RIPE Labs
Operator Tools, Ideas, Analysis

LINX Meeting, London, 22 November 2011

Mirjam Kühne, RIPE NCC

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

RIPE Labs Home Page

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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

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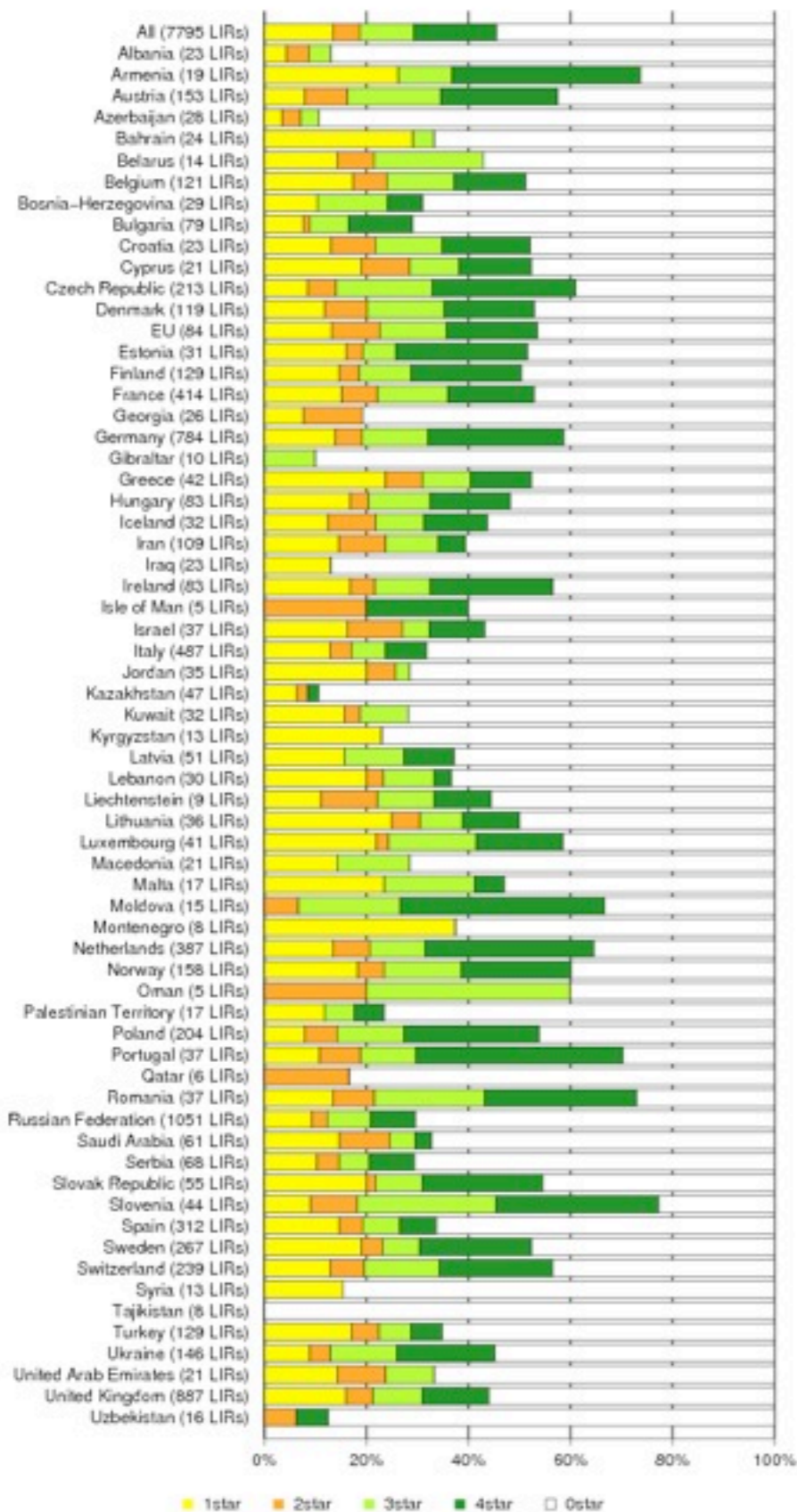
- Indication of an LIR's IPv6 readiness
  - IPv6 allocation
  - route6 object, prefix announced, reverse DNS
- Only countries with ≥5 LIRs
- Awards LIRs
  - Visibility on web site
- Updated regularly

