IPv6 Deployment and Distribution in the RIPE NCC Service Region

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Topics:

- RIPE NCC
- IPv4 - review and last /8
- IPv6 - current status
- How to get IPv6

RIPE NCC

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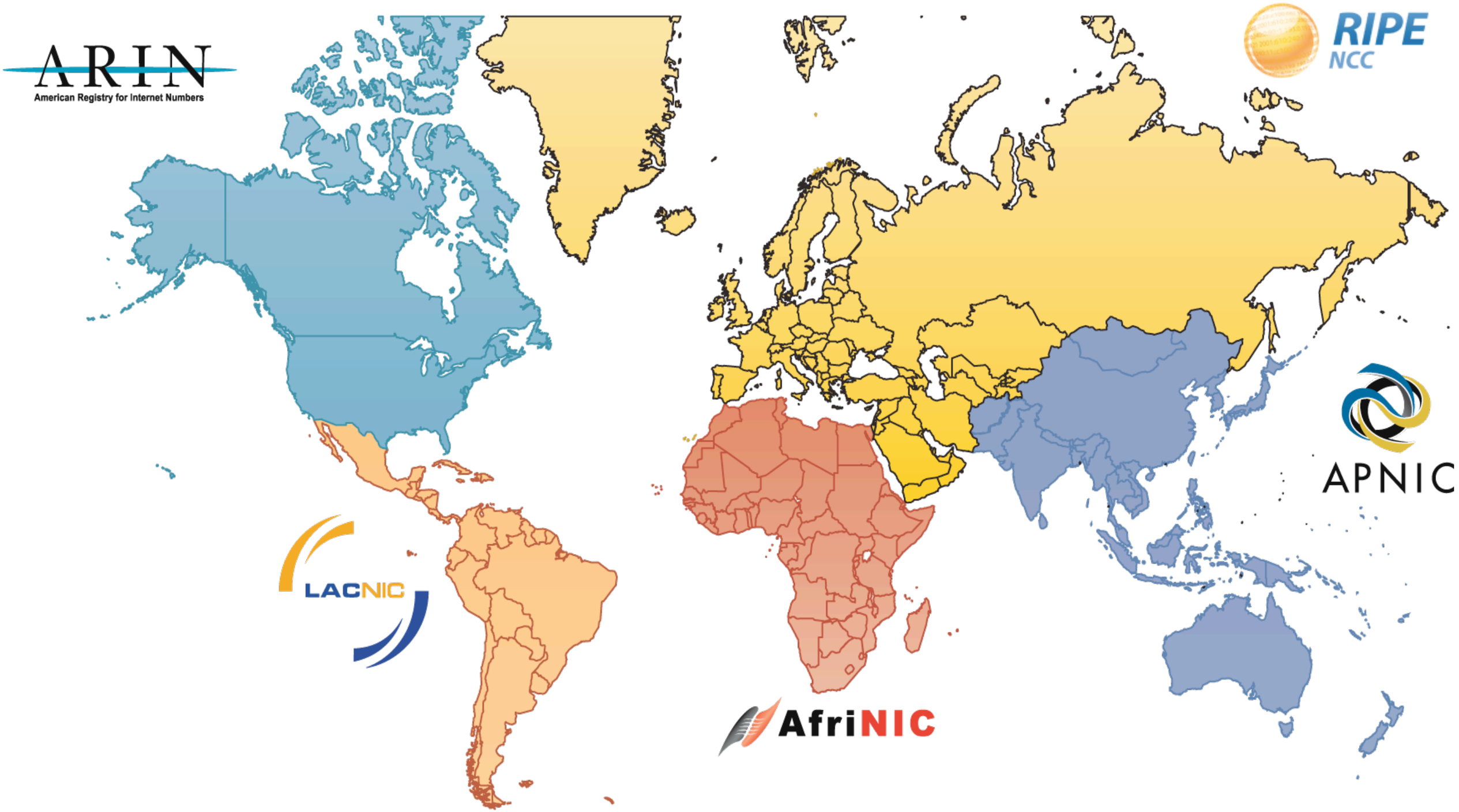
Text

