RIPE Labs
Operator Tools, Ideas, Analysis

AMS-IX Meeting, Amsterdam, 16 Nov. 2011

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RIPE
NCC

A Bit of History

- 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?

- 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

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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
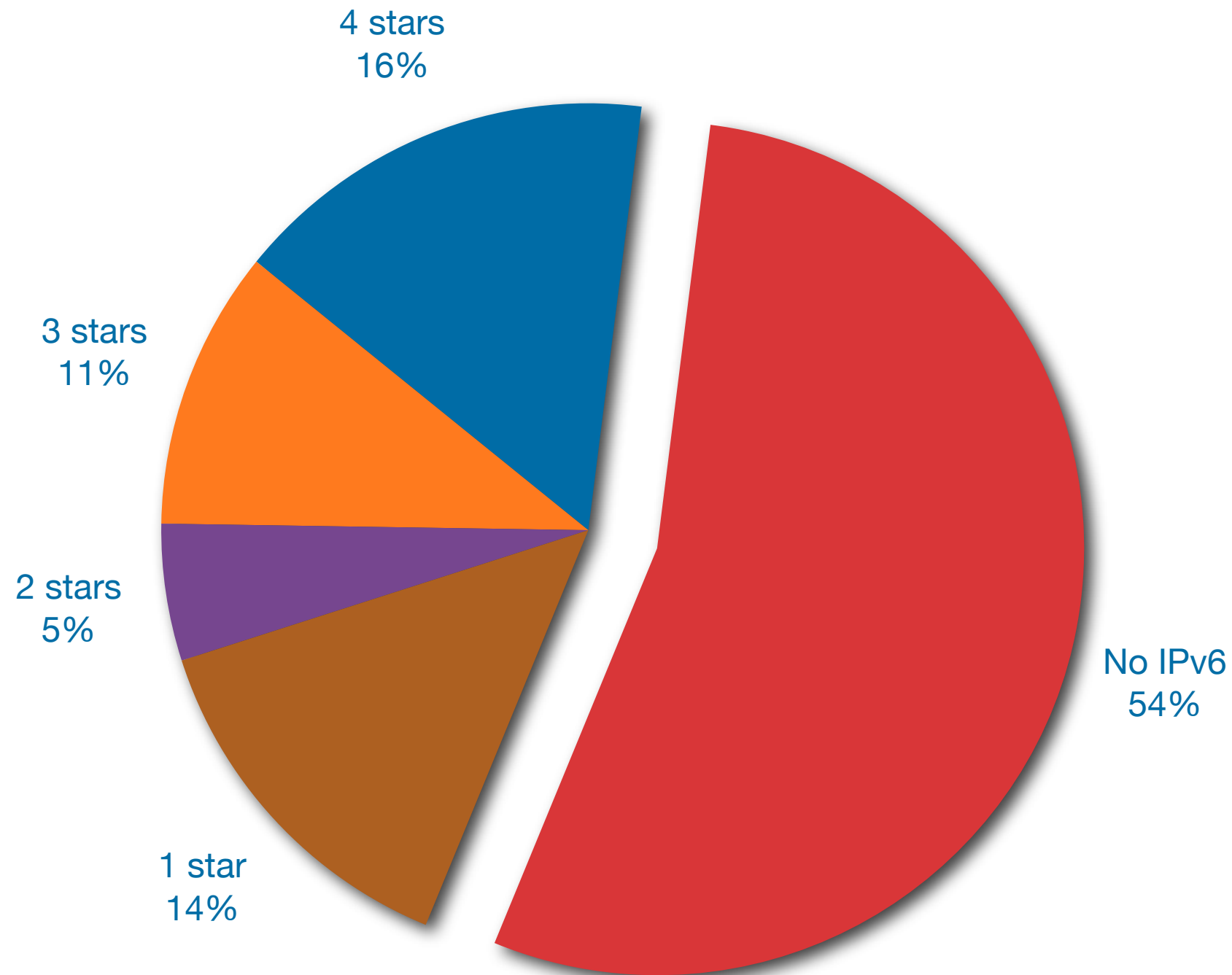
IPv6 'ripeness'–rating of LIRs per country (2011–10–26)
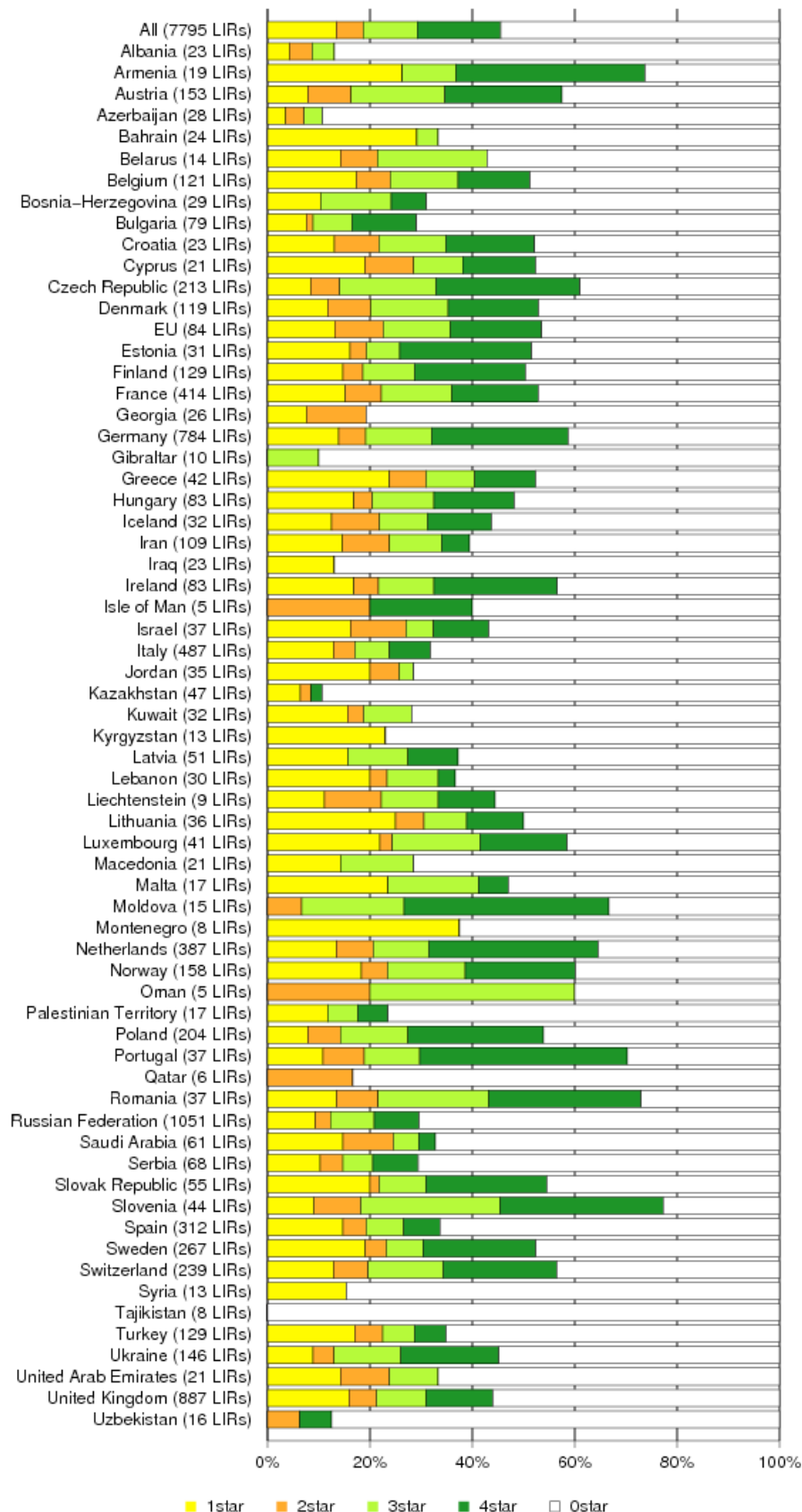
- Indication of an LIR's IPv6 readiness
  - IPv6 allocation
  - route6 object, prefix announced, reverse DNS

