

# **RIPE Labs**

## Operator Tools, Ideas, Analysis

AMS-IX Meeting, Amsterdam, 16 Nov. 2011

Mirjam Kühne, RIPE NCC



# A Bit of History

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- RIPE NCC started as the coordination centre for the RIPE community
  - RIPE Database, mailing lists, meetings
- Only later, the RIPE NCC became an RIR once
  - It was accepted as a neutral place
  - It provided a platform for operators to coordinate activities

**RIPE Labs - back to the roots**

# What is RIPE Labs?

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- 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



The screenshot shows the RIPE Labs Home Page. At the top is the RIPE NCC logo and a search bar. Below is a navigation menu with links to RIPE Database, Database Support, DNS, Statistics & Analytics, Projects, RIPE Labs, and RIPE Atlas. A secondary menu includes Labs Home, Users, Data Repository, RIPE Database, Atlas, RIPEstat, and About. A 'You are here' breadcrumb trail shows the path: Home > Data & Tools > RIPE Labs. The main content area features a 'RIPE Labs' banner with a lightbulb icon, the text 'Innovative Internet tools & ideas', a 'Register!' button, and a list of benefits: 'Share experience', 'Showcase tools', and 'Present research'. Below the banner is a 'New contributions' section with two articles: 'DNSSEC Deployment Today' by Wolfgang Nagele (30 August 2011) and 'The Big Medical Drop in SpamRankings.net' by John S. Quarterman (29 August 2011). A 'tagcloud' section lists various tags like 'cpe', 'dns', 'dnssec', 'database', 'rex', 'rpsl', 'atlas', 'certification', 'datarepository', 'ipv4', 'ipv6', 'ipv6day', 'measurements', 'policy', 'reputation', 'ripestat', 'root-servers', 'routing', and 'statistics tools'. On the right, a 'Follow us on Twitter' section lists recent tweets about DNSSEC deployment, spam rankings, and IPv6 performance.

**RIPE NCC** RIPE NETWORK COORDINATION CENTRE

Search RIPE Labs

RIPE Database Database Support DNS Statistics & Analytics Projects RIPE Labs RIPE Atlas

Labs Home · Users · Data Repository · RIPE Database · Atlas · RIPEstat · About

You are here: Home > Data & Tools > RIPE Labs

**RIPE Labs**  
Innovative Internet tools & ideas

Register!

✓ Share experience  
✓ Showcase tools  
✓ Present research

**New contributions**

**0 comments** **DNSSEC Deployment Today**  
Wolfgang Nagele — 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

**0 comments** **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 13:49

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

New on #RipeLabs: RIPE NCC Local Certification Service launched. See <http://t.co/Utn76ql>  
16 August 2011 17:39

New #RipeLabs article: Authentication Methods Used in the RIPE Database <http://t.co/FItcNrX>  
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