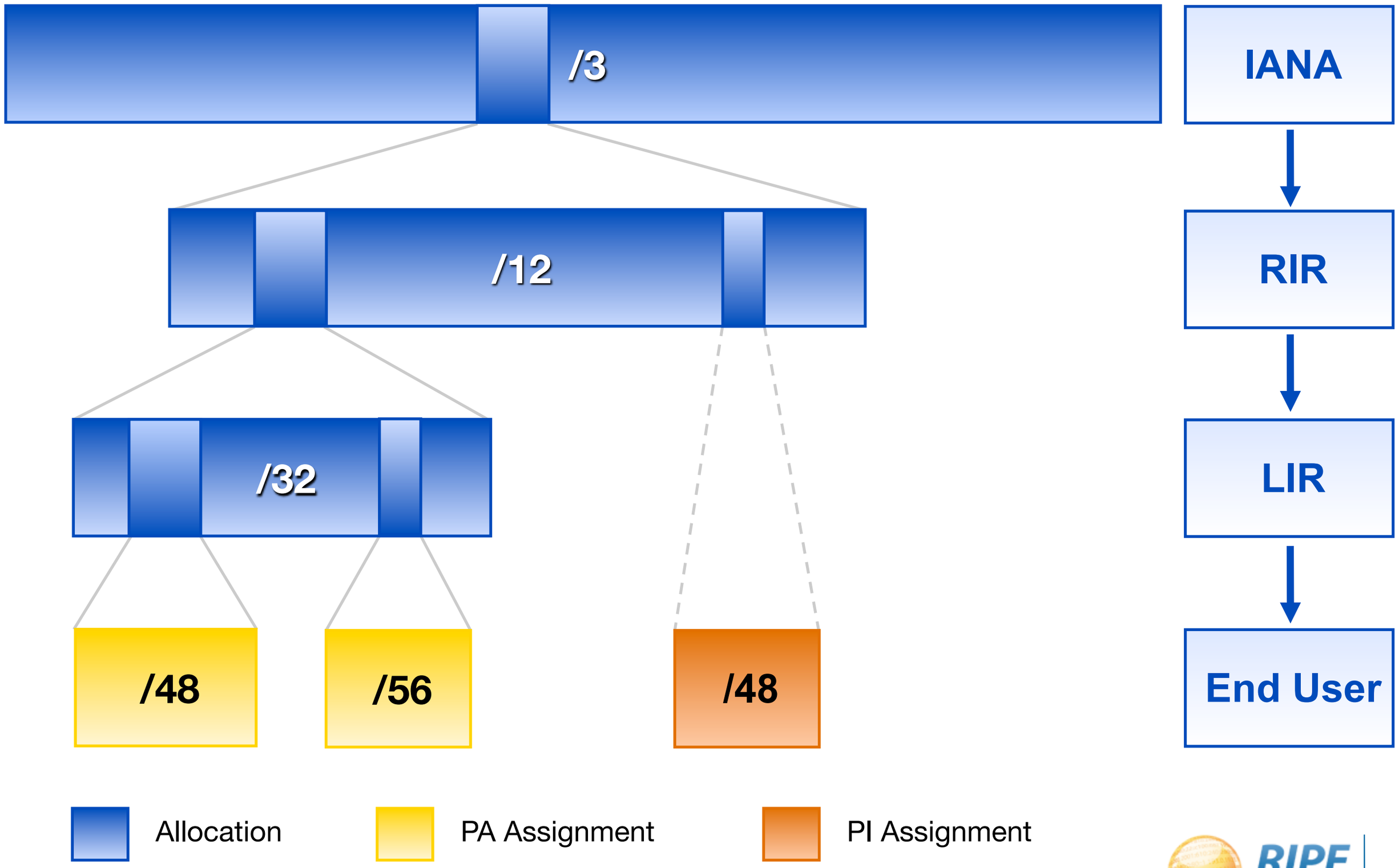
About RIPE NCC

- One of the five Regional Internet Registries (RIR)
- RIPE NCC service region covers Europe, the Middle East and parts of central Asia
- Not-for-profit association, based in Amsterdam
- Funded from the membership fee
- more than 8000 members throughout the region
- Neutral, impartial, open and transparent