- Only countries with ≥5 LIRs

- Awards LIRs
  - Visibility on web site

- Updated regularly

IPv6 RIPEness in the RIPE NCC Service Region

Legend: 1 star • 2 stars • 3 stars • 4 stars • No IPv6

- 4 stars 16%
- 3 stars 11%
- 2 stars 5%
- 1 star 14%
- No IPv6 54%

World IPv6 Day Measurements

- Collaborators included AMS-IX

- Various measurements before, during, after
  - Performance measurements
  - Identifying glitches
  - Monitoring long-term effects

http://labs.ripe.net/ipv6day
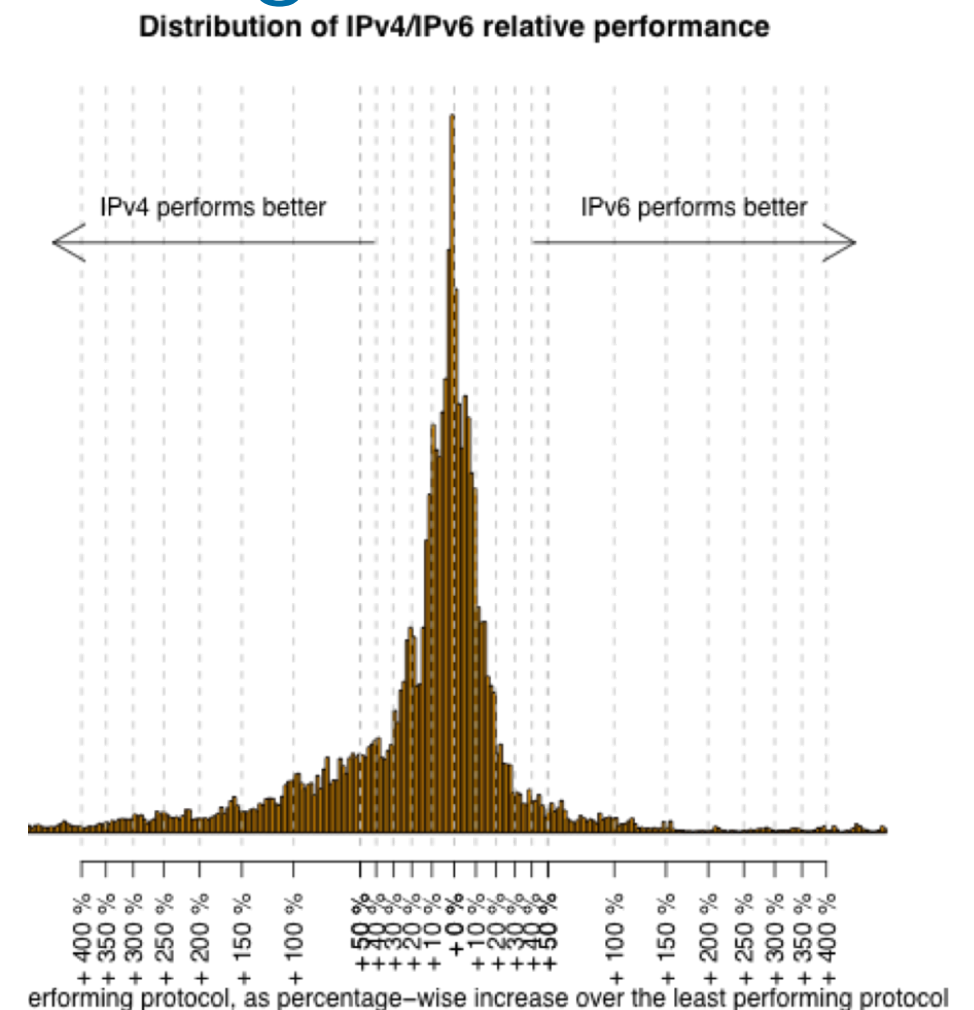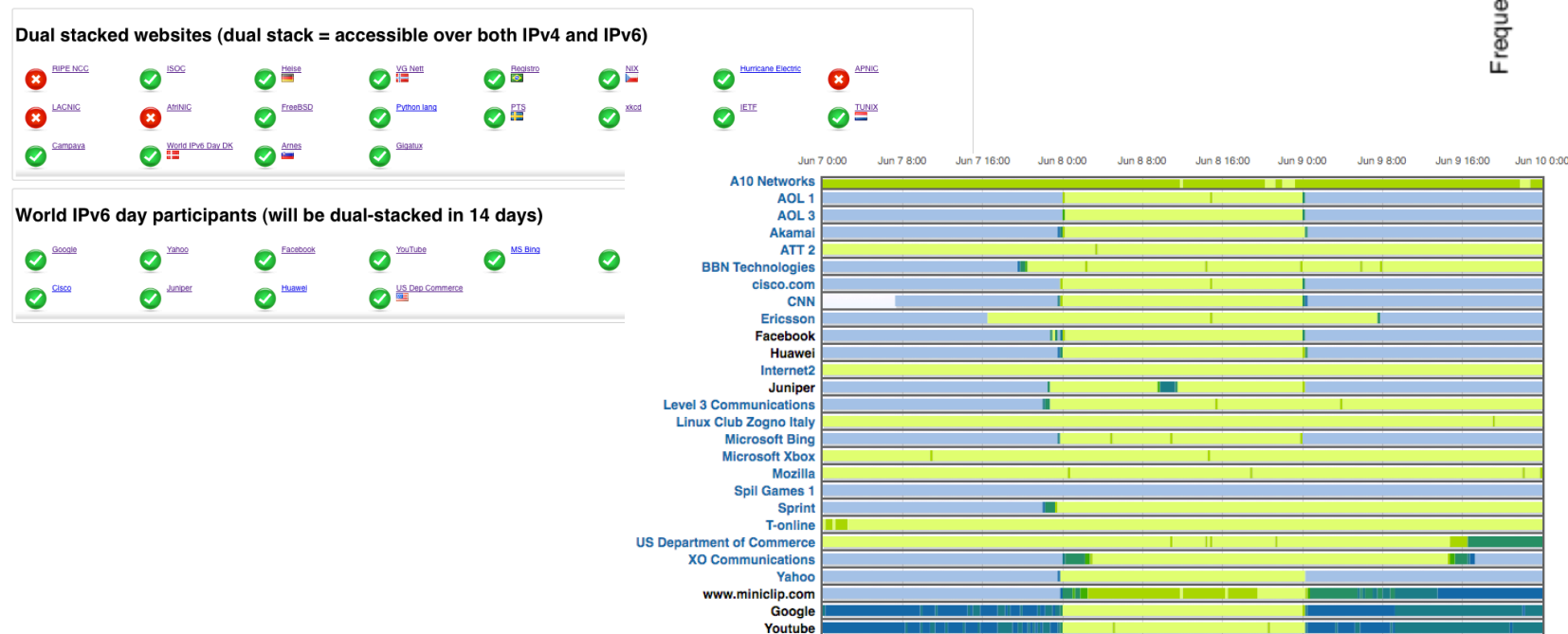
IPv6-enabled ASes in Global Routing