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tagcloud

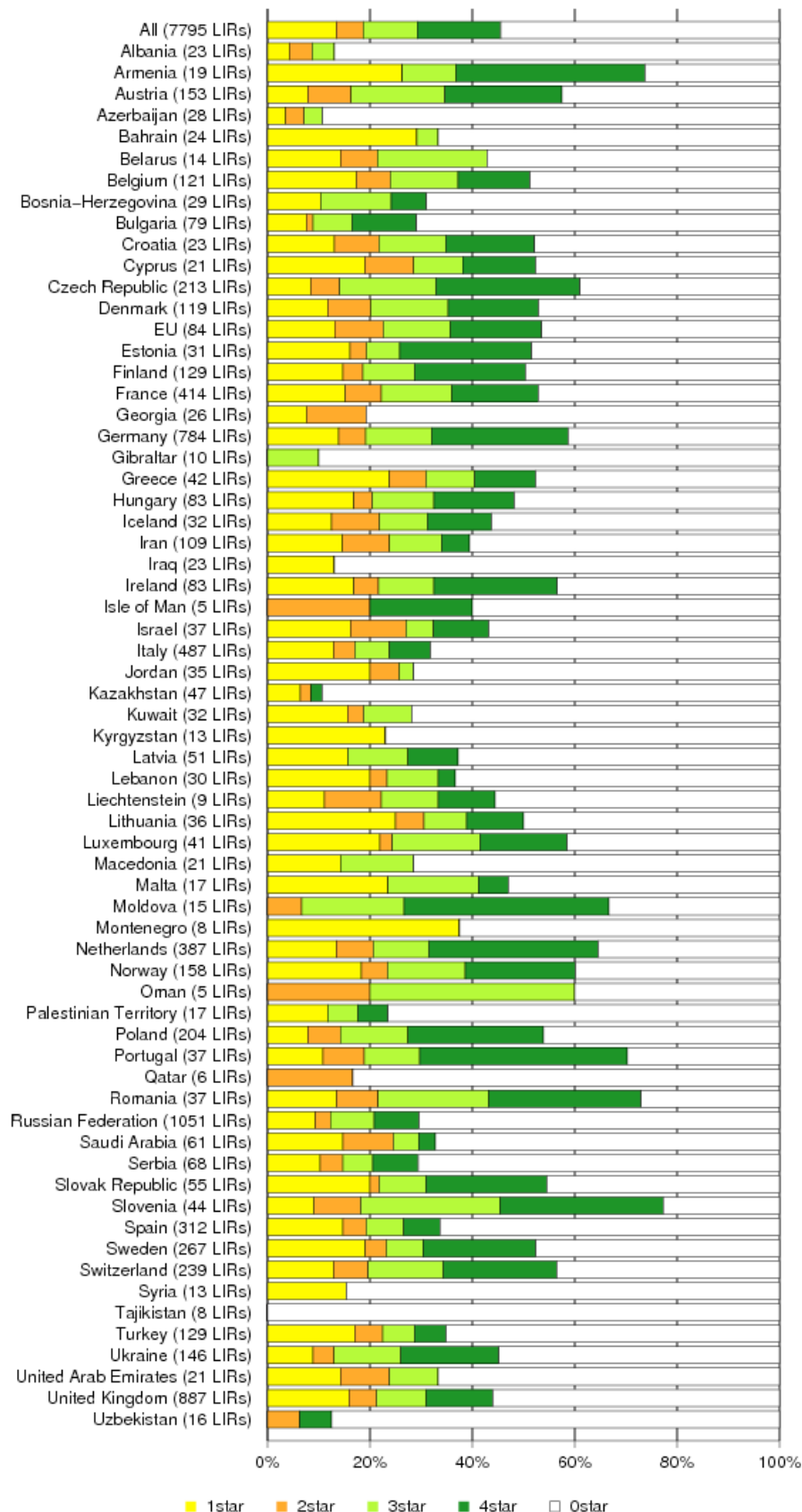
cpe dns dnssec  
database rex  
rpsl atlas  
certification  
datarepository  
ipv4 ipv6  
ipv6day  
measurements  
policy reputation  
ripestat  
root-servers  
routing  
statistics tools

