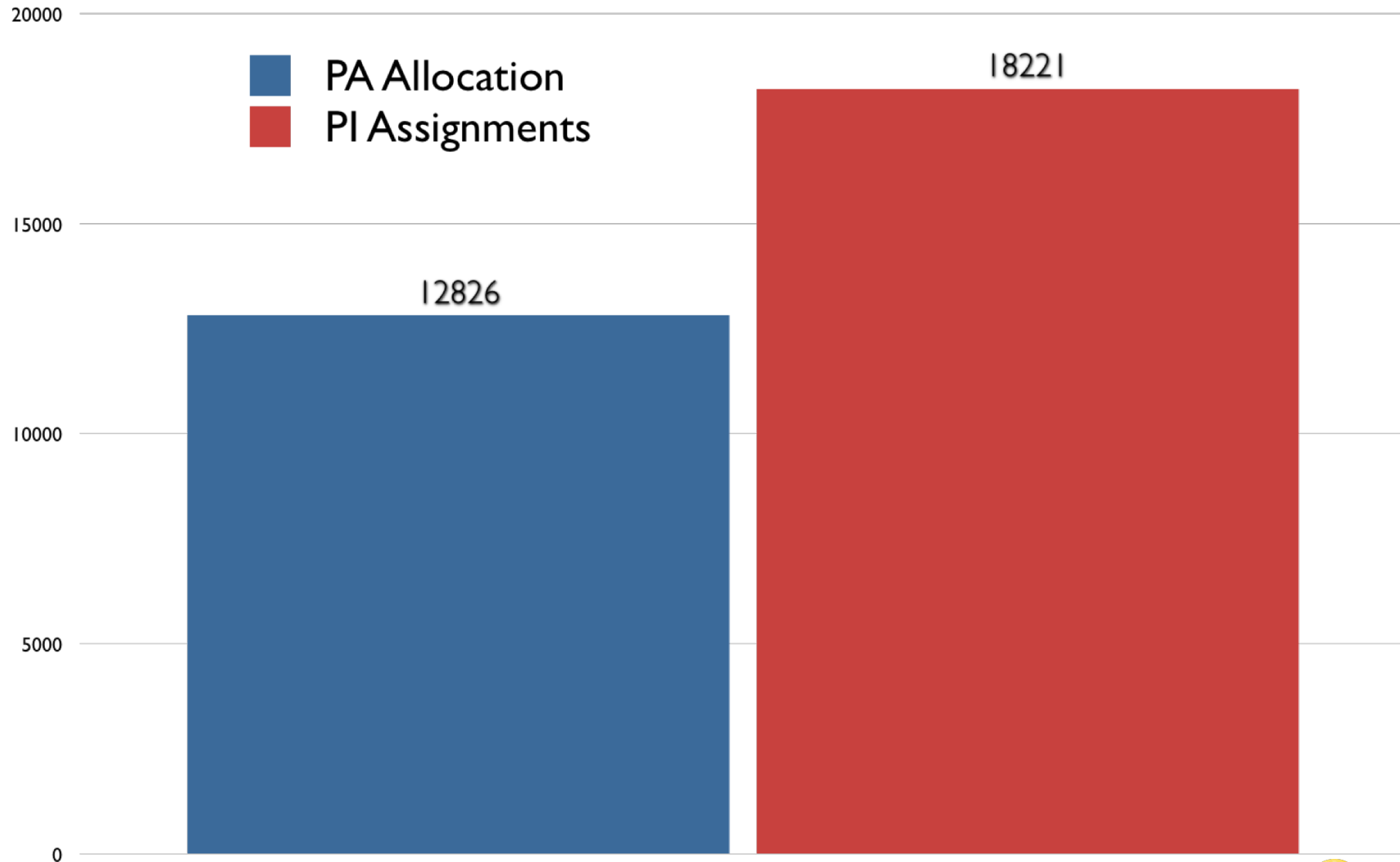
Applies to previously made assignments

Legacy (pre-RIR) space is excluded

Accepted in October 2008

First phase of implementation in 2009 Q1

IPv4 Allocations and PI Assignments



Resource Transfers

Enabling Methods for Reallocation of IPv4 Resources (2007-08)

IPv4 Exhaustion

Applies only to IPv4 PA allocations

Only within the RIPE region

Similar concept under discussion also in ARIN
and APNIC

Implemented on 27 January 2009

Prudence Proposals

Use of last /8 (2008-06)

New LIRs and Existing LIRs

Must qualify for an allocation

Will receive only one block in min. size regardless of their real needs

A /16 will be reserved for unforeseen circumstances

Addition of IPv6 deployment requirement suggested

Prudence Proposals

Ensuring efficient use of historical IPv4 resources (2008-07)

Currently legacy allocations are exempt from 80% usage policy

Proposal requires documentation of usage of legacy space

Comments from RIPE 57

How long will this save us?