- Any country or region possible

- Updated daily, permalink provided

http://v6asns.ripe.net

RIPE Atlas

RIPE Atlas - Active Measurements

- Next generation Internet measurement network
  - Aims to support thousands of measurement nodes
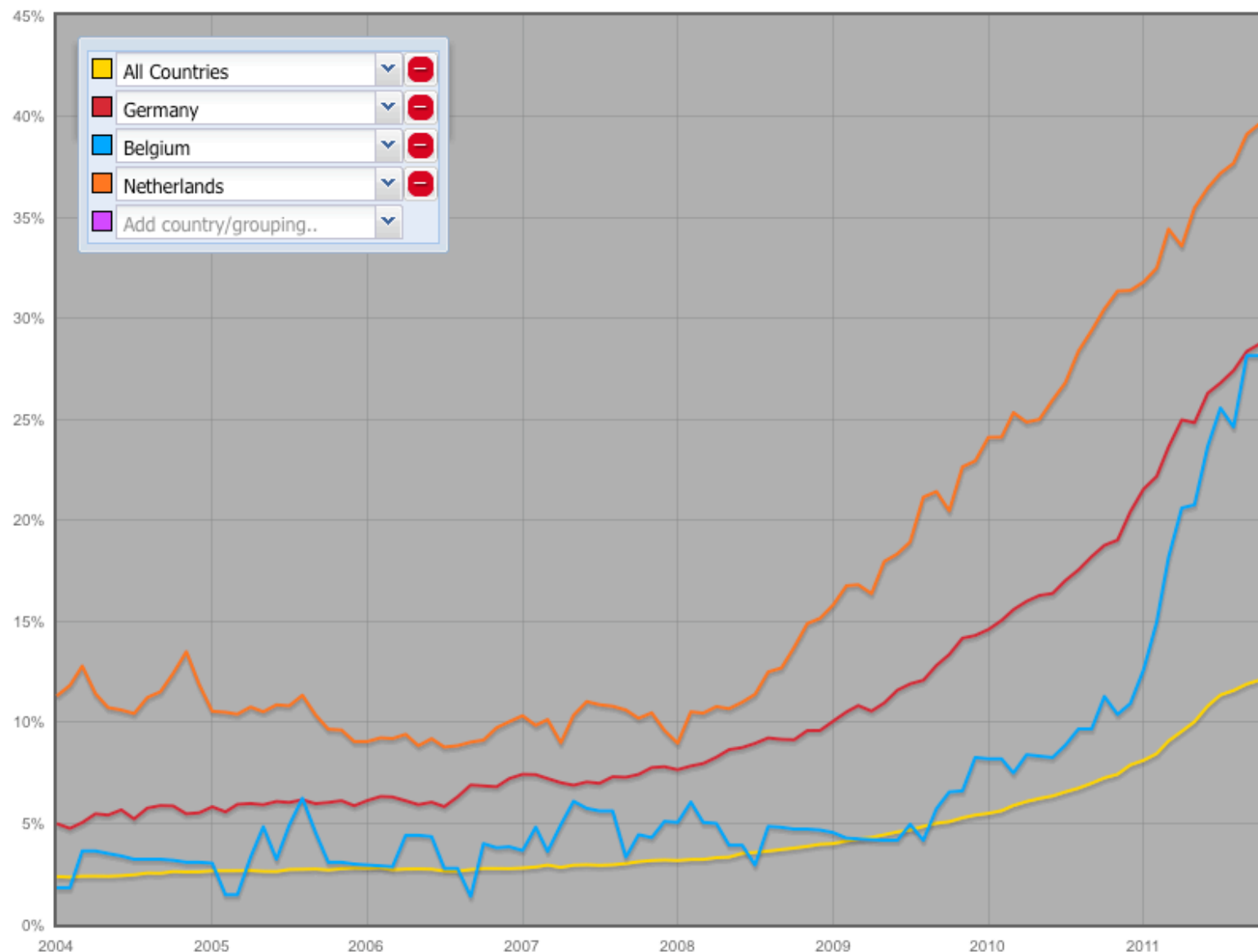 - Can be hosted by ISPs, IXPs, individuals...

- Currently 900 active probes worldwide
  - Performing ping, traceroute, DNS lookup

- Hosted and sponsored by community
  - AMS-IX is a sponsor

  http://labs.ripe.net/atlas
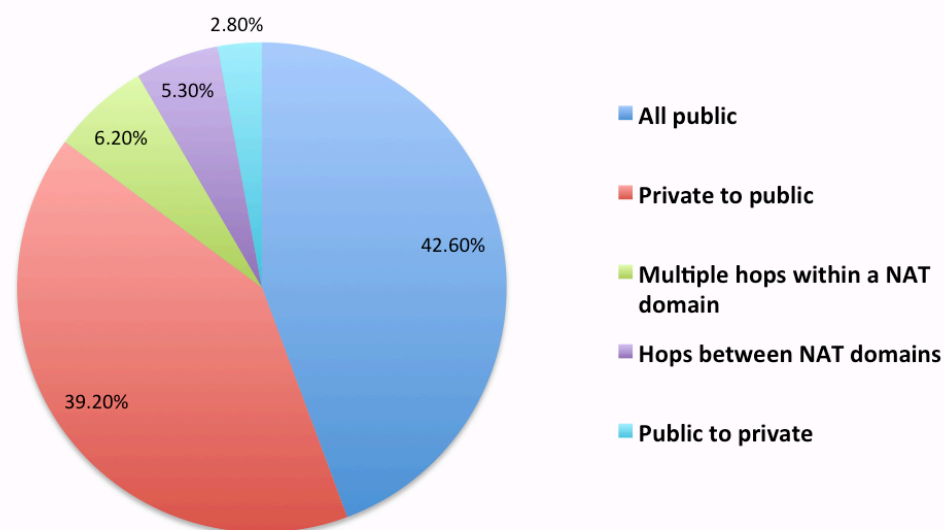 **http://atlas.ripe.net/**

