

Tools and Measurements at the RIPE NCC

IXLeeds1, 16 February 2012

Mirjam Kühne, RIPE NCC



Outline

- What is the RIPE NCC
- RIPE Labs
 - Background, Purpose, Content, Participation
- IPv6 Activities and Statistics
- RIPE Atlas
- RIPEstat

What is the RIPE NCC



RIPE NCC

- Not-for-profit, independent association
 - Neutral and impartial
 - Established in 1992 in Amsterdam
 - Provides open community platform
- One of five Regional Internet Registries (RIRs)
- 7000+ members in 75 countries
 - Bottom-up, industry self regulation



The RIPE NCC's Main Tasks

- One of Five Regional Internet Registries (RIRs)
 - Europe, Middle East, parts of Central Asia
 - Distributes IPv4, IPv6, AS numbers
- RIPE Database (public registry)
- Secretariat for RIPE community
- Many other activities
 - K-root, training, measuring infrastructure, ENUM, information dissemination, outreach, ..

RIPE Labs



What is RIPE Labs?

- It's a website, but more importantly:
 - It is a platform and a tool **for the community**
 - Launched in Sept. 2009, constantly developed
- You can:
 - Test and evaluate new tools and prototypes
 - Contribute new ideas and research results
 - Provide feedback and discuss with others

<http://labs.ripe.net/>

RIPE Labs Home Page

RIPE Labs
Innovative Internet tools & ideas

Register!

- ✓ Share experience
- ✓ Showcase tools
- ✓ Present research

New contributions RSS

DNSSEC Deployment Today
Wolfgang Nagels — 30 August 2011 11:00

The RIPE NCC has been signing its zones since 2005. Other operators waited for the root to be signed. And signing the root zone in June 2010 clearly encouraged others to deploy DNSSEC. In this article we describe the status of those zones maintained by the RIPE NCC and give an overview of the global deployment of DNSSEC.

[Read more](#)

The Big Medical Drop in SpamRankings.net
John S. Quarterman — 29 August 2011 14:45

Preliminary confirmation for outbound spam reputational rankings.

tagcloud

cpe dns dnssec database rex rpsl atlas certification datarepository ipv4 ipv6 ipv6day measurements policy reputation ripestat root-servers routing statistics tools

Follow us on Twitter
Subscribe to @mir_ripe_labs

Increase of DNSSEC deployment since the root got signed? Read on #RIPELabs: <http://t.co/TjHvRZ2>
30 August 2011 13:40

New on #RIPELabs: The Big Medical Drop in SpamRankings.net: <http://t.co/BHnMhif>
29 August 2011 16:16

New on #RipeLabs: RIPE NCC Local Certification Service launched. See <http://t.co/Utn76qj>
16 August 2011 17:39

New #RipeLabs article: Authentication Methods Used in the RIPE Database <http://t.co/F1tcNrX>
15 August 2011 15:11

Comparison of IPv4 and IPv6 performance on World IPv6 Day now on #RIPELabs: <http://t.co/F2MMR5p>

Project Pages

Twitter Feed

Tag Cloud

Comments

My Folder

Articles

Search

Currently on RIPE Labs

tagcloud

cpe dns dnssec
database rex
rpsl atlas
certification
datarepository
ipv4 ipv6
ipv6day
measurements
policy reputation
ripestat
root-servers
routing
statistics tools

- IPv4 and IPv6 measurements
- RIPE Database API and tools
- RPKI/Certification
- Statistics and Measurements
- Tools (RIPEstat, Abuse Finder)
- and a lot more...

