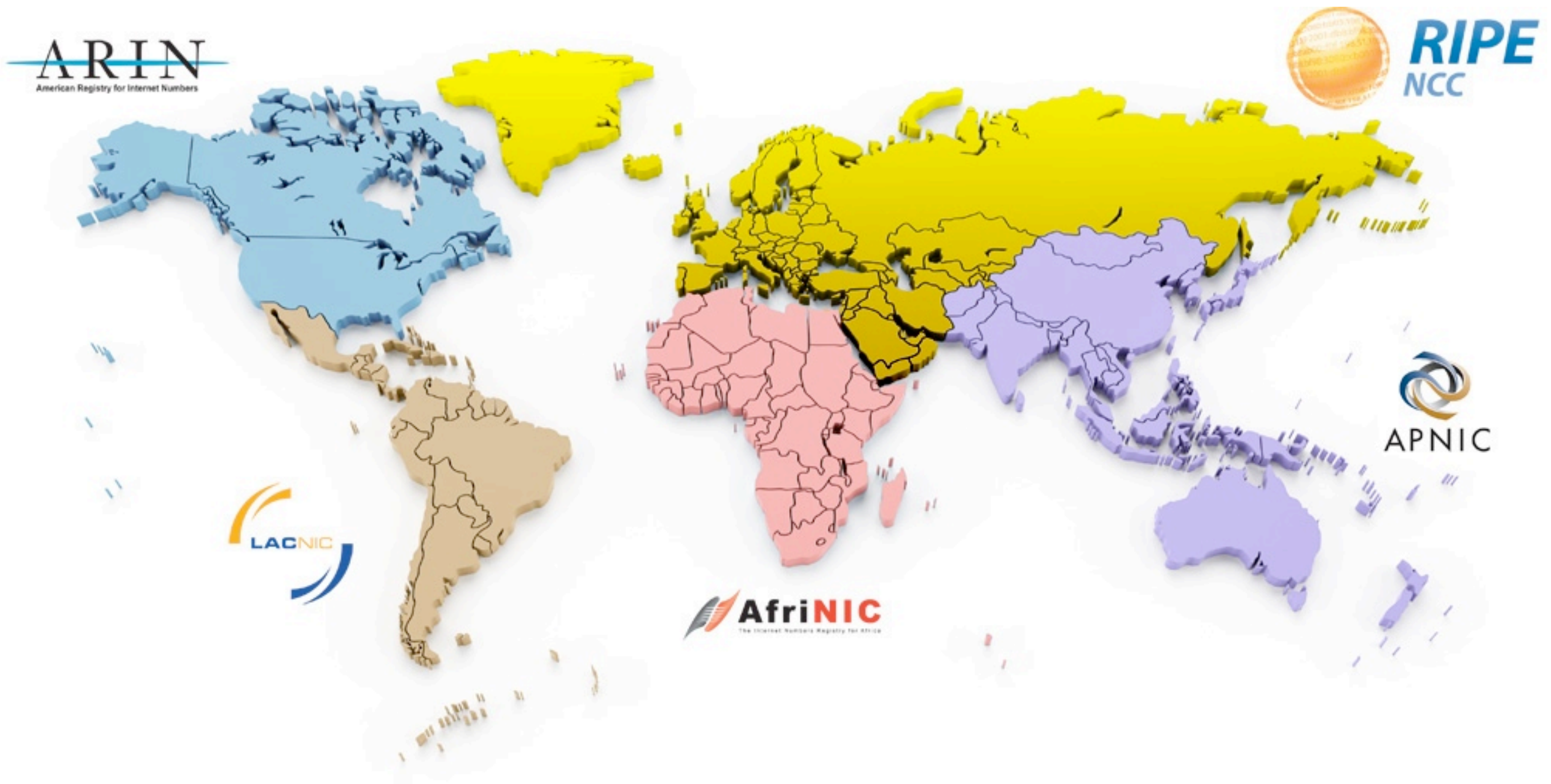# RIPE NCC Status Update

IPv4 and more

Marco Hogewoning, Trainer
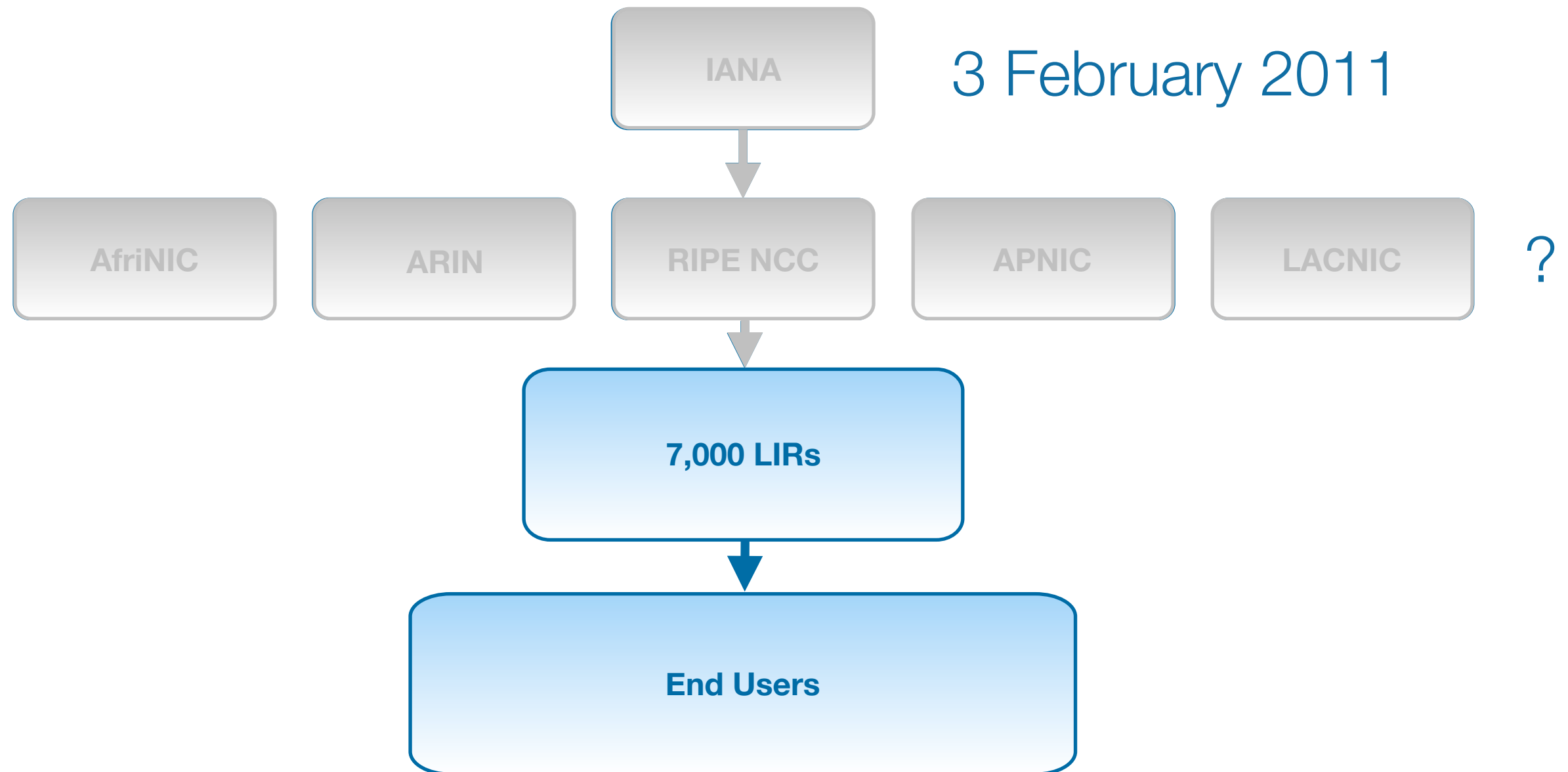
The five RIRs

RIPE NCC

- Service region: Europe, Middle East and parts of Central Asia