The five Regional Internet Registries



IPv6 Address Distribution



IPv4 - review and last /8

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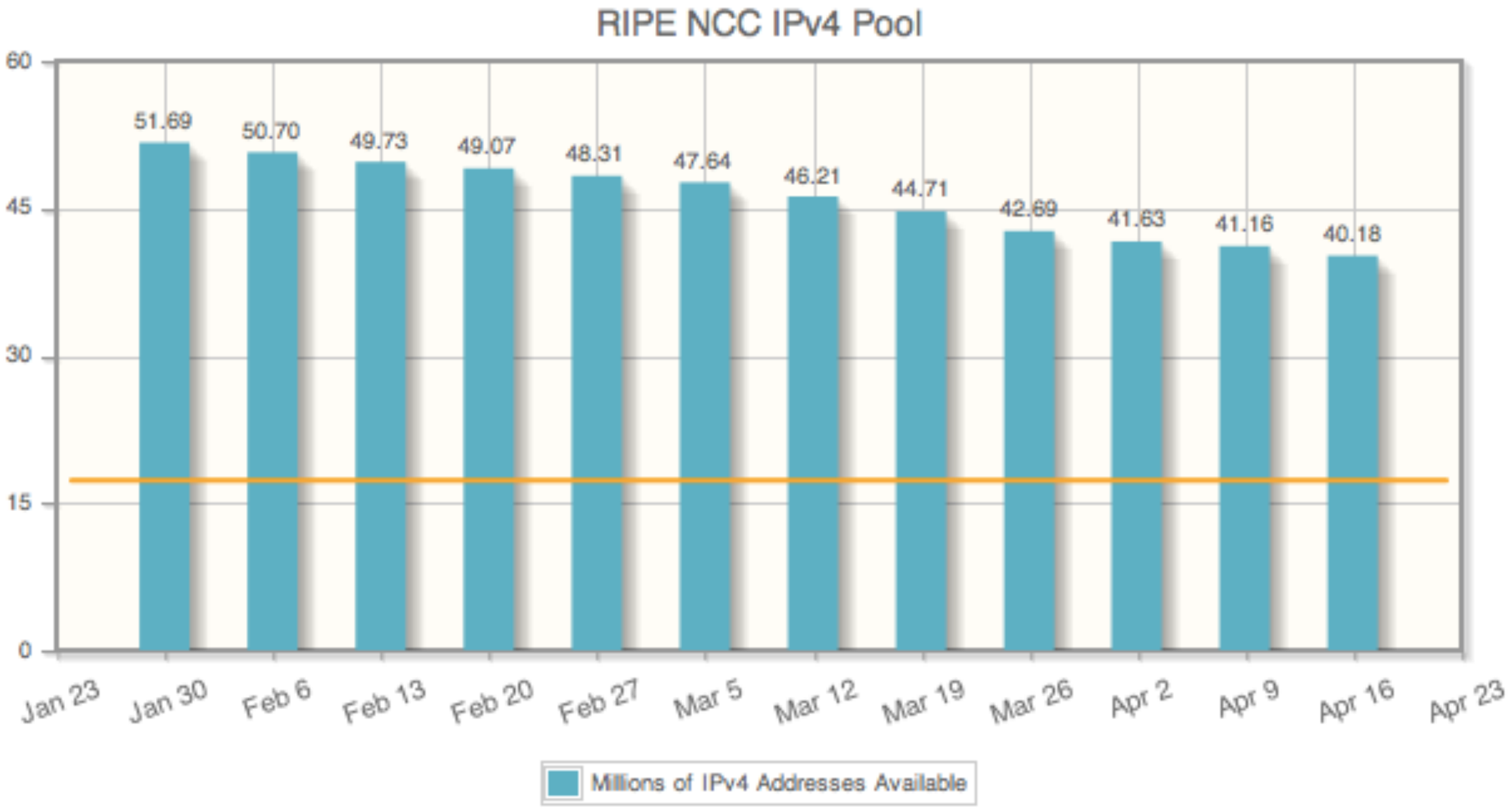
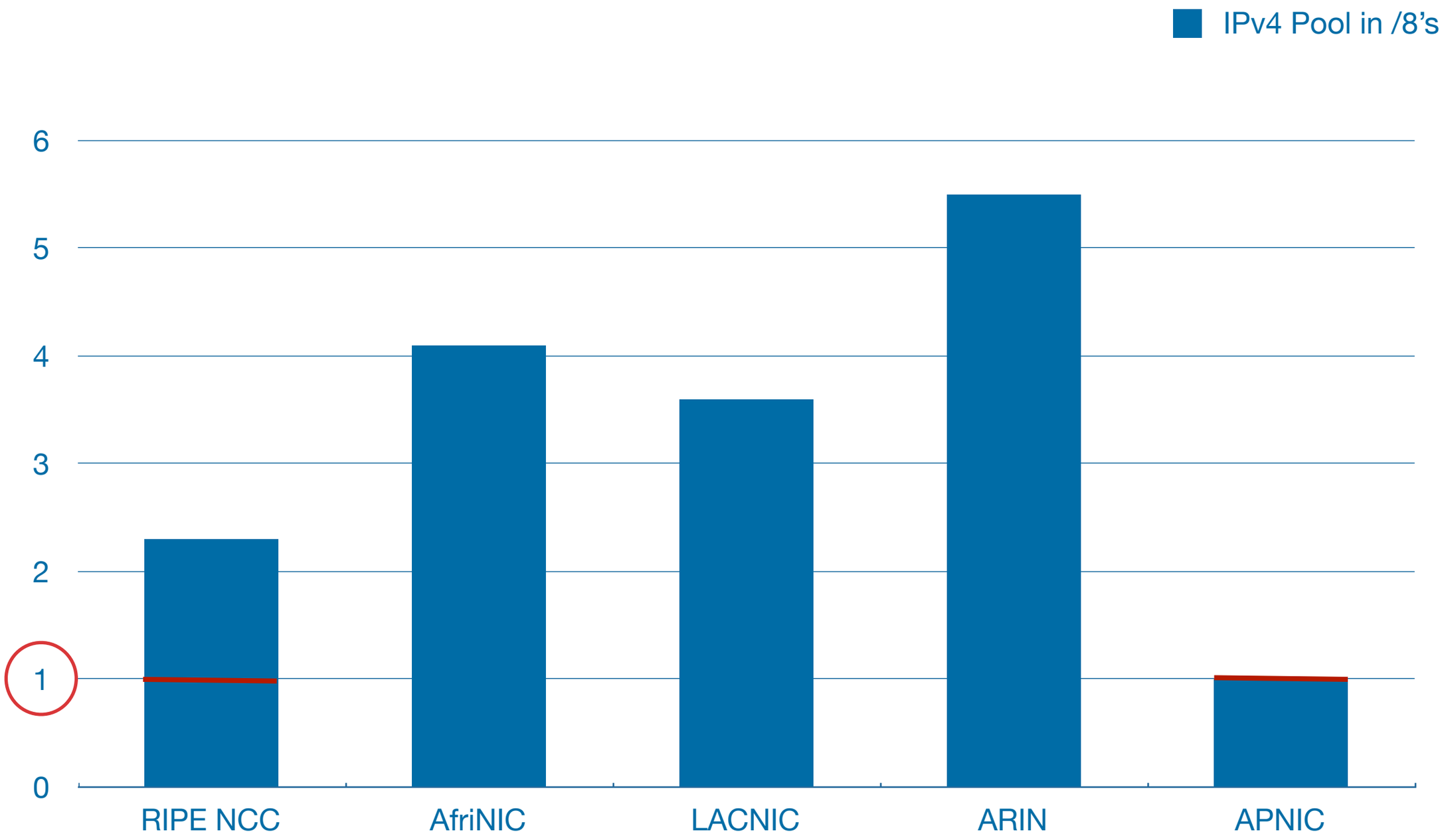
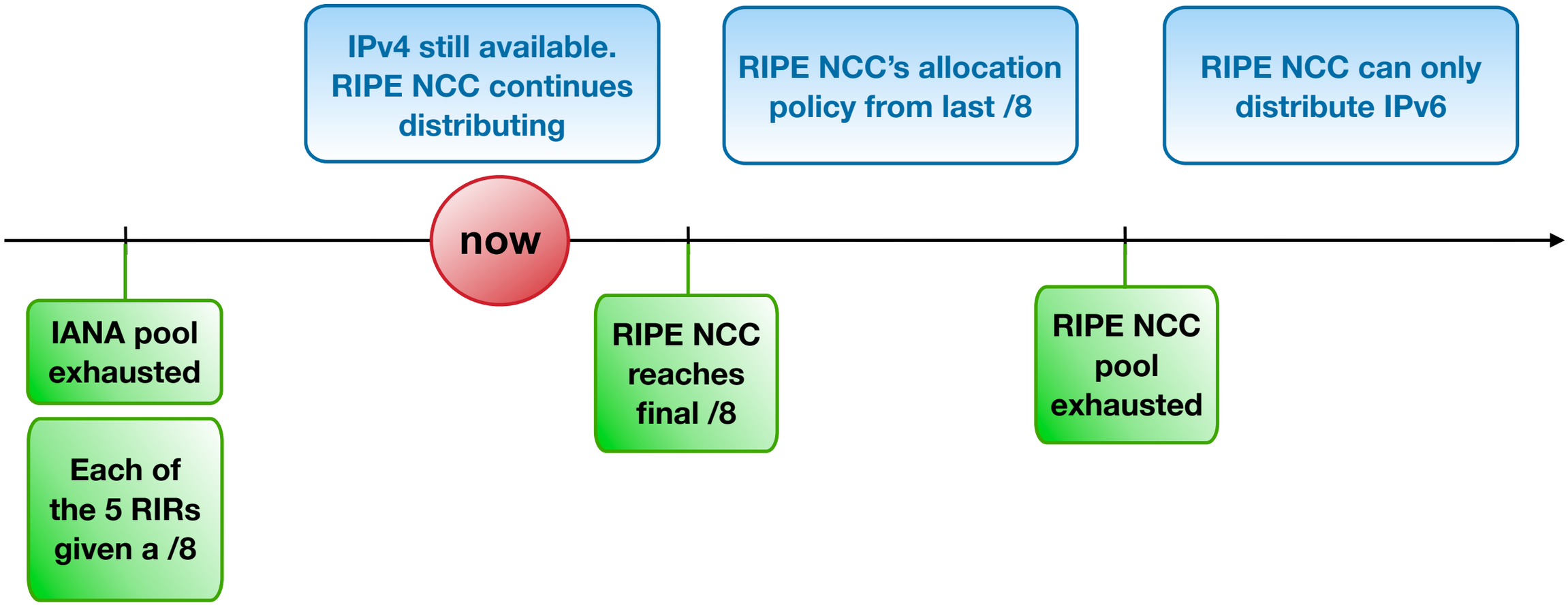
RIPE NCC IPv4 Available Pool