IPv6 RIPEness in the RIPE NCC Service Region

● 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%
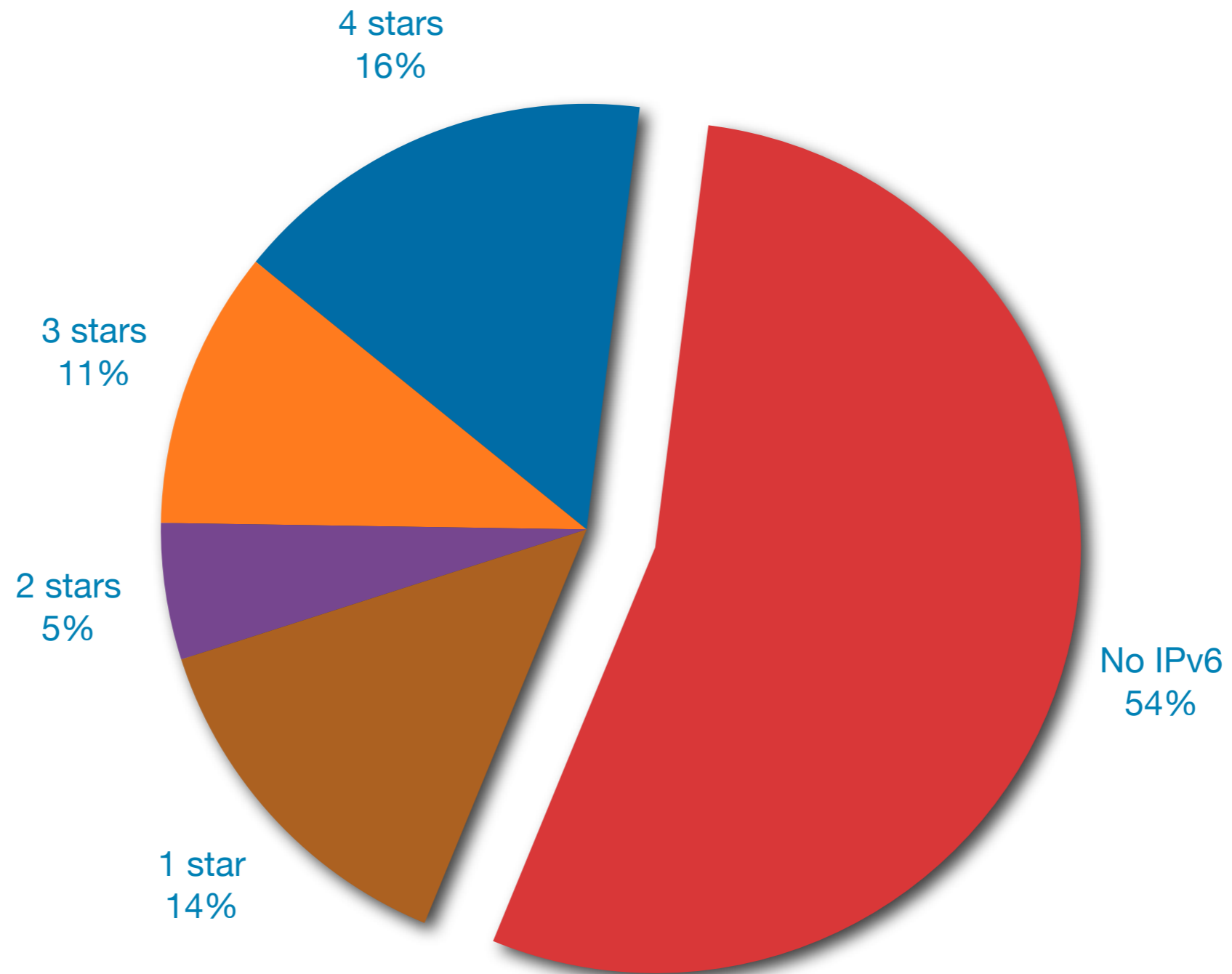
Prefix Length Filtering - IPv4 and IPv6

- Using Routing Information Service

- IPv4: Most prefixes are /24s (80% visibility)

- IPv6: Are /48s filtered out more often than /32s?