- IPv4 and IPv6 measurements
- RIPE Database API and tools
- RIPE Atlas
- Statistics and Measurements
- Tools (RIPEstat, Abuse Finder)
- and much, much more...



# IPv6 RIPEness

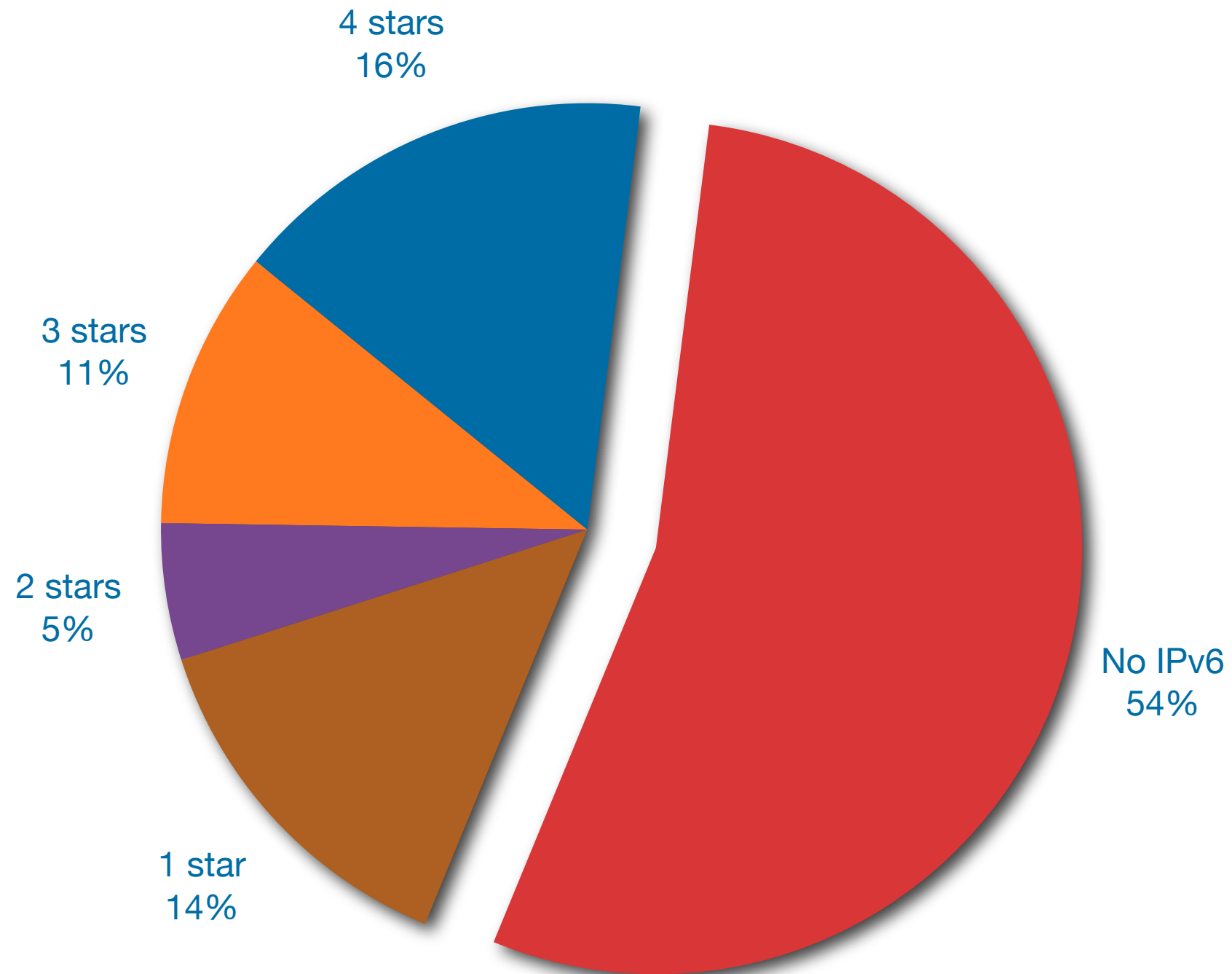
IPv6 'ripeness'—rating of LIRs per country (2011–10–26)