IPv6 on RIPE Labs



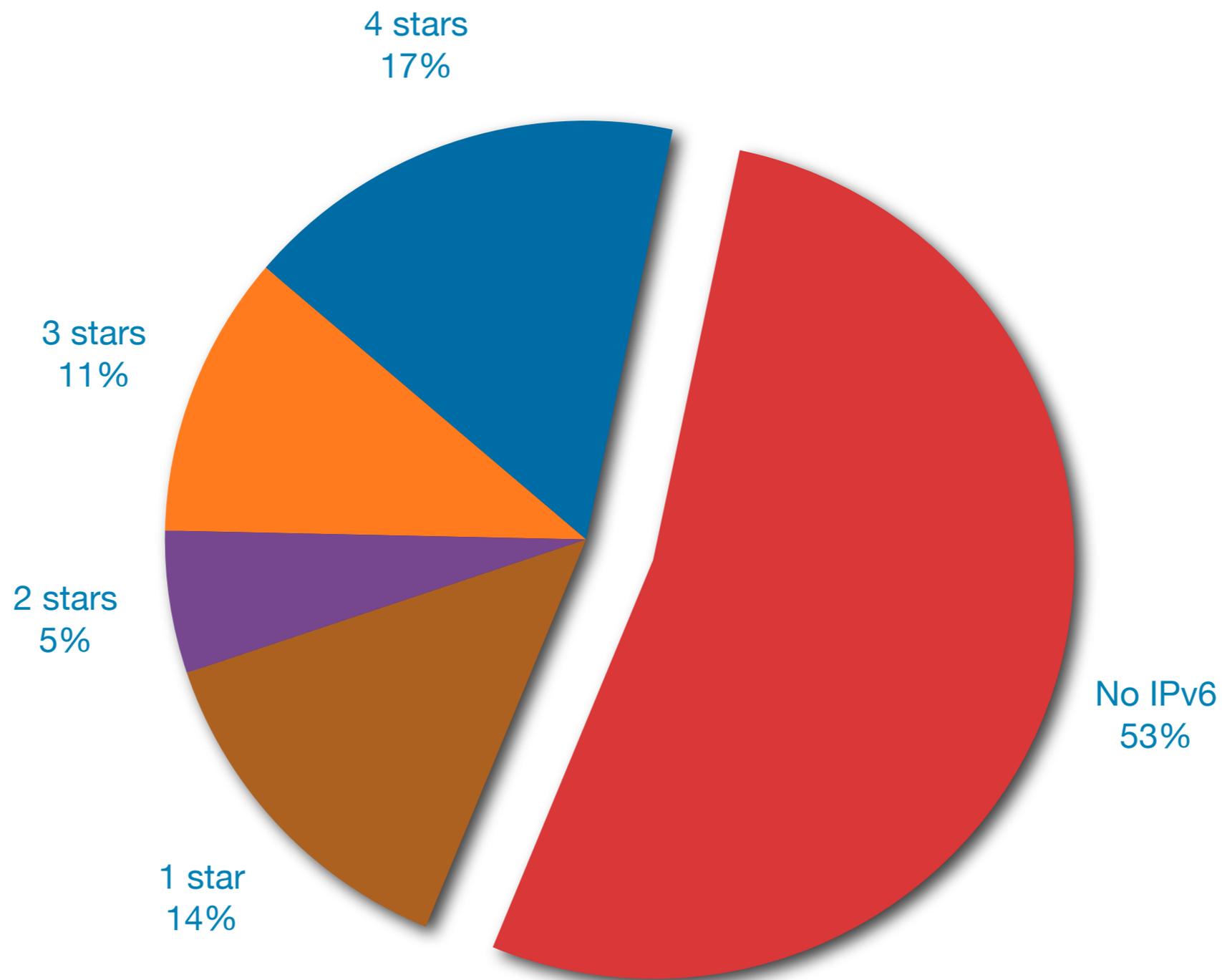
IPv6 RIPEness

- Rating system:
 - One star if the LIR has an IPv6 allocation
- Additional stars if:
 - IPv6 prefix is announced
 - A route6 object is in the RIPE Database
 - Reverse DNS is set up
- A list of all 4-star LIRs and country graphics:

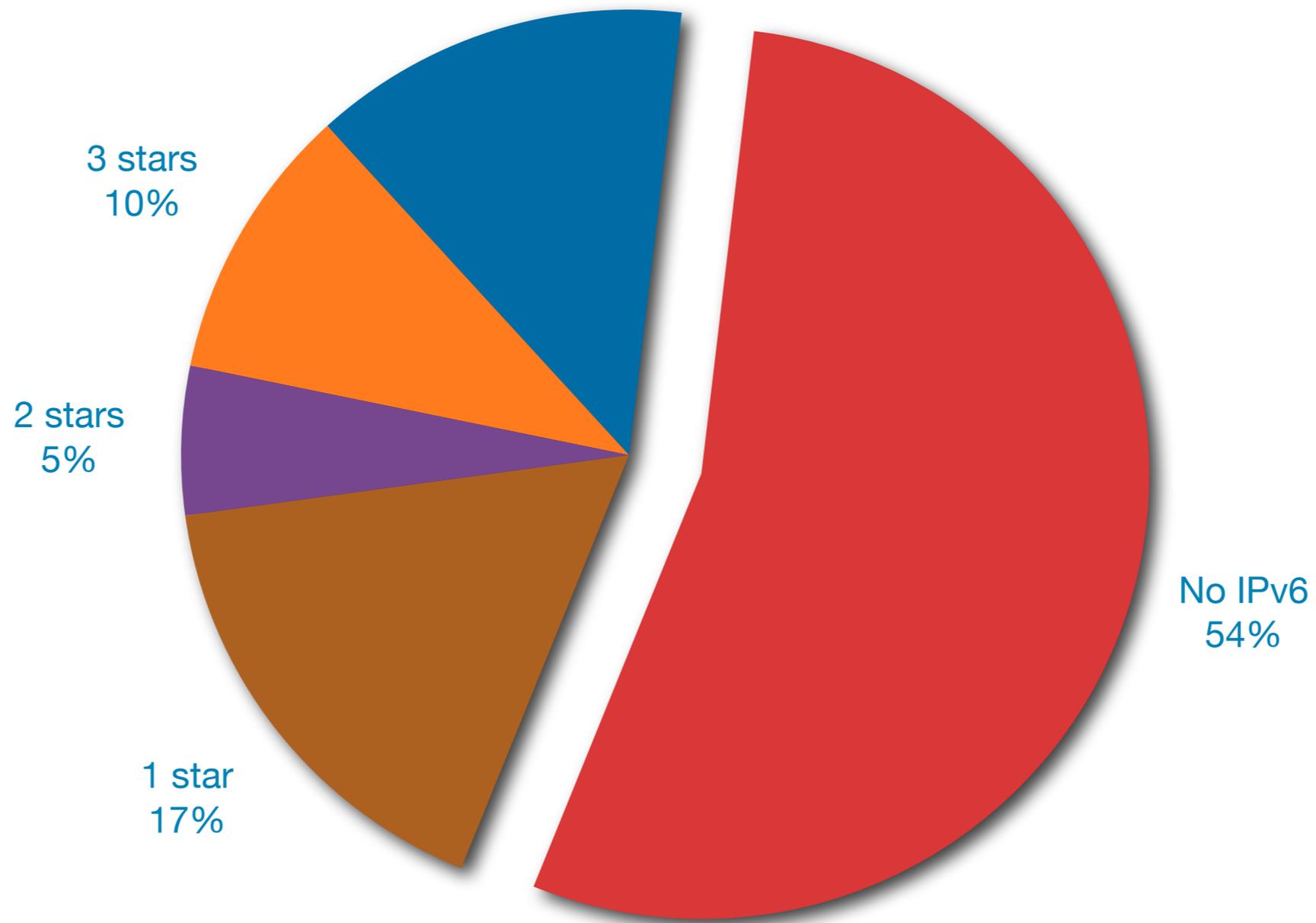
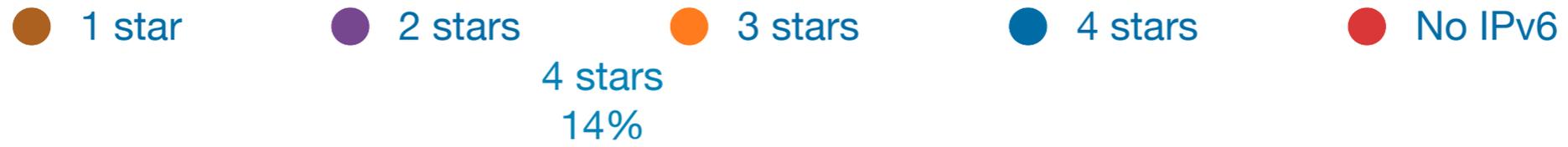
<http://ripeness.ripe.net/>