- Supports coordination of Internet operations

- Not-for-profit membership organisation

- Over 7,000 members

- Neutral, impartial, open and transparent

- **RIPE**: self regulated, open to everyone
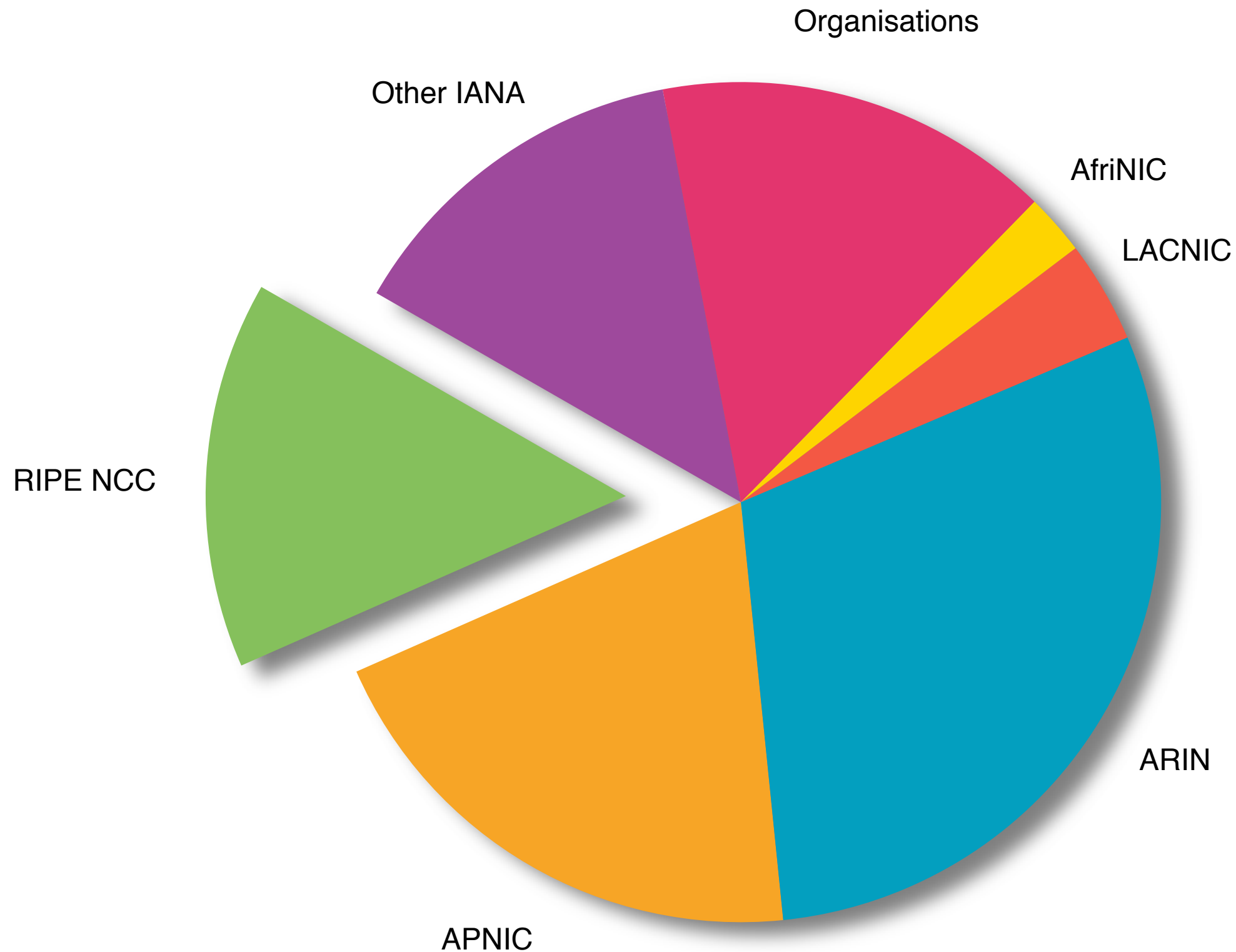
Agenda