- Indication of an LIR's IPv6 readiness
  - IPv6 allocation
  - route6 object, prefix announced, reverse DNS
- Only countries with  $\geq 5$  LIRs
- Awards LIRs
  - Visibility on web site
- Updated regularly

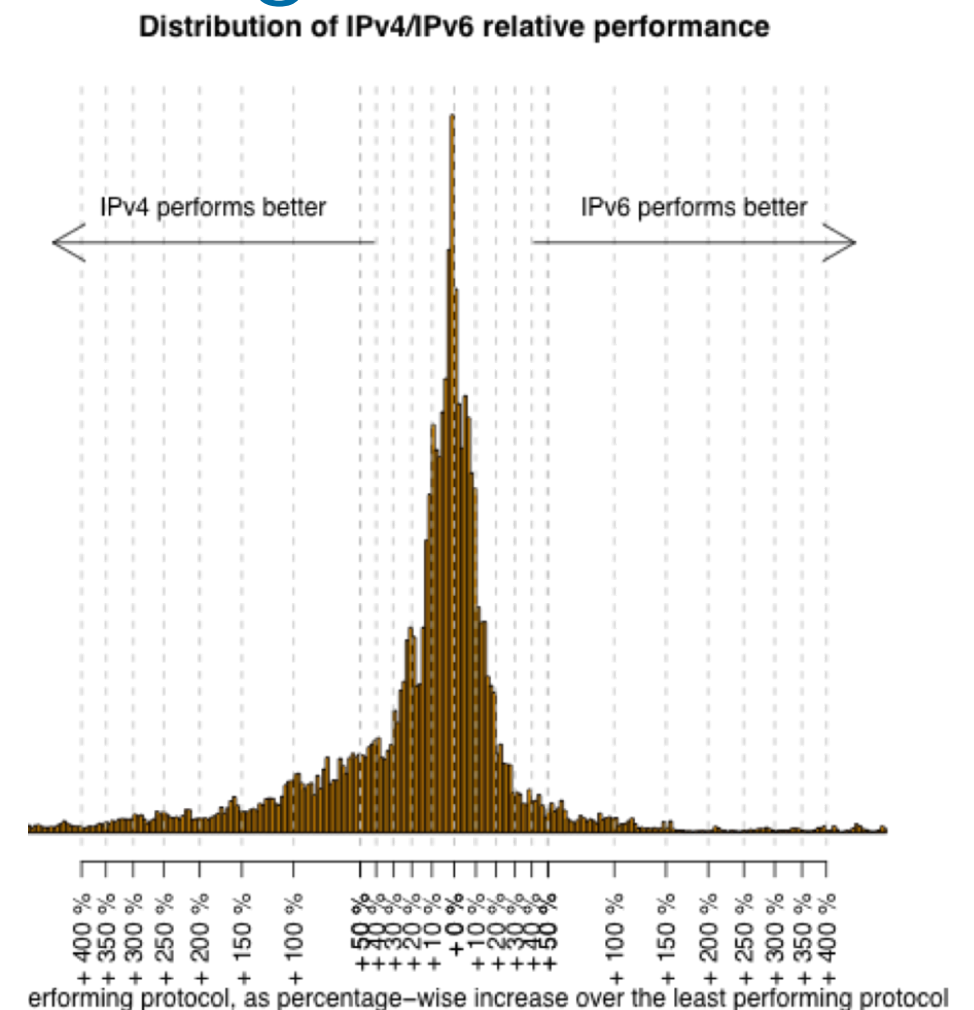
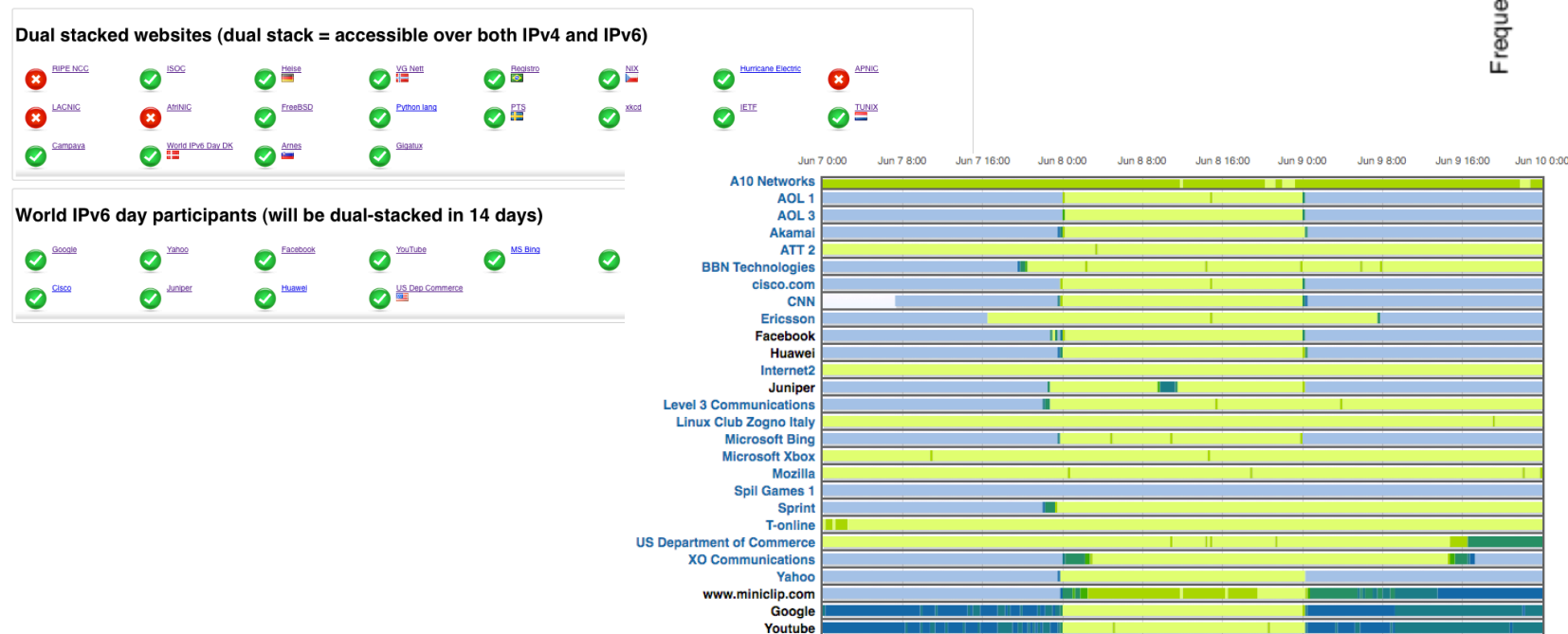
# IPv6 RIPEness in the RIPE NCC Service Region