IPv6-enabled ASes in Global Routing

- Any country or region possible

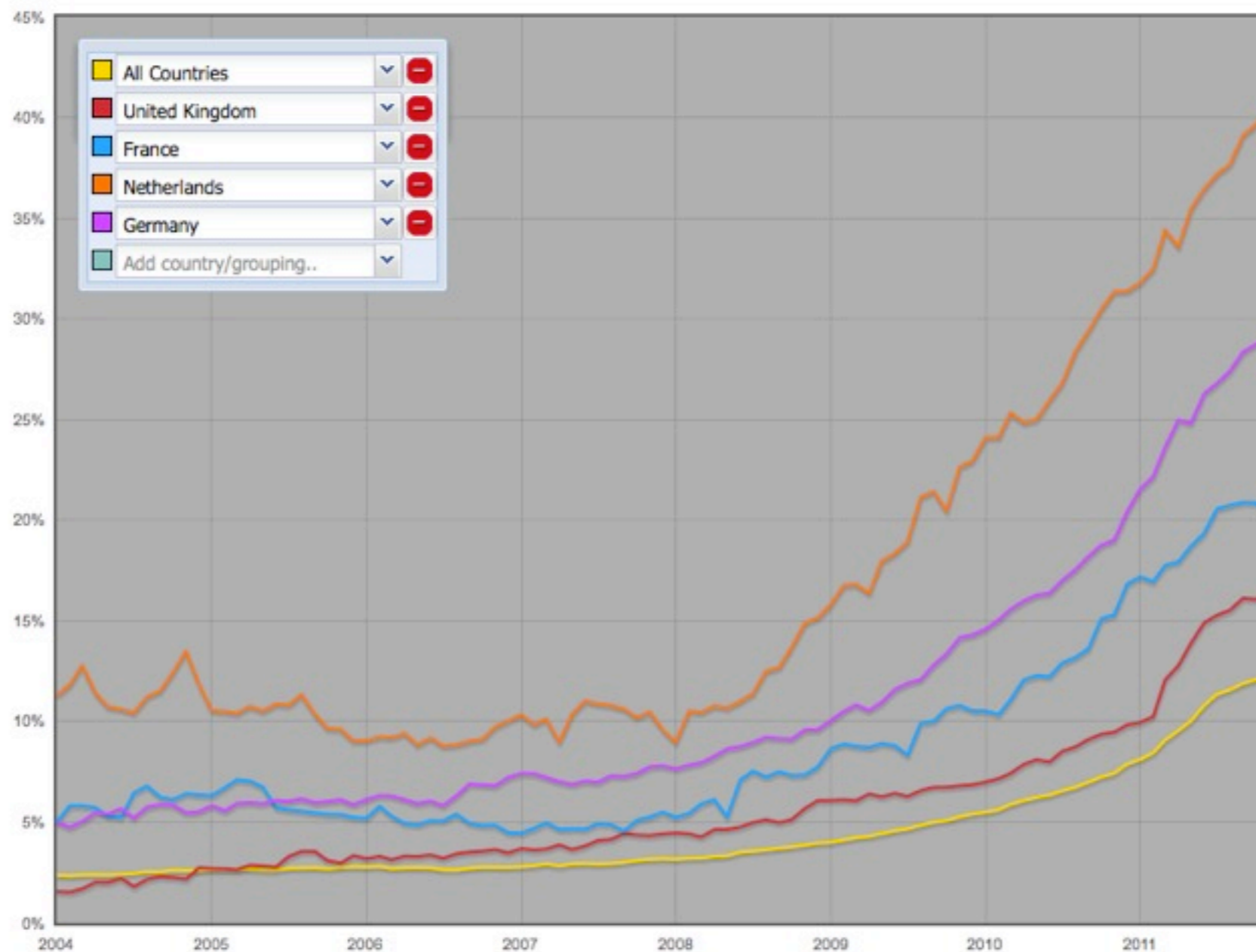- Updated daily, permalink provided

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

http://labs.ripe.net/atlas

http://atlas.ripe.net/
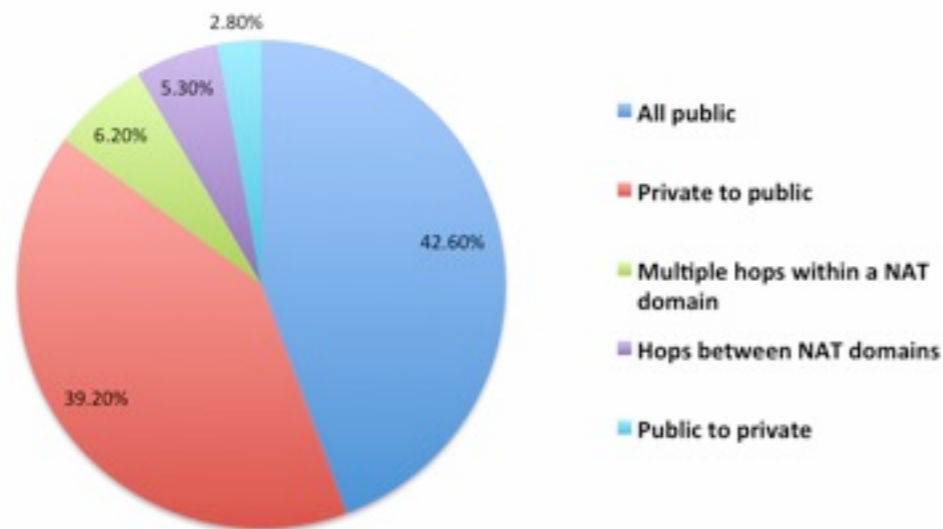
What's In It For You?

- 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
  - LINX is hosting a TTM box