- Resource distribution
  - IPv4 exhaustion and policy
  - IPv6 policy change
- Statistics and measurements
  - IPv6 statistics
- Outreach and education
  - Training courses
  - Meetings
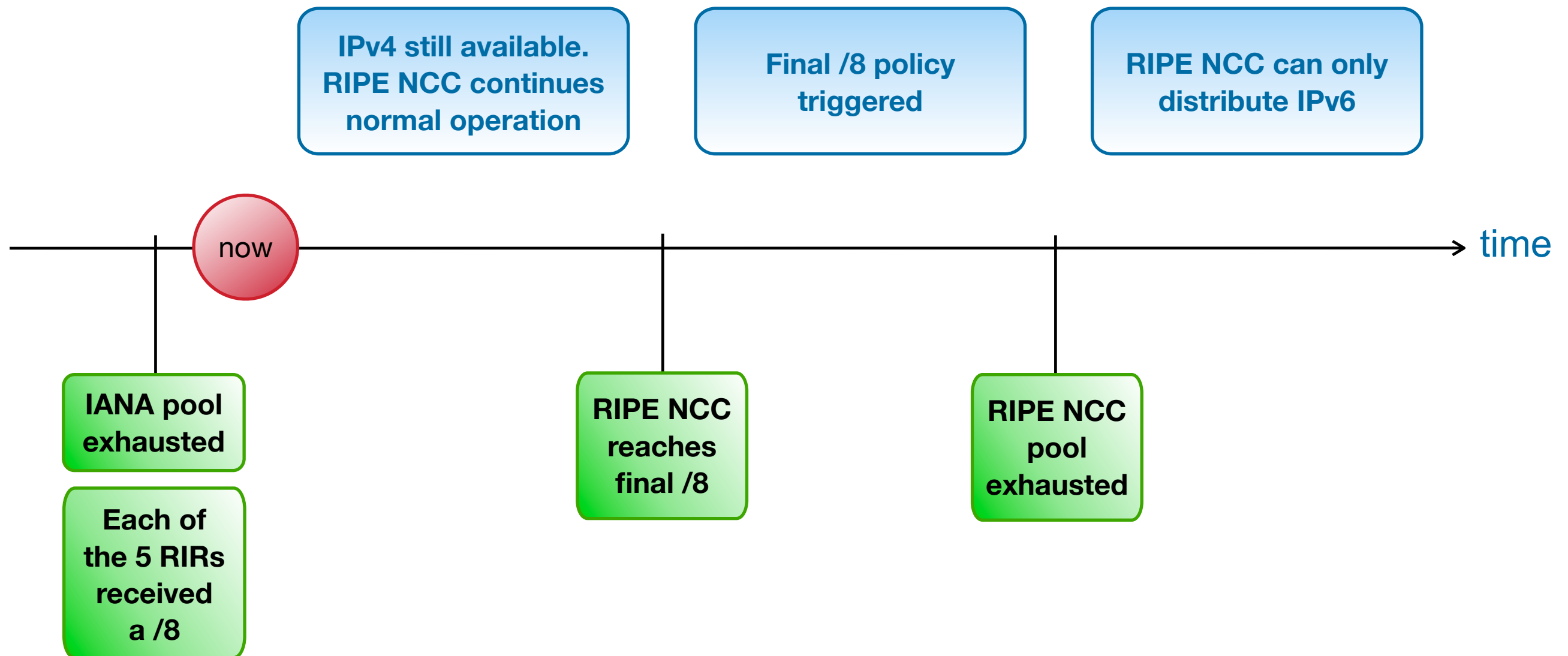- New projects

IPv4 Run Out

IPv4 distribution

IANA

3 February 2011

AfriNIC   ARIN   RIPE NCC   APNIC   LACNIC   ?

7,000 LIRs

End Users

Our slice of the IPv4 pie

Organisations

Other IANA

AfriNIC

LACNIC

RIPE NCC

ARIN

APNIC

IPv4 exhaustion phases

IPv4 still available.
RIPE NCC continues
normal operation

Final /8 policy
triggered

RIPE NCC can only
distribute IPv6

now

time

IANA pool
exhausted

Each of
the 5 RIRs
received
a /8

RIPE NCC
reaches
final /8

RIPE NCC
pool
exhausted

Business as usual

- As long as there are IPv4 addresses left, the RIPE NCC will keep on distributing them

- Same allocation and assignment policies still apply (RIPE-509)

- Until the final /8 is reached

"Run Out Fairly"

- Gradually reduced allocation and assignment periods

- Needs for "Entire Period" of up to...
  - 12 months (January 2010)
  - 9 months (July 2010)
  - **6 months (January 2011)**
  - 3 months (July 2011)

- 50% has to be used up by half-period

Final /8 policy

- Each LIR can get **one** /22 allocation
- You must meet the criteria for an (additional) allocation
- Only when you already have IPv6 addresses
- A /16 is reserved for unforeseen circumstances
- **No provider independent (PI) assignments**

Transfer of IPv4 allocations

- LIRs can transfer IPv4 address blocks:
  - To another LIR
  - Only when the block is not in use
  - Meets minimum allocation size (/21)

- Requests are evaluated by the RIPE NCC

- Registered in the RIPE Database

No changes yet

- Policy will only change when the RIPE NCC's final /8 is reached

- Be aware of the shorter assignment period!