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



# World IPv6 Day Measurements

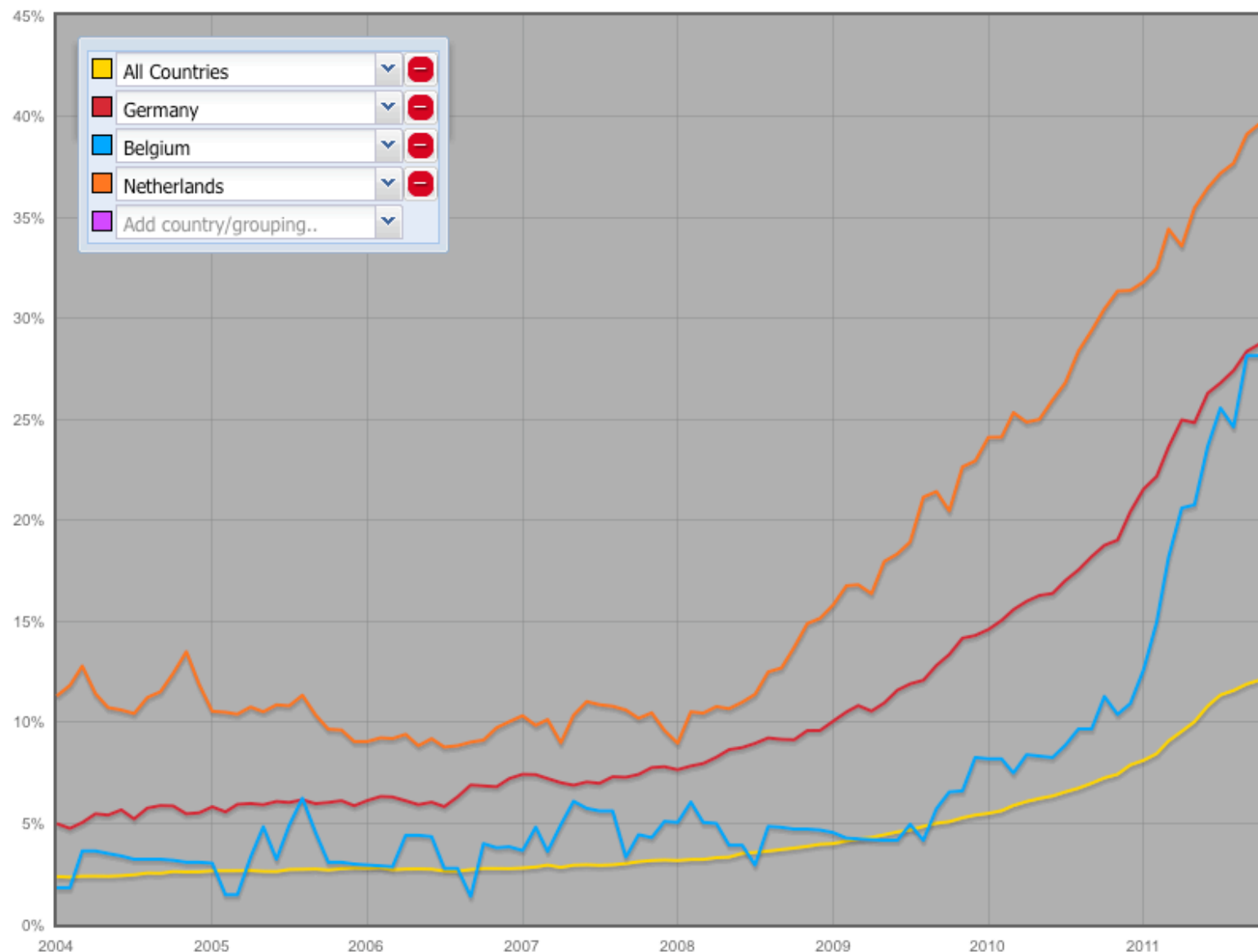
- Collaborators included AMS-IX
- Various measurements before, during, after
  - Performance measurements
  - Identifying glitches
  - Monitoring long-term effects





# IPv6-enabled ASes in Global Routing

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



<http://v6asns.ripe.net>

# RIPE Atlas

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# RIPE Atlas - Active Measurements

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- Next generation Internet measurement network
  - Aims to support thousands of measurement nodes
  - Can be hosted by ISPs, IXPs, individuals...
- Currently 900 active probes worldwide
  - Performing ping, traceroute, DNS lookup
- Hosted and sponsored by community
  - AMS-IX is a sponsor