IPv6 RIPEness in the RIPE NCC Service Region

● 1 star ● 2 stars ● 3 stars ● 4 stars ● No IPv6

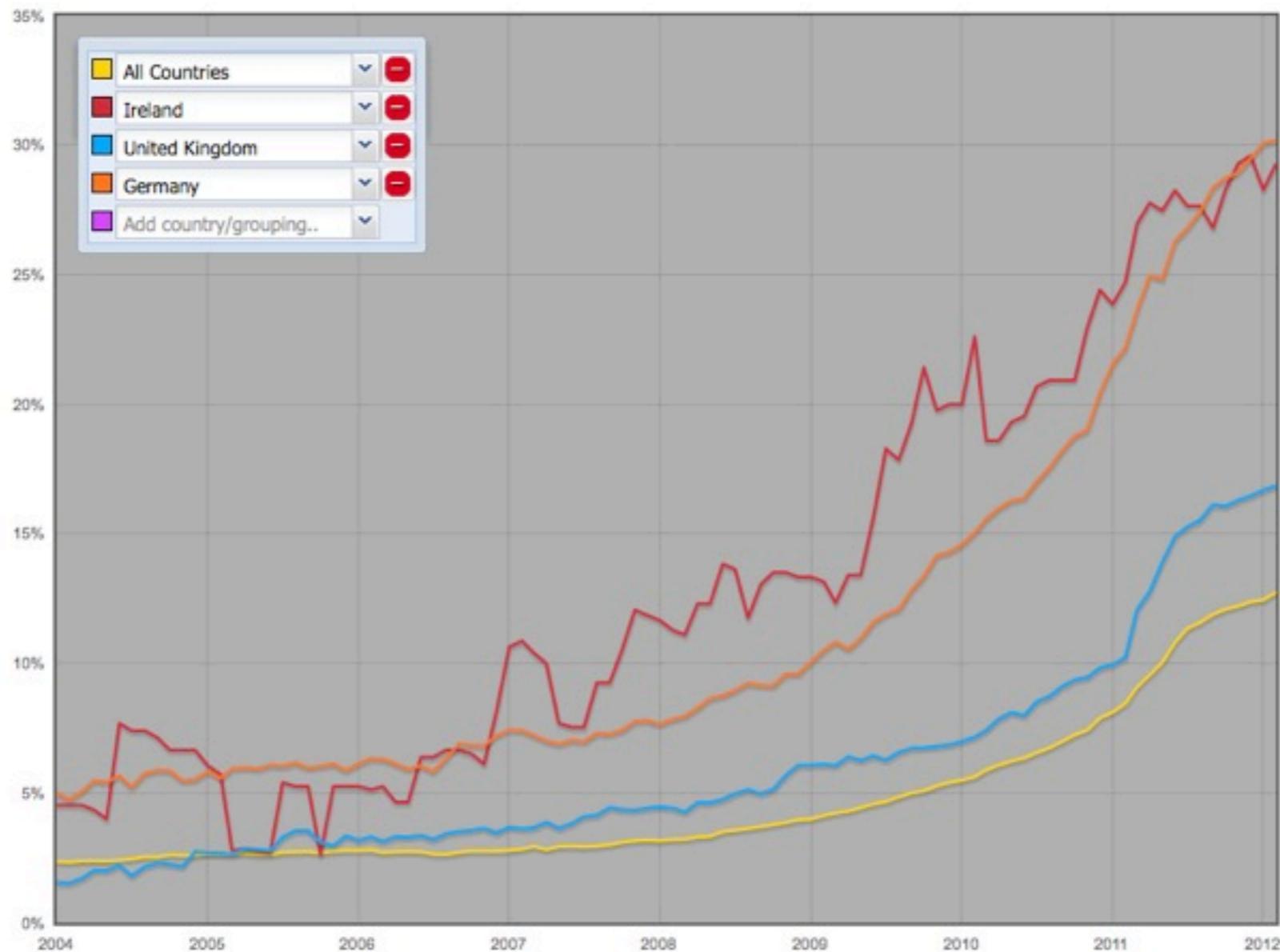


IPv6 RIPEness in the UK (909 LIRs)



IPv6-enabled ASes in Global Routing

- Any country or region possible
- Updated daily, permalink provided



<http://v6asns.ripe.net>

Prefix Length Filtering - IPv4 and IPv6

- Using Routing Information Service
- IPv4: Most prefixes are /24s (80% visibility)
- IPv6: Are /48s filtered out more often than /32s?