- **And start deploying IPv6 now!**

Registration Data Quality (RDQ) project

- Comparing various information sources:
  - RIPE Database
  - Internal registration files
  - RIS (Routing Information Service)

- Find and fix inconsistencies
- Strengthen data quality where necessary

Unannounced early registration addresses

- Builds on the RDQ project

- Identify legacy space which is currently not announced

- Contact the holders about the possibility of returning those addresses

- Over 400 organisations contacted already

- ~ 500k addresses returned over the past two months

IPv6

Registration of IPv6 assignments

- Until now:
  - Assignments up to a /48 didn't need to be registered in the RIPE Database
  - Had to be registered at the LIR level
  - Very ambiguous policy text
    - What to register?
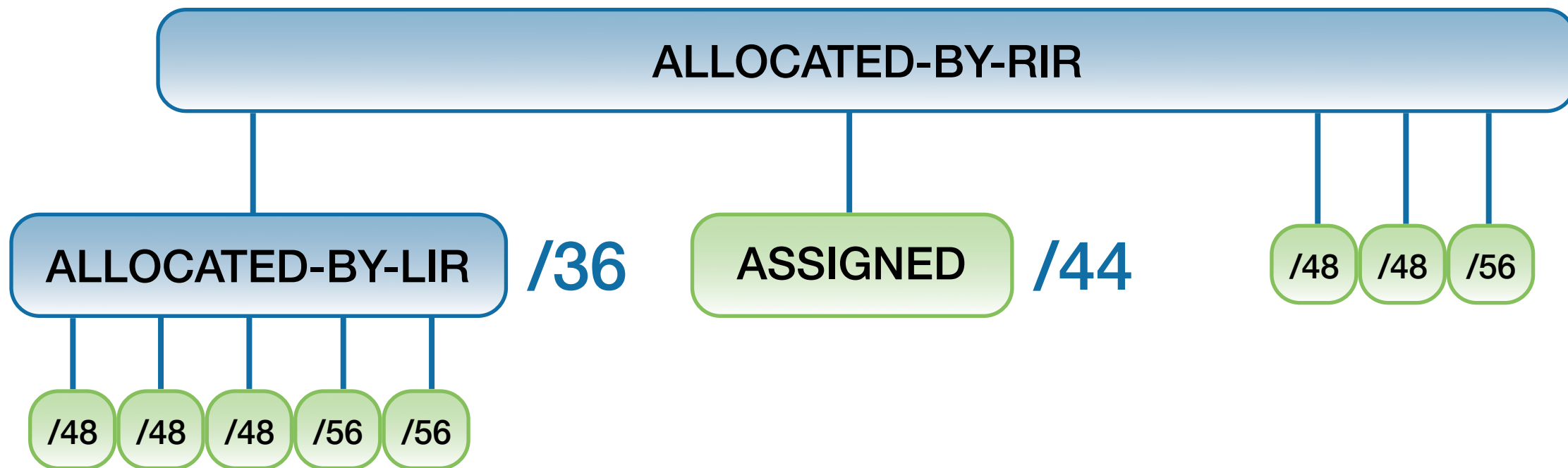   - What means accessible by the RIR?

Registration of IPv6 assignments (2)

- All assignments must now be registered in the RIPE Database

- This includes existing assignments

- Method introduced to minimise the number of objects you have to create and maintain
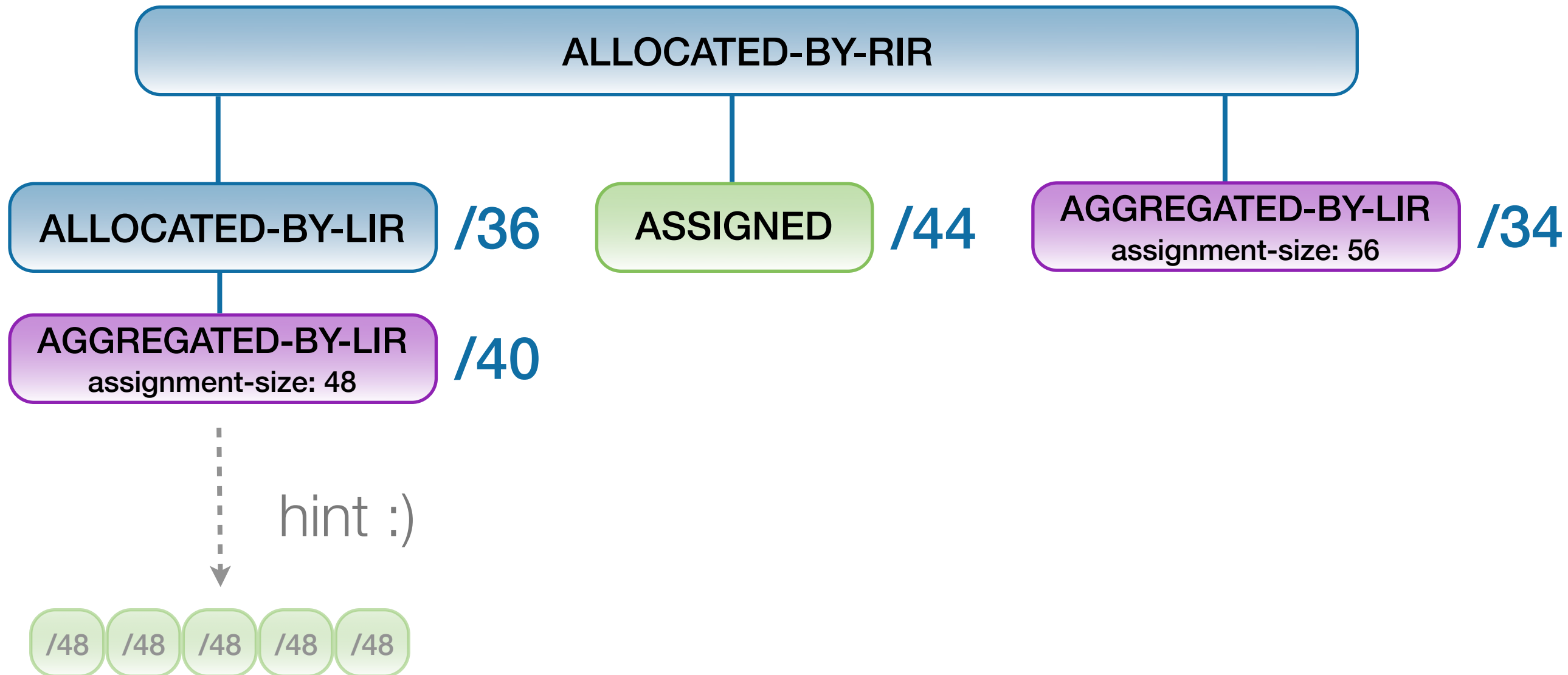
Grouping of assignments