IPv4 Depletion Worldwide



IPv4 exhaustion phases



RIPE NCC's last /8

- We do things differently!
- Ensures IPv4 access for all members
  - 16000+ /22s in a /8
  - members can get **one /22** (=1024 addresses)
    - must already hold IPv6
    - must qualify for allocation
- /16 set aside for unforeseen situations
  - if unused, will be distributed
- No PI

Transfer of IPv4 Allocations

- Policy 2007-08: Allocation Transfer Policy
  - Don’t buy your IPv4 on eBay!
  - Transfer unused allocations to another LIR
  - Minimum allocation size /21
  - Evaluated by RIPE NCC
  - Update in RIPE Database

http://www.ripe.net/lir-services/resource-management/listing

Wait and See?

IPv6 - current status

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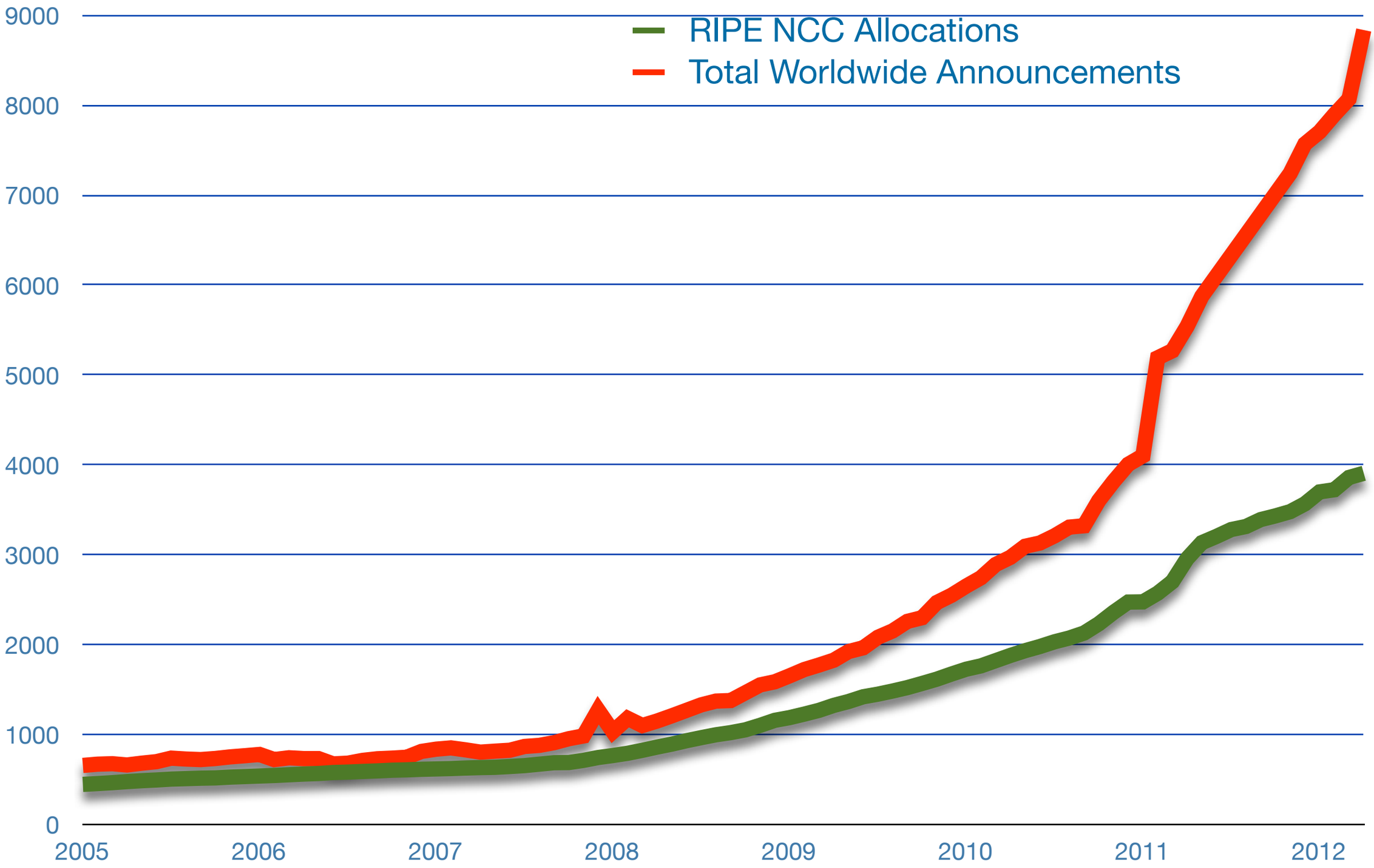
Number of addresses (rounded off)