Equipment Requirements (ripe-501)

- Requirements for IPv6 in ICT Equipment
 - targeted for governments and other large enterprises
 - when ordering ICT equipment
 - to ensure it is IPv6 capable
- Co-authored by RIPE community members
- Reviewed and approved by RIPE IPv6-WG
- New Version out soon

<http://www.ripe.net/ripe/docs/other-documents/requirements-for-ipv6-in-ict-equipment>

IPv4 Addresses

- RIPE NCC's available pool of IPv4 addresses



RIPE Atlas



RIPE Atlas - Active Measurements

- Next generation Internet measurement network
 - Aims to support thousands of measurement nodes
 - Can be hosted by ISPs, IXPs, individuals...
- Currently 1000 active probes worldwide
 - Performing ping, traceroute, DNS lookup
- Hosted and sponsored by community

<http://labs.ripe.net/atlas>

<http://atlas.ripe.net/>



What's In It For You?

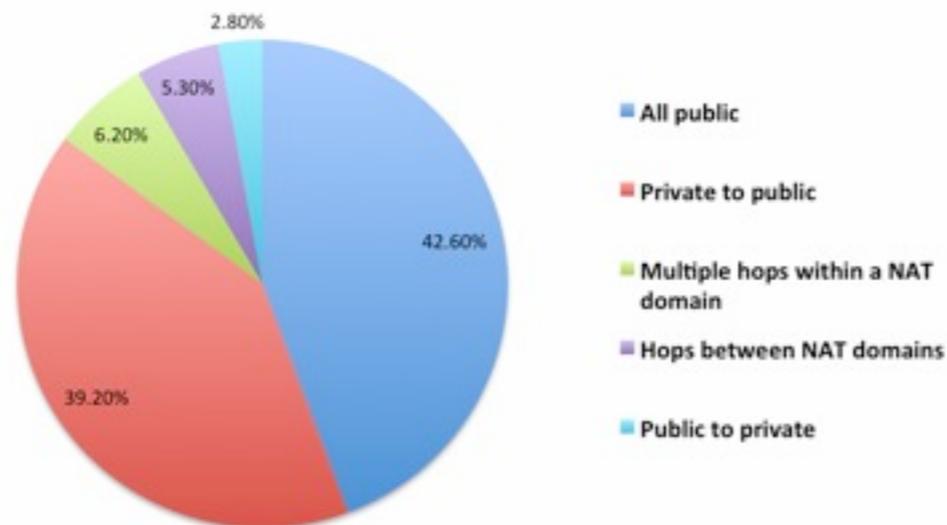
- Individual benefits
 - Less expensive than rolling out your own measurements infrastructure
 - More vantage points and more data available
- Community benefits
 - Creates unprecedented situational awareness
 - Produces wealth of data

Using RIPE Atlas to Measure NATs

- Richard Barnes looked at all public hosts
 - Looked for RFC 1918 addresses

Network	% of 1st hops	% of second hops
10.0.0.0/8	12%	9%
172.16.0.0/12	5%	2%
192.168.0.0/16	34%	4%
public	49%	86%

- Looked at “transfer table” to determine how often data packets change address “class”



RIPE Atlas: News & Road Ahead

- News
 - More built-in ping destinations
 - Traceroutes to built-in destinations
 - DNS anycast checks
- Preparations for “user-defined measurements”
 - Specify: type, origin, target, frequency, reporting...
- Planned steps include
 - Real-time access to (raw) data
 - APIs to interact with the system
 - Automatic alerts and notifications

RIPE Atlas Resources

- RIPE Atlas on RIPE Labs
 - Results, Analysis, Announcements
 - <http://labs.ripe.net/atlas/>
- Registration Page
 - <http://atlas.ripe.net/atlas/pre-register>
- Map Visualisations
 - http://atlas.ripe.net/atlas/maps_index.html