- New status value: AGGREGATED-BY-LIR

- New attribute called **assignment-size**

- Create one object covering multiple assignments that share description and contacts

- Indicating the size of individual assignments

Registering all assignments

ALLOCATED-BY-RIR

ALLOCATED-BY-LIR /36

/48 /48 /48 /56 /56

ASSIGNED /44

/48 /48 /56

/48 assignment =< /48

Using AGGREGATED-BY-LIR

ALLOCATED-BY-RIR

ALLOCATED-BY-LIR **/36**

ASSIGNED **/44**

AGGREGATED-BY-LIR
assignment-size: 56 **/34**

AGGREGATED-BY-LIR
assignment-size: 48 **/40**

hint :)

/48 /48 /48 /48 /48

AGGREGATED-BY-LIR

```
inet6num:          2001:db8:1000::/36
netname:           Bluelight
descr:             We want more Bluelight B.V.
descr:             Colocation services
country:           NL
admin-c:           BN649-RIPE
tech-c:            BN649-RIPE
mnt-by:            BLUELIGHT-MNT
notify:            noc@example.net
changed:           noc@example.net 20110218
source:            RIPE
```

AGGREGATED-BY-LIR

inet6num: 2001:db8:1000::/36
netname: Bluelight
descr: We want more Bluelight B.V.
descr: Colocation services
country: NL
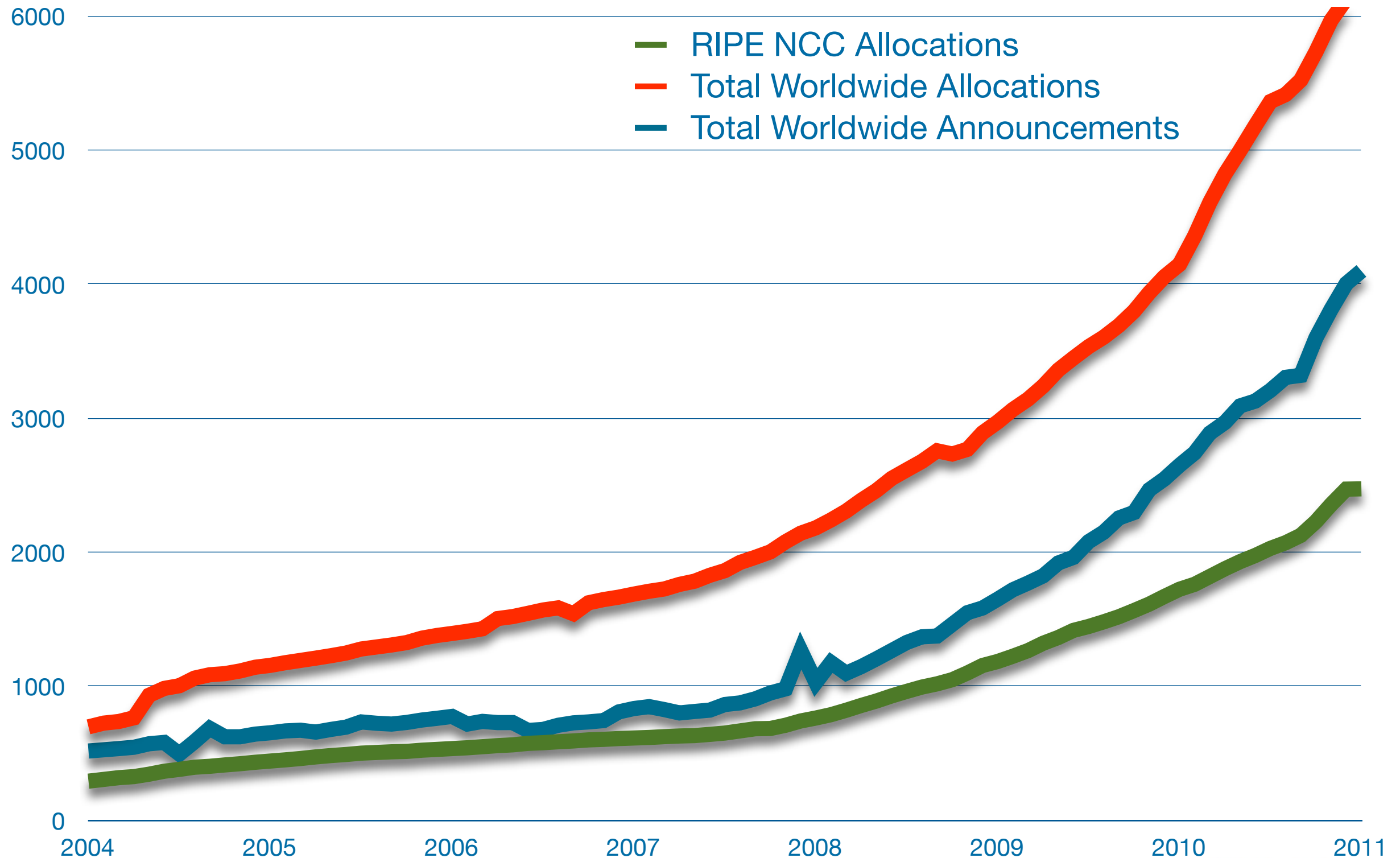admin-c: BN649-RIPE
tech-c: BN649-RIPE