- IPv4
  - 4,000,000,000
- IPv6
  - 300000000000000000000000000000000
  - in /32 are 65,000 /48's or 16,000,000 /56's or 4,000,000,000 /64's
  - in /48 are 65,000 /64's
  - in /56 are 256 /64's

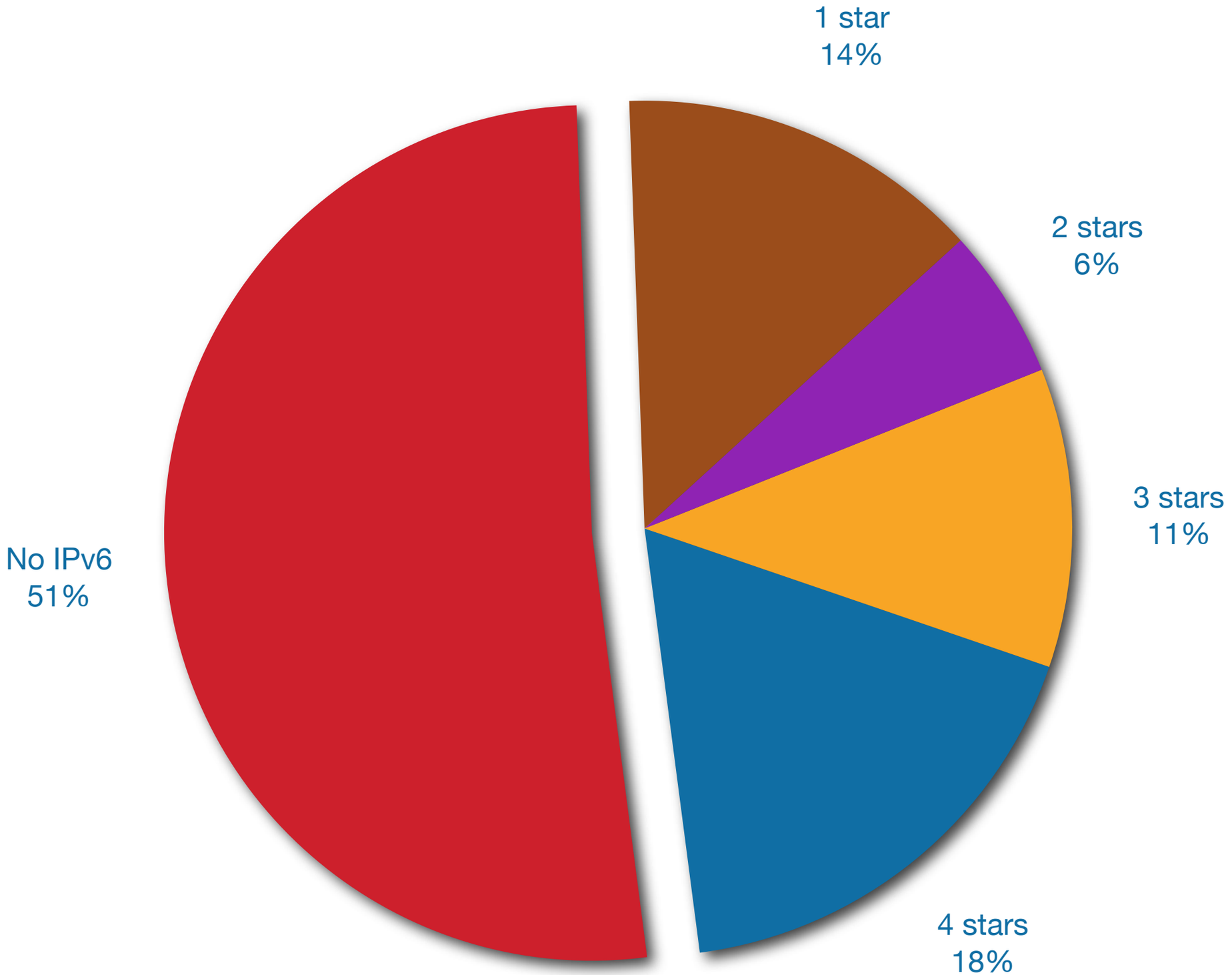
IPv6 Allocations and Announcements



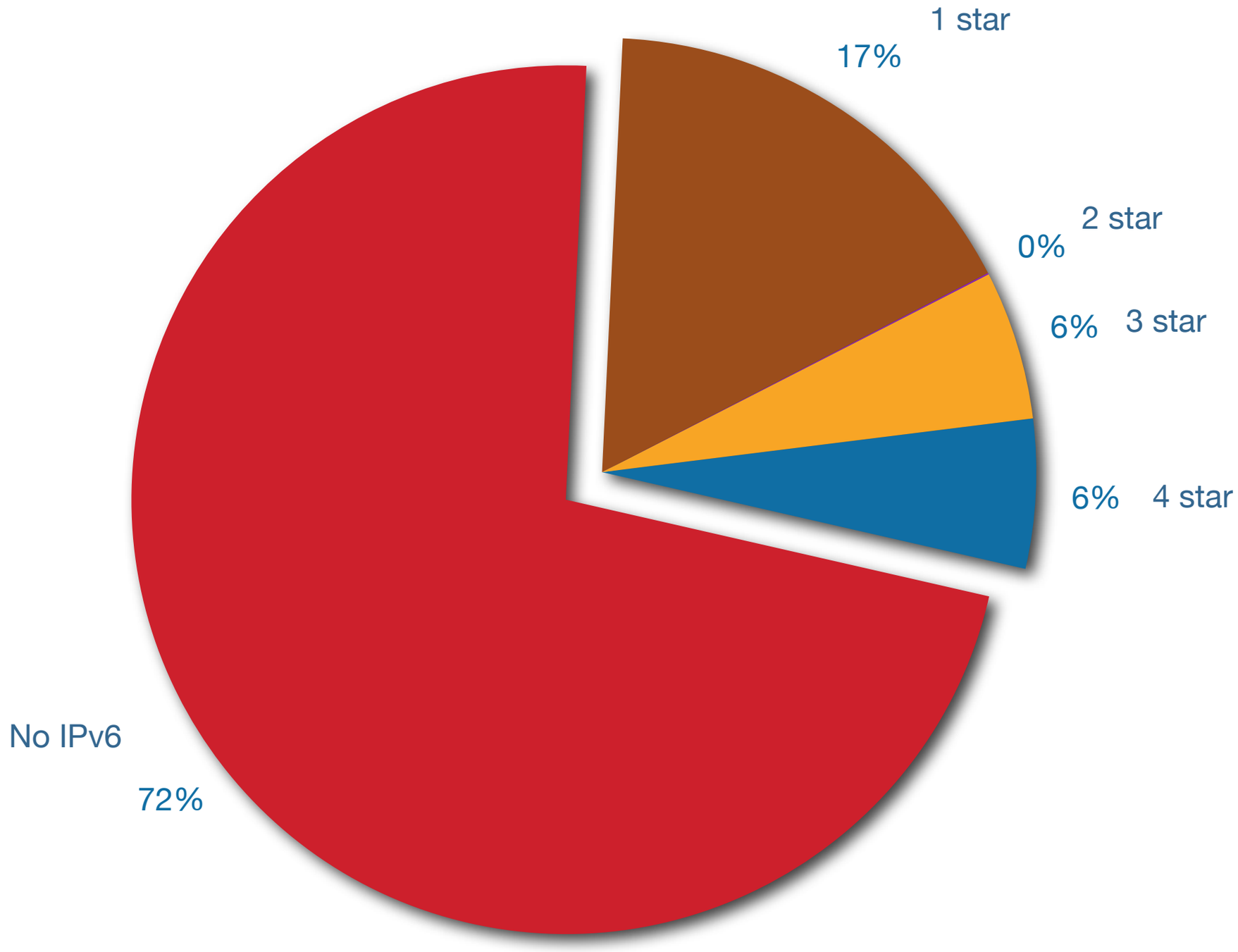
IPv6 Ripeness

- Rating system:
  - One star if the LIR has an IPv6 allocation
  - Additional stars if:
    - IPv6 Prefix is announced on router
    - A route6 object is in the RIPE Database
    - Reverse DNS is set up
  - A list of all 4 star LIRs: **http://ripeness.ripe.net/**