What's In It For You?

- 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"

Pie chart:
- 2.80%
- 5.30%
- 6.20%
- 42.60%
- 39.20%

Legend:
- All public
- Private to public
- Multiple hops within a NAT domain
- Hops between NAT domains
- Public to private

DNS Anycast Checks (K-root)

- Probes do anycast instance discovery
  - Which probes see what instance of K-root
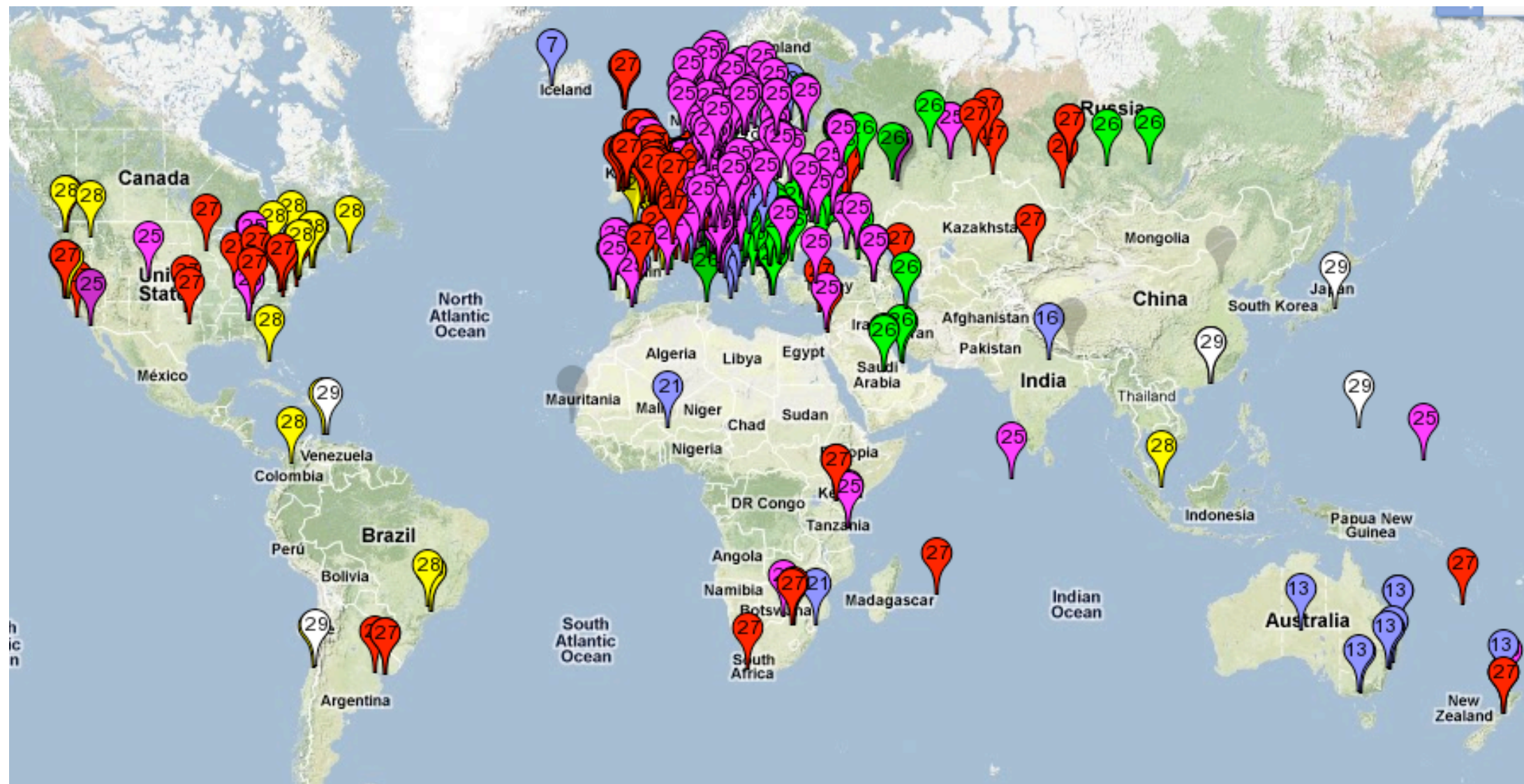
Atlas: News & Road Ahead