status: AGGREGATED-BY-LIR

assignment-size: 48

mnt-by: BLUELIGHT-MNT
notify: noc@example.net
changed: noc@example.net 20110218
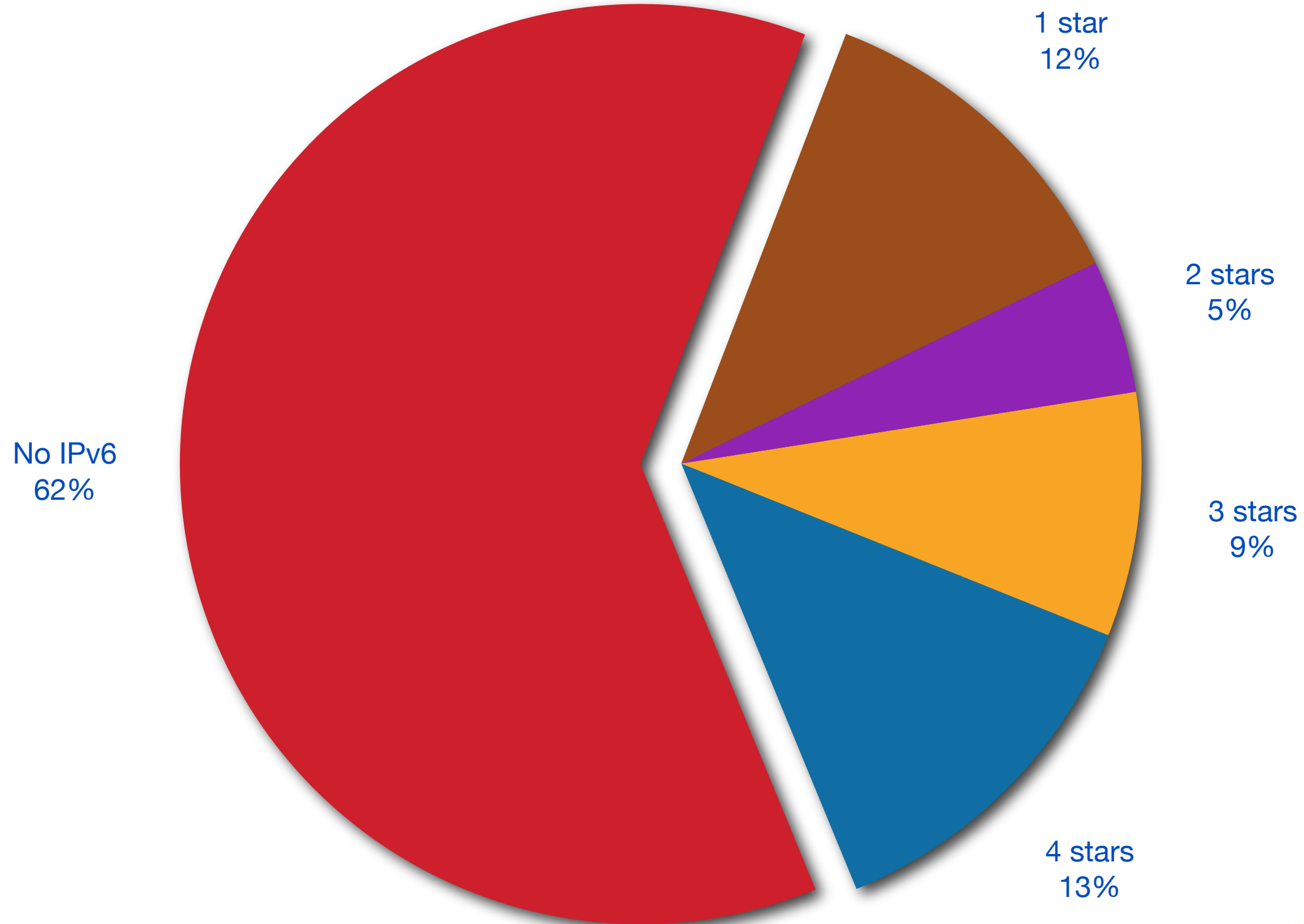source: RIPE

IPv6 Statistics

IPv6 allocations and announcements

Legend:
- RIPE NCC Allocations
- Total Worldwide Allocations
- Total Worldwide Announcements

Y-axis: 0, 1000, 2000, 3000, 4000, 5000, 6000

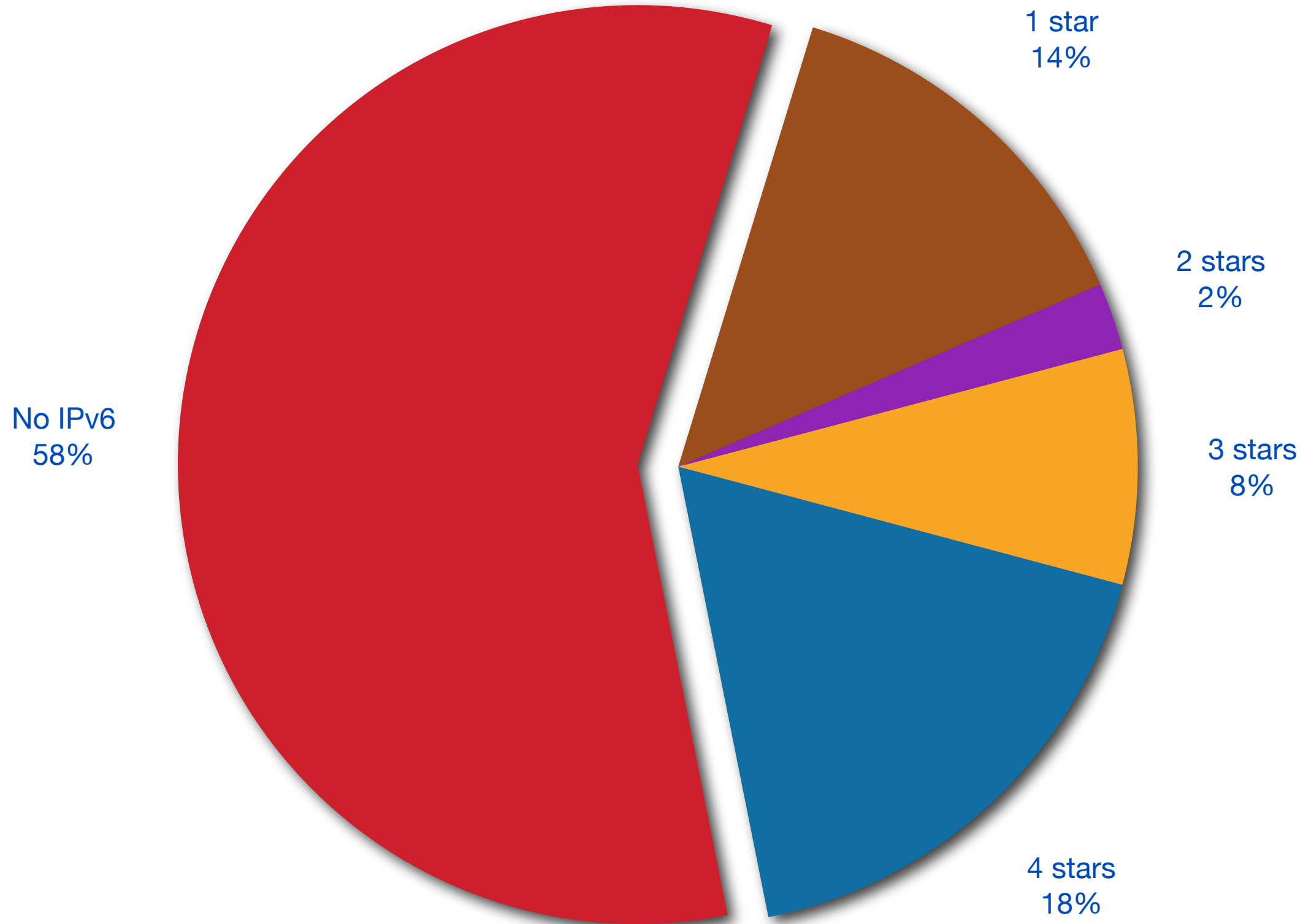X-axis: 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011