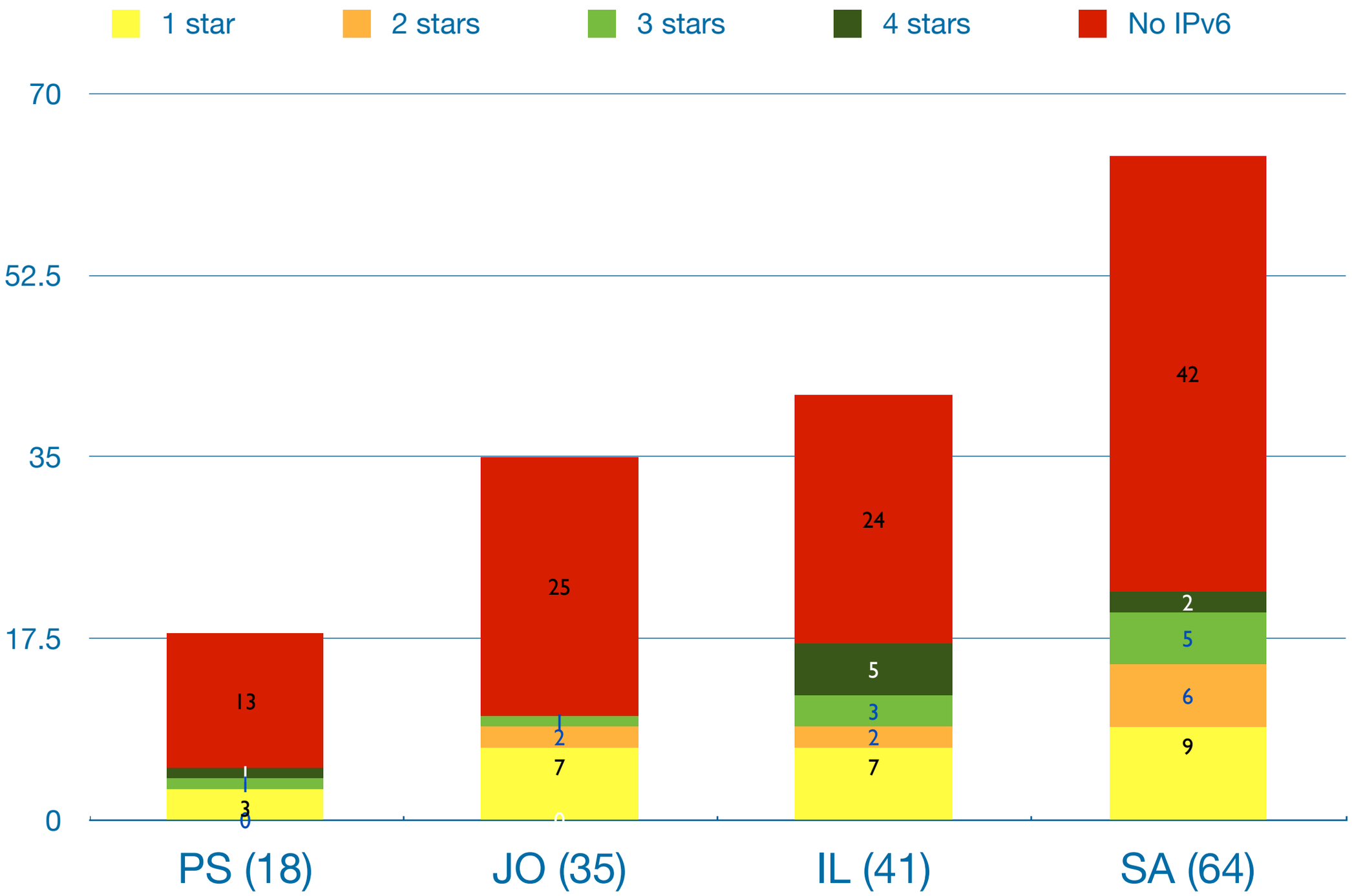
IPv6 RIPEness: 8038 LIRs



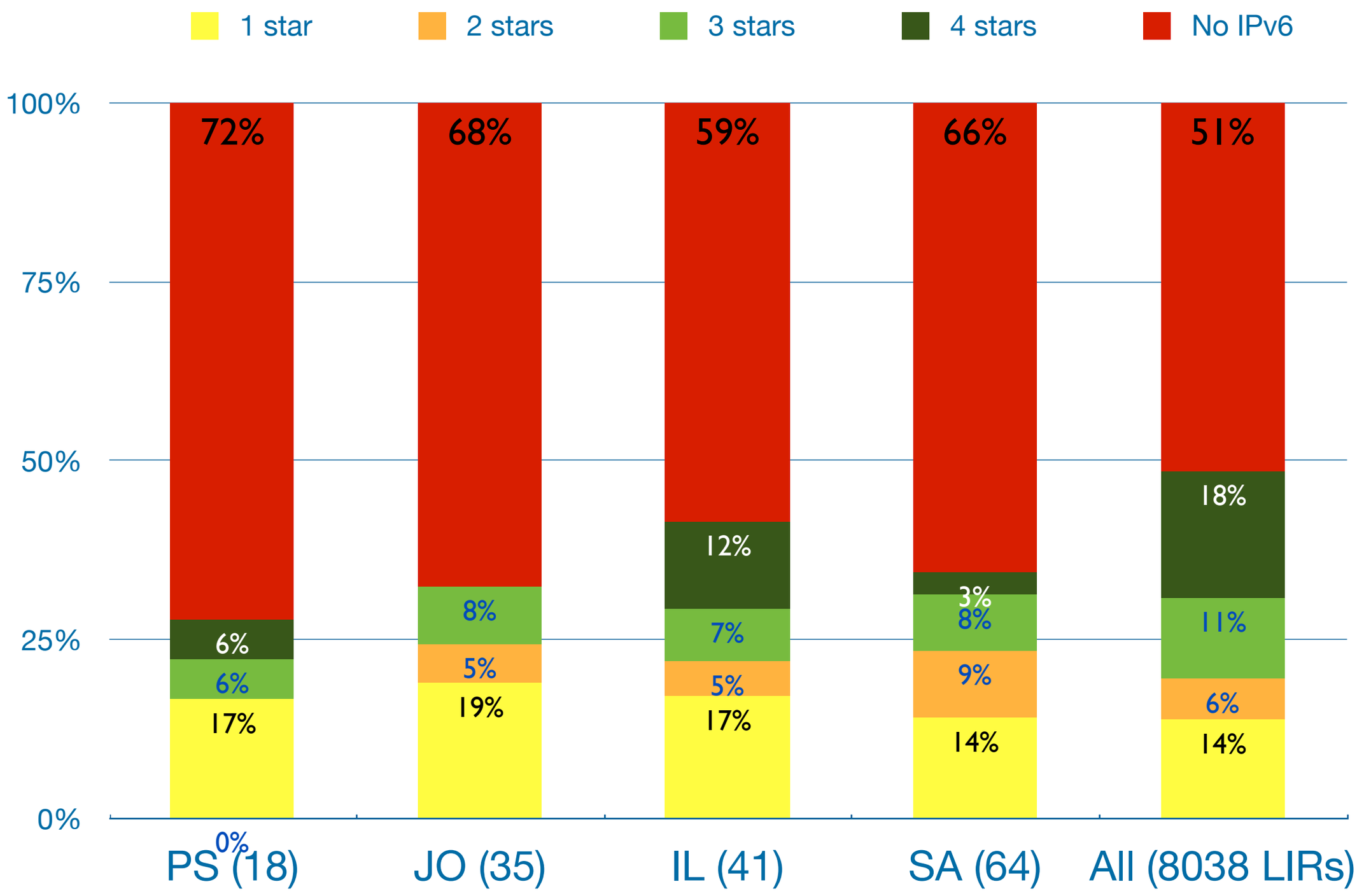
IPv6 RIPEness: Palestine (18 LIRs)