May cause deletion of registration

Accuracy of registration is important

Do both (save and make sure it is accurate)

New wording suggested

Prudence – Other Regions

Dedicated IPv4 blocks to facilitate IPv6 Deployment

ARIN accepted

Reserve a /10

Assignments for key dual stack DNS servers, and NAT-PT or NAT464 translators

APNIC accepted

Use of final /8

Ensuring efficient use of historical IPv4 resources

LACNIC accepted

Reserve a /12

/22s for “new” ISPs and critical infrastructure

Fairness in the Endgame

Looking at what may happen in the future

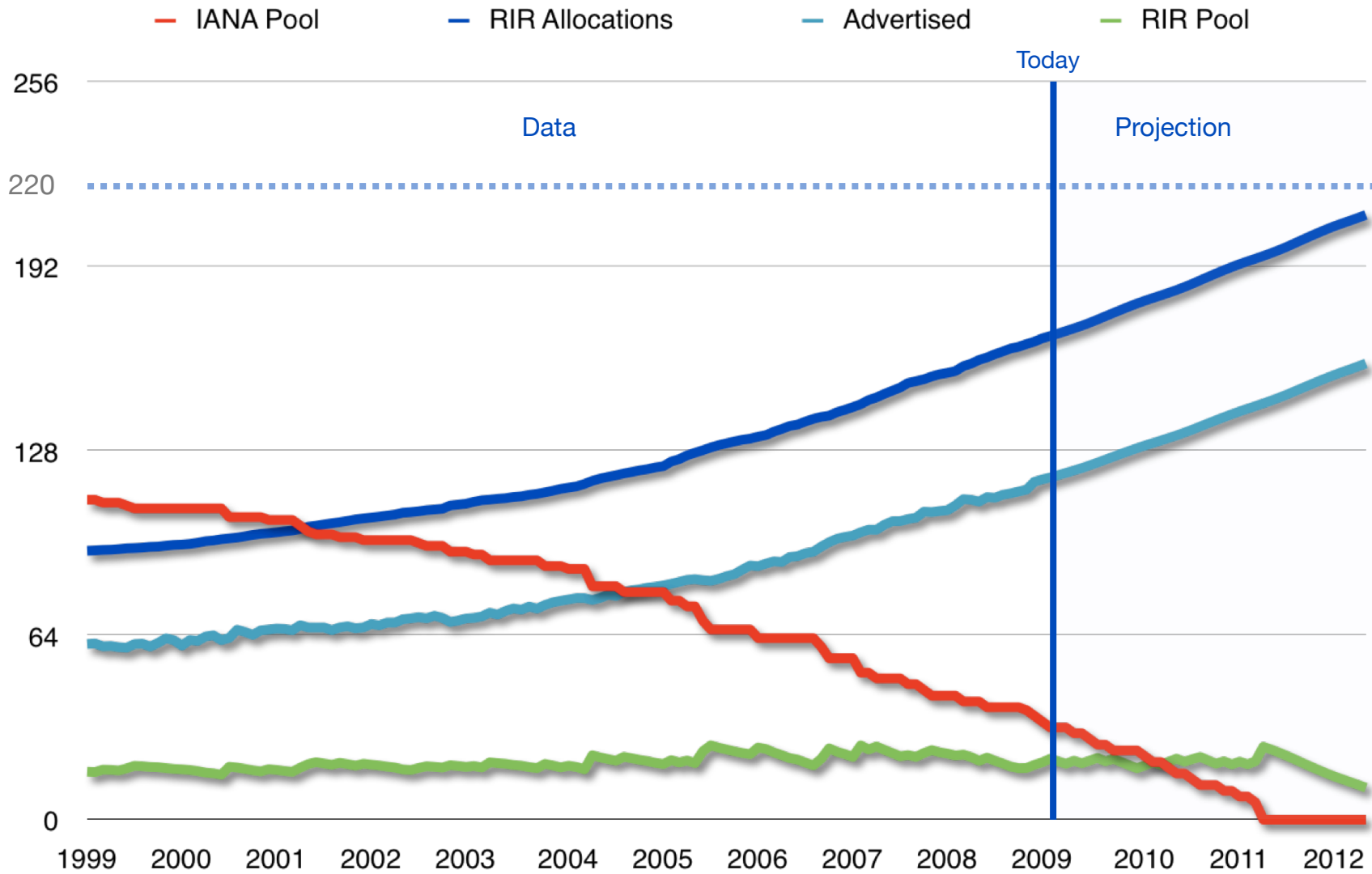
Possibility of big allocations to few members sweeping the resources too quickly even before the last /8

Asking questions to the floor what can be done to avoid this -
Should we avoid this?

Some ideas expressed

Volunteers recruited to work on a potential proposal

IPv4 Pool - The Future



Conclusion

Increase IPv6 deployment

Easier access to resources

Raise awareness

Get ready for IPv4 endgame

Minimise depletion impact

Increased contact with space holders

Increased efficiency in usage

Enabling usage of allocated but unused space

Pre-RIR blocks to be included in the system

Focus on fairness and responsible stewardship

By the way...

32-bit ASN deployment schedule:

1 Jan 2008: 16-bit default, 32-bit on request

1 Jan 2009: 32-bit default, 16-bit on request

1 Jan 2010: Only 32-bit AS Numbers

Note: 16-bit AS Numbers will not be deprecated.

This schedule applies to newly assigned ASNs

References

RIPE PDP

<http://www.ripe.net/ripe/docs/pdp.html>

Document Store

<http://www.ripe.net/ripe/docs/>

Current Proposals

<http://www.ripe.net/ripe/policies/proposals/>

Archived Proposals

<http://www.ripe.net/ripe/policies/proposals/archive/>

Address Policy WG Mailing list

<http://www.ripe.net/ripe/maillists/archives/address-policy-wg/>

Policy Announce Mailing List

<http://www.ripe.net/ripe/maillists/archives/policy-announce/>



Thank you