IPv6 statistics

- RIPEness rating system. Stars awarded for:

  - Requesting an allocation

  - Creating a route object

  - Announcing your space

  - Setting up reverse DNS

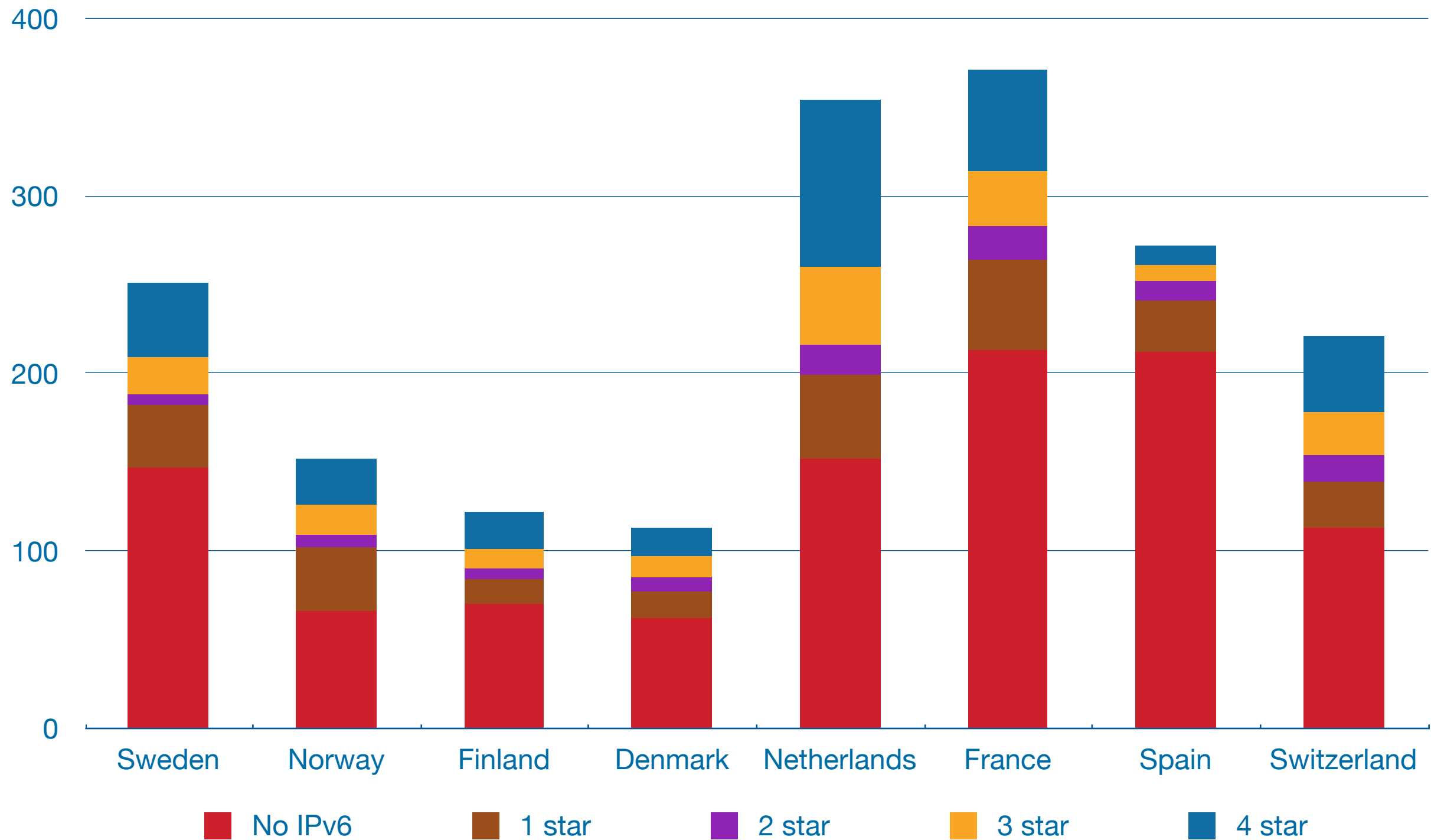- Free t-shirt if you make it to 4 stars :)
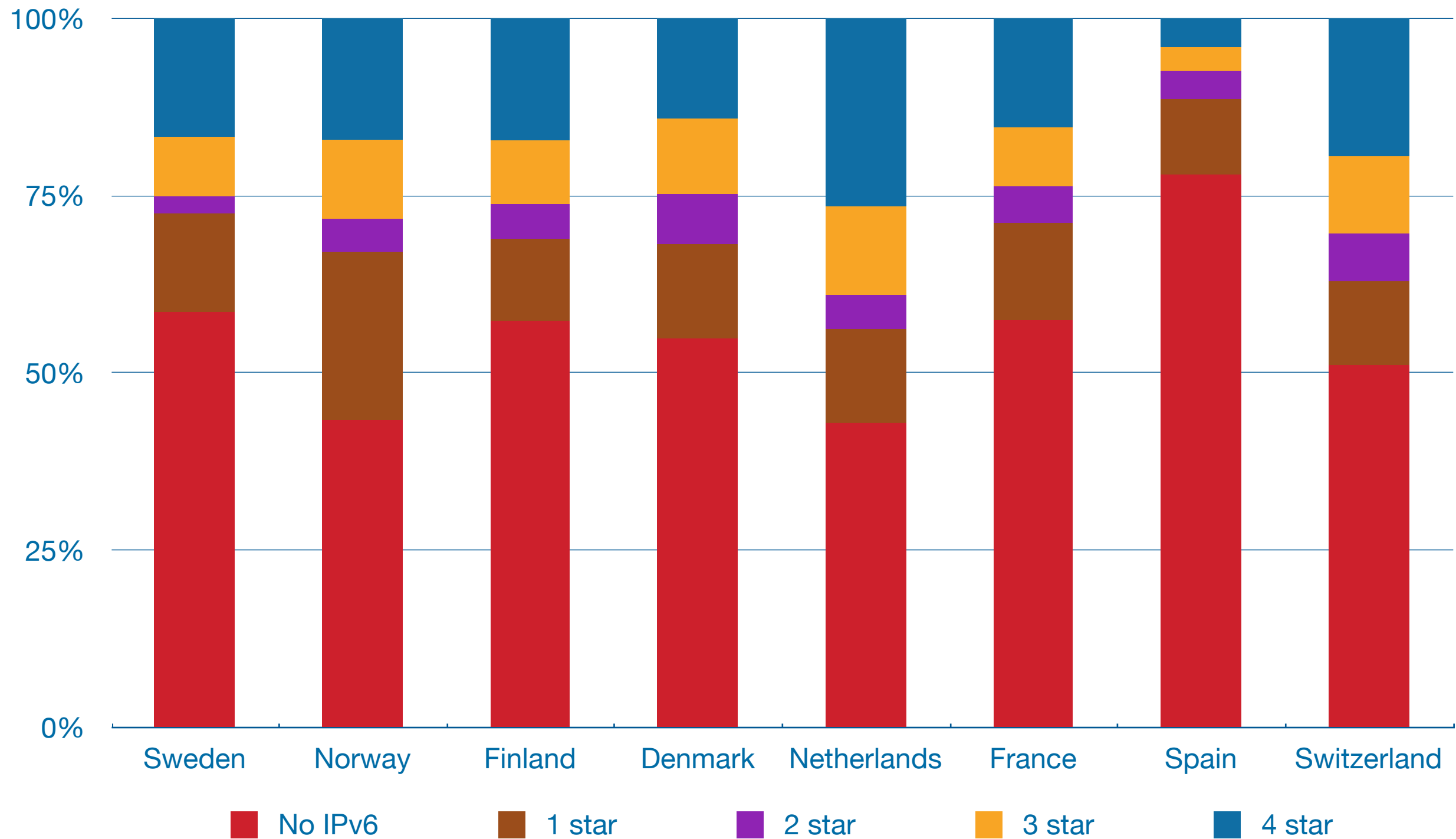
IPv6 RIPEness: total (7,350 LIRs)