RIPEstat



What is RIPEstat? <http://stat.ripe.net>

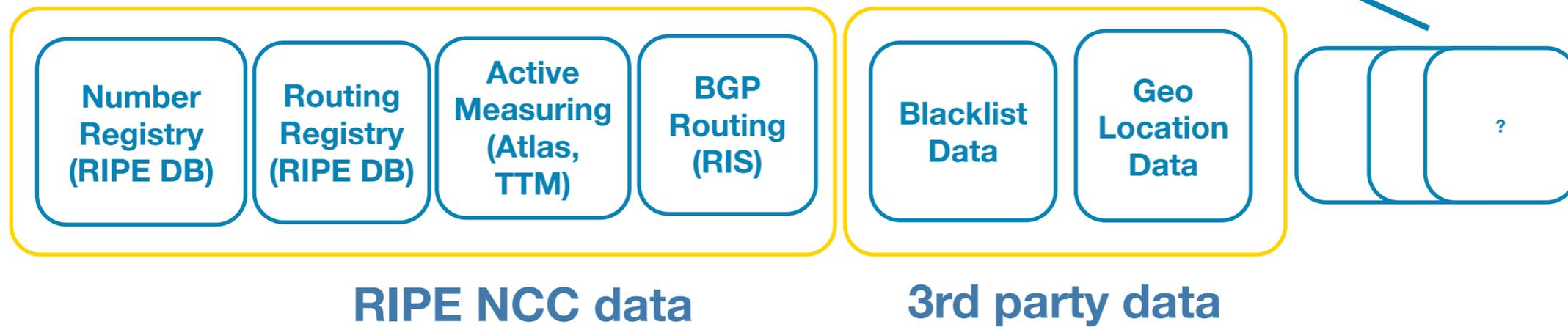
- Modular and extendable toolbox
 - Graphical interface
 - Developed together with the community - you!
 - Public live demo sessions once a month
 - Announcements posted on RIPE Labs

The screenshot shows the RIPEstat website interface. At the top, there is a navigation bar with the RIPE NCC logo and the text "RIPE NETWORK COORDINATION CENTRE". Below this is the "RIPEstat" logo and a search input field labeled "Enter an AS number or prefix". The main content area displays "Resource Information (AS2121)" with a callout bubble labeled "View" pointing to the "Resource Information" section. Below this is a "Whois Matches (AS2121)" section with a callout bubble labeled "Raw Data" pointing to the "Raw Data" link. To the right of the "Whois Matches" section is a "Methodology" section with a callout bubble labeled "Methodology" pointing to the "Methodology" link. The interface also includes a sidebar with a list of "The current top queries" and "Your latest queries".