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

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



# What's In It For You?

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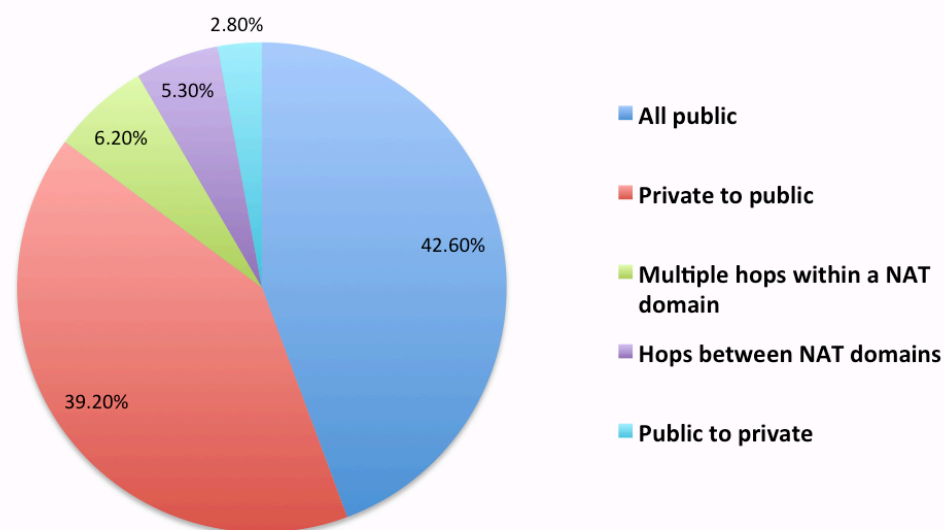
- Individual benefits
  - Less expensive than rolling out your own measurements infrastructure
  - More vantage points and more data available
- Community benefits
  - Unprecedented situational awareness
  - Wealth of data
- TTM could be part of RIPE Atlas infrastructure
  - AMS-IX is hosting a TTM box
  - Thanks for participating in survey and meeting

# 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%

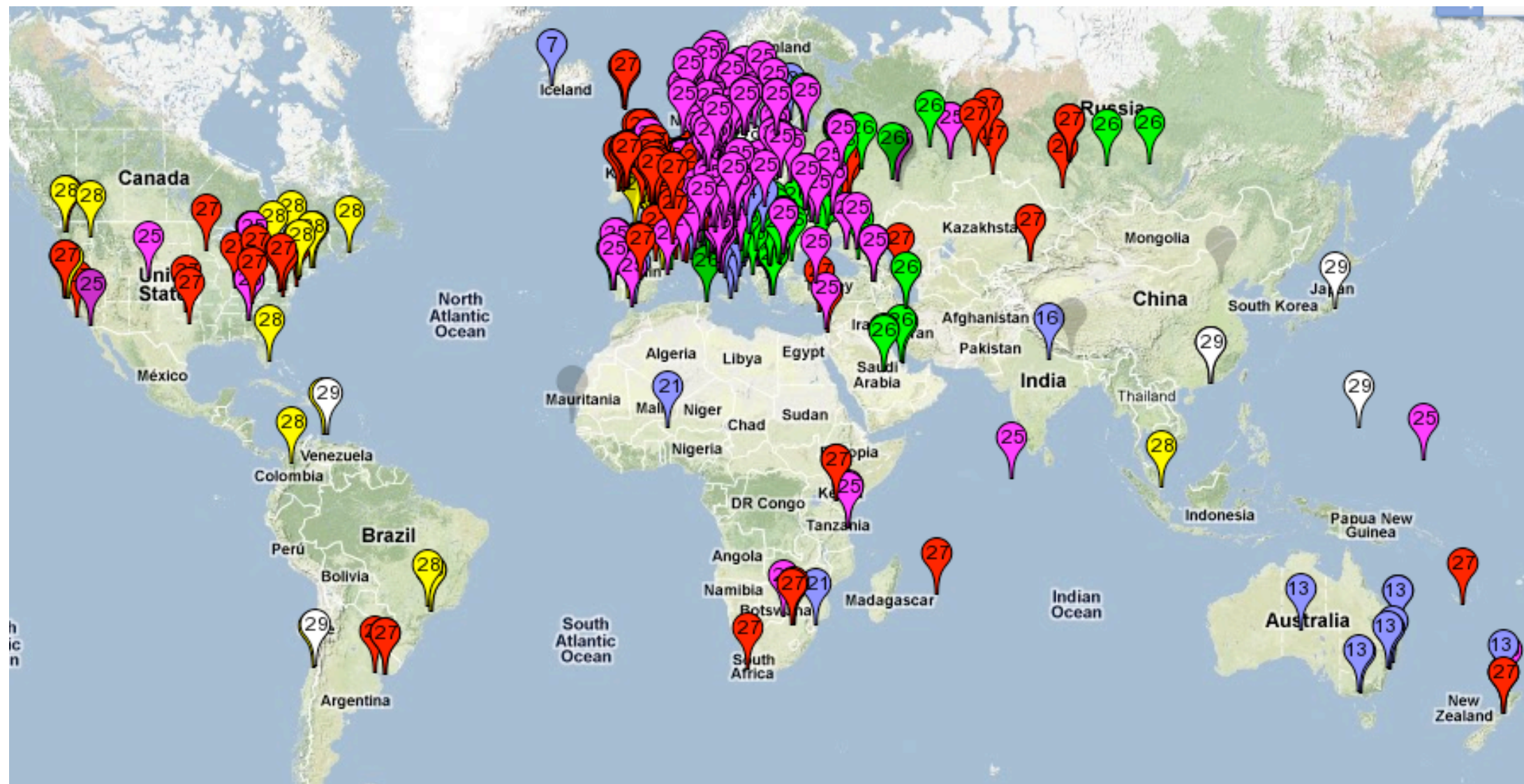
- Looked at “transfer table” to determine how often data packets change address “class”