- 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

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
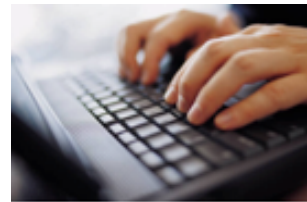
    - next one: 29 November 10:30 - 11:00 UTC

RIPEstat Details

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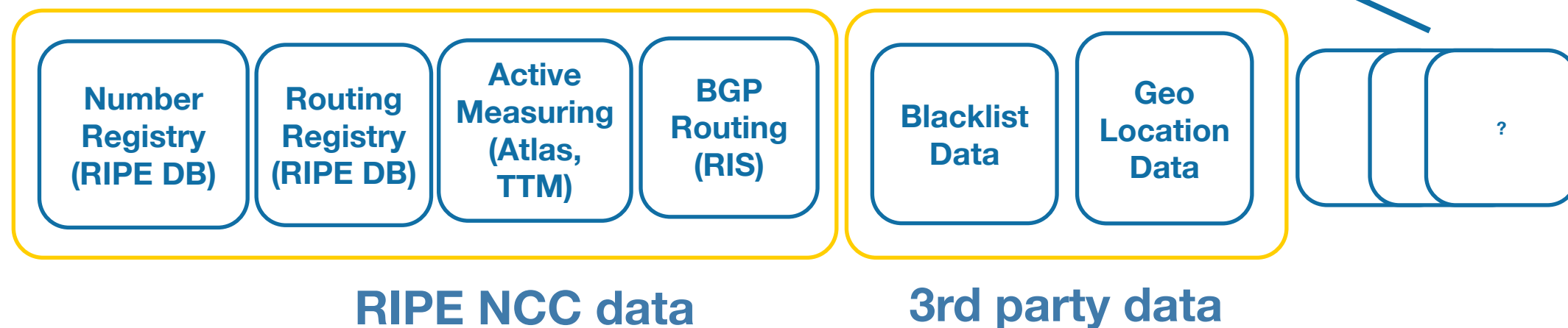 - Status (real time, aggregation, zoom)