  - Thanks for contributing feedback

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"

- All public — 42.60%
- Private to public — 39.20%
- Multiple hops within a NAT domain — 6.20%
- Hops between NAT domains — 5.30%
- Public to private — 2.80%

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
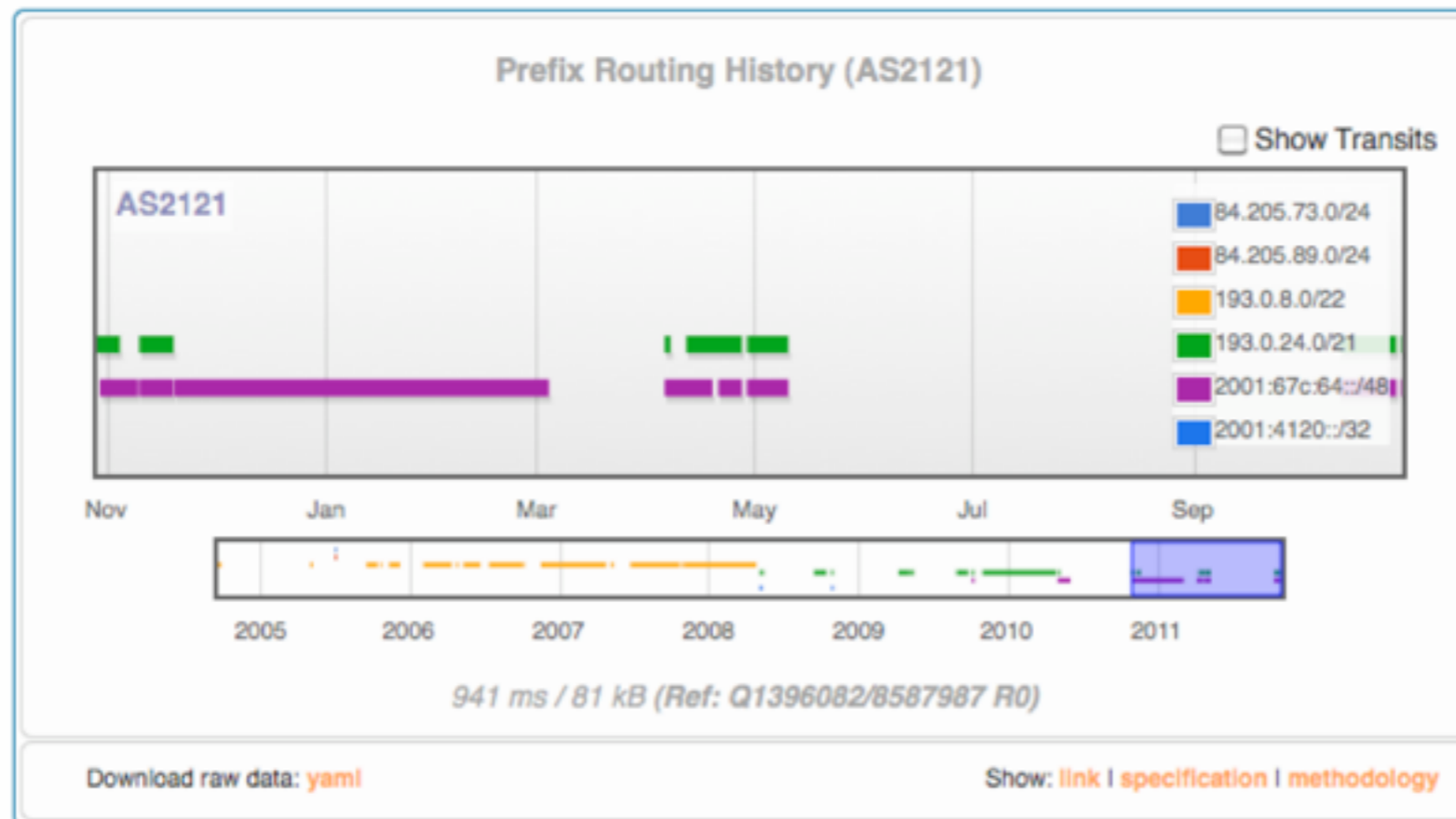 - Automatic alerts and notifications