1 star
12%

2 stars
5%

3 stars
9%

4 stars
13%

No IPv6
62%

IPv6 RIPEness: Sweden (251 LIRs)

1 star
14%

2 stars
2%

3 stars
8%

No IPv6
58%

4 stars
18%

IPv6 RIPEness: region

IPv6 RIPEness: region

Legend:
- No IPv6 (red)
- 1 star (brown)
- 2 star (purple)
- 3 star (orange)
- 4 star (blue)

Regions: Sweden, Norway, Finland, Denmark, Netherlands, France, Spain, Switzerland

Outreach

Training courses

- LIR, IPv6 and Routing Registry courses

- Locations throughout the RIPE NCC service region

- 'Standalone' but also in conjunction with other events, like NOG meetings

- 33 courses now scheduled until end Q2 2011

- See **https://lirportal.ripe.net/training/courses**

Meetings

- RIPE 62 in Amsterdam, 2 - 6 May 2011

- Regional meetings 2011:

  - Damascus, Syria (14 - 15 May **date changed**)

  - Moscow, Russia (6 - 8 June)

  - Dubrovnik, Croatia (7 - 9 September TBC)

  - Muscat, Oman (27 - 28 September)

- RIPE 63 in Vienna, Austria (31 October - 4 November 2011)

Other events

- MENOG IPv6 Roadshows (dates tbc)
  - 5 day technical workshops
  - Amman (JO), Riyadh (SA), Dubai (AE) and others

- Roundtable Meetings
  - Next one coming up 4 April 2011, Amsterdam (NL)
  - Invite only

Projects

RIPE Database API

- RESTful web interface

- Data returned in XML

- API documentation on RIPE Labs

- For a demo visit http://lab.db.ripe.net/portal/

RIPEstat

- Toolbox to access the various datasets the RIPE NCC publishes:
  - Resource registration details
  - Routing Information Service (RIS)
  - Test Traffic Measurements (TTM)

- Public demo sessions every four weeks using webex, see http://labs.ripe.net/ripestat

More information

- http://ripe.net/v4exhaustion

- http://www.ipv6actnow.org

- http://ripeness.ripe.net

- http://labs.ripe.net

Questions?