RIPEstat Data Sources

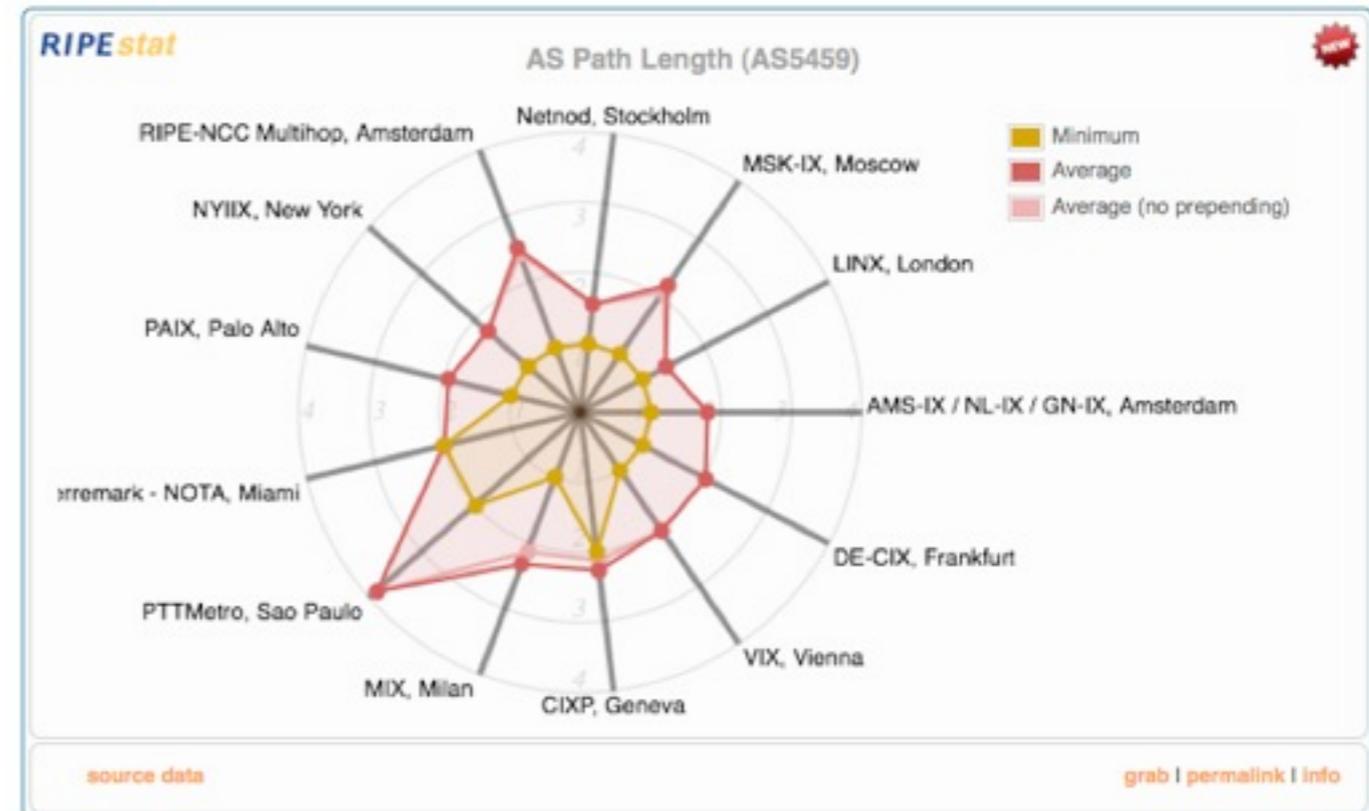


<http://stat.ripe.net>

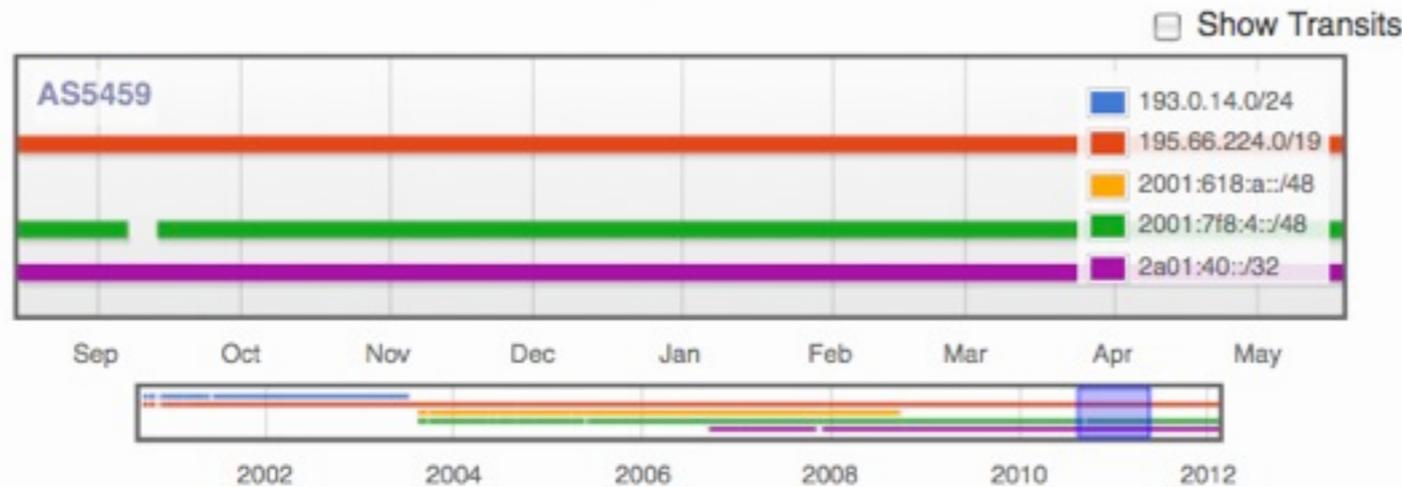


RIPEstat Details

- Shows IPv4/IPv6 and ASN info
 - Statistics
 - Status



Prefix Routing History (AS5459)



RIPEstat Mobile

- <http://labs.ripe.net/Members/gdl/ripestat-mobile>

- iTunes Store

- **FREE on the App Store**
- Version: 1.03; Size: 2.6 MB
- <http://itunes.apple.com/us/app/ripestat/id465322734>



- Requirements

- Compatible with **iPhone, iPod touch and iPad**
- Requires **iOS 4.0** or later

<http://labs.ripe.net/ripestat>



Why RIPE Labs?

- Faster, tighter innovation cycle
 - Provide useful prototypes early in development
 - Adapt to changing environment and requirements more quickly
- Closer involvement of the community
 - Openness
 - Make it easier and more effective to provide feedback and suggestions

Suggestions and Questions

- Please take a look and **participate**
 - Leave a comment under an article
 - Let us know what you would like to see
- Any ideas, tools, research you want to publish?
- Questions and suggestions to **labs@ripe.net**

<http://labs.ripe.net/>

Questions?