# DNS Anycast Checks (K-root)

- Probes do anycast instance discovery
  - Which probes see what instance of K-root





# Atlas: News & Road Ahead

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- 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

# RIPEstat

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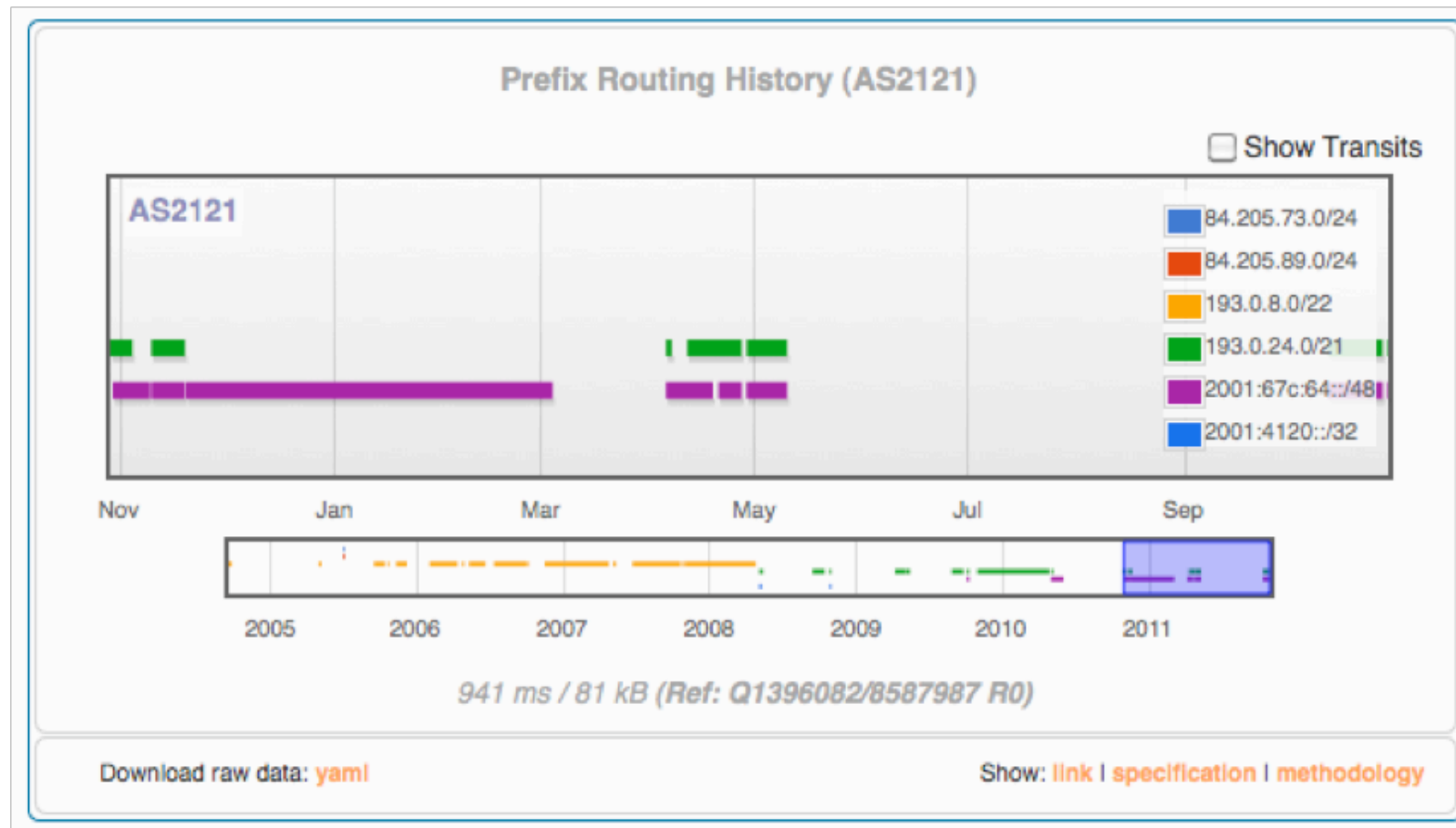
# What is RIPEstat? <http://stat.ripe.net>

- Modular and extendable toolbox
  - Graphical interface
  - Developed together with the community - you!
  - Public live demo sessions once a month
    - next one: 29 November 10:30 - 11:00 UTC