Comparative IPv6 RIPEness - Absolute

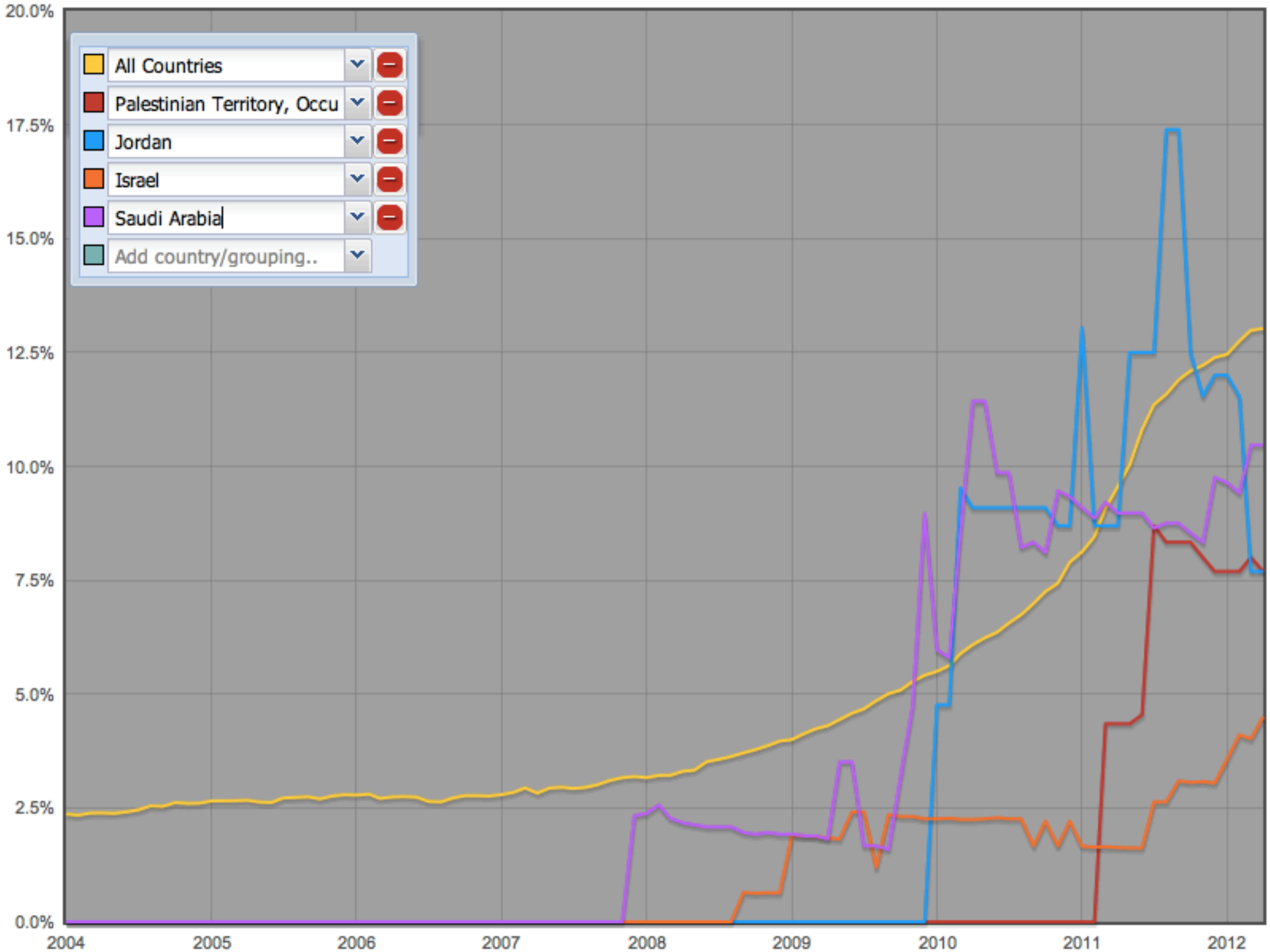


Comparative IPv6 RIPEness - Relative



IPv6 Enabled ASes in Global Routing

This graph shows the percentage of networks (ASes) that announce an IPv6 prefix for a specified list of countries or groups of countries



http://v6asns.ripe.net

Capacity Building

- Training for LIRs
- IPv6 hands-on workshops and roadshows
  - Collaboration with industry and regional Network Operators Groups (like MENOG)
- Presenting at various conferences and events
- Equipment Requirements document (ripe-501): https://www.ripe.net/ripe/docs/ripe-501
- Labs articles: http://labs.ripe.net
  - IPv6 statistics and measurements

Capacity Building: Outreach

- World IPv6 Launch - 6 June 2012
  - ISPs, vendors and web companies will permanently enable IPv6 for their products and services
- IPv6 Act Now website: http://www.ipv6actnow.org/
- RIPEness

Some real world examples

- **xs4all**
  - Dutch Internet Service Provider (ISP)
  - 270,000 customers
  - Offering IPv6 as standard to home users since August 2010
  - 18.000 customers (7% of customer base) activated IPv6 by April 2012

Some real world examples

- **Hetzner**
  - Major German Hosting Provider
  - Offering IPv6 at no additional cost for servers
  - Set-up extremely easy
  - IPv6 connectivity production grade

How to get IPv6

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Getting an IPv6 allocation from the RIPE NCC

- To qualify, an organisation must:
  - Be an LIR
  - Have a plan for making assignments within two years

- Minimum allocation size /32

- Allocation size is based on customer numbers and growth, not on transition technique!

RIPE Policy Proposal 2011-04

- Extension of the Minimum Size for IPv6 Initial Allocation
  - Proposes initial allocation up to a /29
  - For example, for small LIRs to deploy IPv6 via 6RD (RFC 5969)

- Proposal currently in Last Call

What does an IPv6 allocation cost?

- /32 = 1 scoring unit
- /31 = 2 scoring units
- points = ∑(2012-1992)x(scoring units) =20x1+....

Category	[illegible]	2012
Small		€ 13
S[illegible]	[illegible]09	
Me[illegible]n	[illegible]0	€ 2550
La[illegible]	- 7728	€ 4100
Extra Large	> 7[illegible]25	€ 5500

FREE

Getting IPv6 PI address space

- To qualify, an organisation must:
  - Meet the contractual requirements for provider independent resources
  - LIRs must demonstrate special routing requirements

- Minimum assignment size /48

- PI space can not be used for sub-assignments

Best Scenario: Act Now, Phased Approach

- Change purchasing procedure (feature parity)
- Check your current hardware and software
- Plan every step and test
- One service at a time
  - face first
  - core
  - customers

Don'ts

- Don't separate IPv6 features from IPv4

- Don't do everything in one go

- Don't appoint an IPv6 specialist
  - do you have an IPv4 specialist?

- Don't see IPv6 as a product
  - the Internet is the product

Business Case

- IPv4 is no longer equal to “the Internet”
- Avoiding the issue does not make it go away
- How much are you willing to spend now to save money later?
- Only IPv6 allows continued IP networking growth
- Time for excuses is over

“IPv6, act now!”

Questions?