http://labs.ripe.net/ripestat
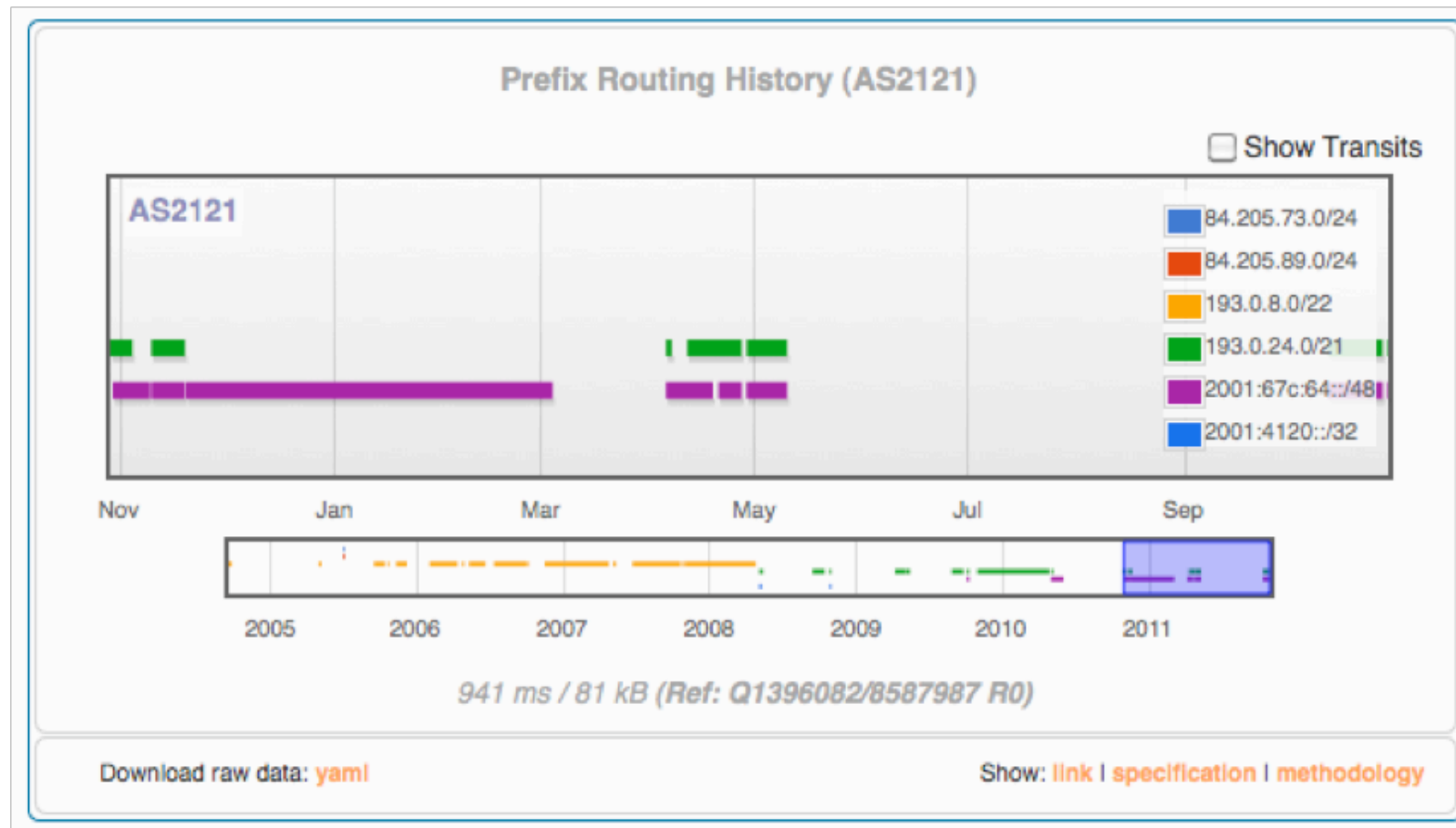
RIPEstat Data Sources

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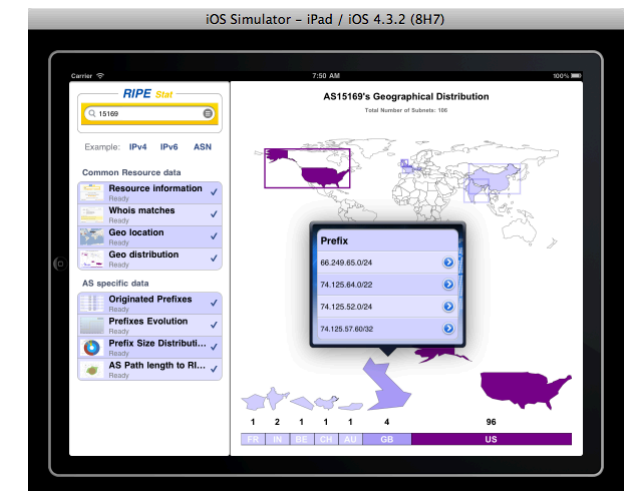
- Requirements
  - Compatible with **iPhone, iPod touch and iPad**
  - Requires **iOS 4.0** or later

Why RIPE Labs?

- 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?