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

http://stat.ripe.net

| Number Registry (RIPE DB) | Routing Registry (RIPE DB) | Active Measuring (Atlas, TTM) | BGP Routing (RIS) | | Blacklist Data | Geo Location Data | | ? |

RIPE NCC data   **3rd party data**

RIPEstat Mobile
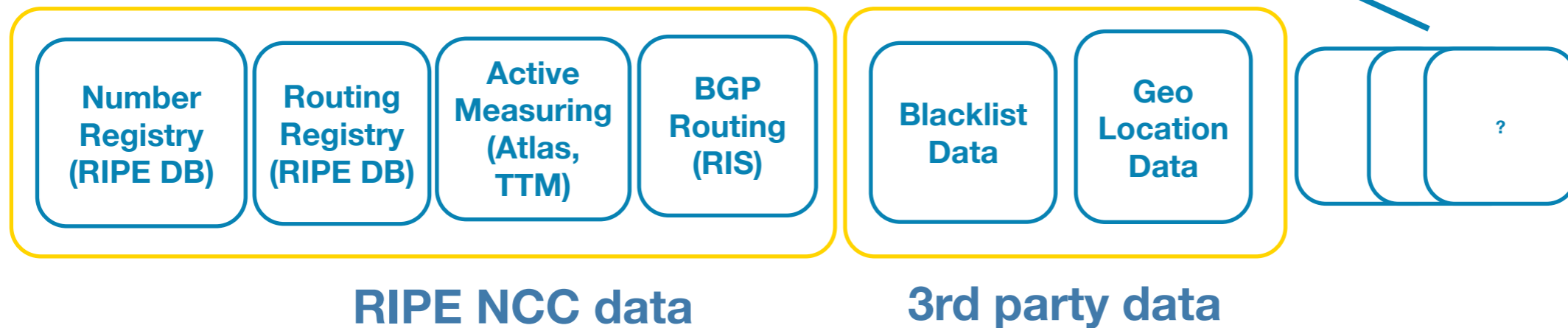
- http://labs.ripe.net/Members/gdl/ripestat-mobile

- 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
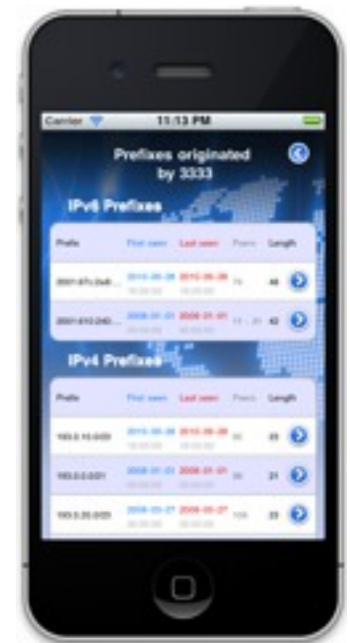
Why RIPE Labs?

- 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/

RIPE
NCC

Questions?