The screenshot shows the RIPEstat web interface. At the top, there's a header with the RIPE NCC logo and the text 'RIPE NETWORK COORDINATION CENTRE'. Below this is the 'RIPEstat' logo and a search bar with the placeholder 'Enter an AS number or prefix'. The search bar shows 'Your network: AS2121, 2001:67c:64::/48' and 'Example: IPv4, IPv6, ASN'. The main content area is divided into several sections. On the left, there's a sidebar with a 'Result Box' containing links like 'Resource Info', 'Whois Matches', 'Announced Prefixes', 'Number of Announced Prefixes Over Time', 'Prefix Size Distribution', 'Prefix Routing History', 'AS Path Length to RIS Locations', 'Global Visibility', 'Geolocation', and 'Allocation History'. The main content area has three sections: 'Resource Information (AS2121)' which states 'this Autonomous System Number appears to currently be held by RIPE-MEETING-AS RIPE Network Coordination Center' and provides a download link for raw data; 'Whois Matches (AS2121)' which shows a table of matches; and 'Announced Prefixes (AS2121)' which shows a table of prefixes. On the right side, there are three boxes: 'The current top queries' listing top queries, 'Your latest queries' showing recent queries, and 'News' with links to '10th live demo', 'Egyptian Network Outage', and 'Japanese Earthquake'. At the bottom right, there's a 'RIPEstat Development' section with links to 'Introduction to Demos', '25 January 2011', '22 February 2011', and '22 March 2011'. Three callouts are overlaid on the interface: 'View' points to the 'Resource Information' section, 'Raw Data' points to the 'Download raw data' link, and 'Methodology' points to the 'Show: link | specification | methodology' link.

# RIPEstat Details

- Shows IPv4/IPv6 and ASN info
  - Statistics (time, aggregation, zoom)
  - Status (real time, aggregation, zoom)

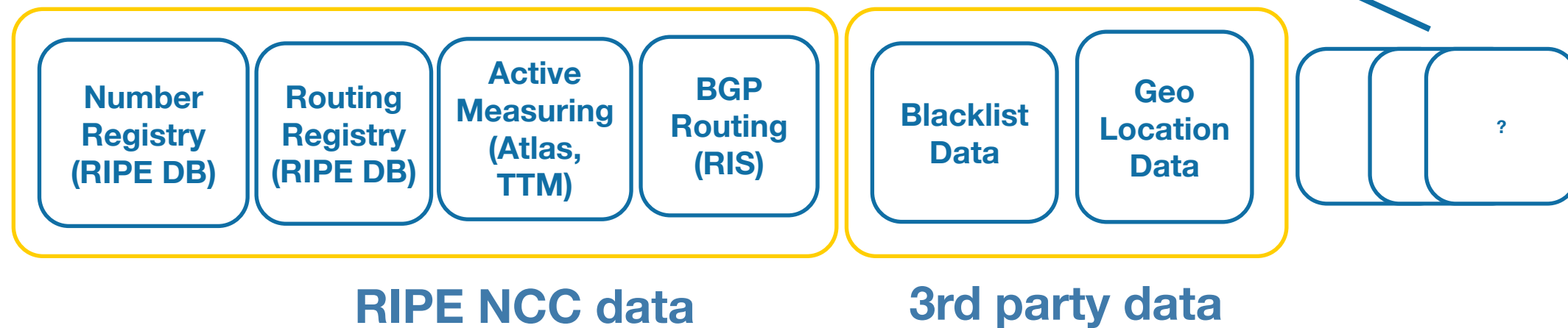


<http://labs.ripe.net/ripestat>

# RIPEstat Data Sources



<http://stat.ripe.net>

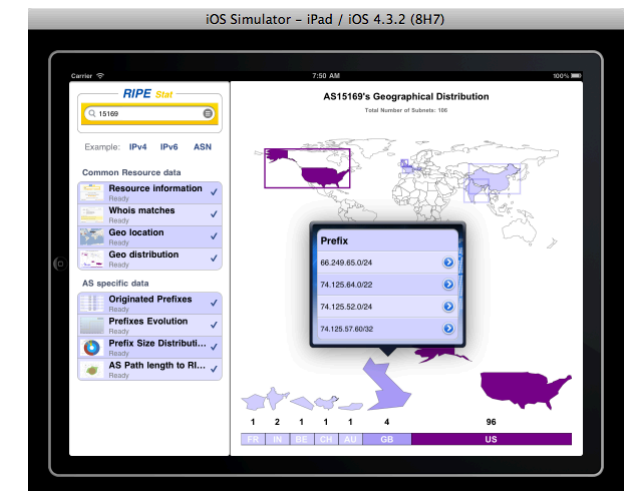


# RIPEstat Mobile

- <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





# Why RIPE Labs?

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- 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

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- 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?

