

RIPE NCC

Measurements Tools

Netnod meeting, 7.10.2011

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Goal: engaging you in our measurements

- Interesting & useful tools for network operators: measurements and analysis
 - RIPE Atlas
 - RIPEstat
 - IPv6 RIPEness
 - and many more: TTM, RIS, DNSMON, ...
- Why RIPE NCC? Neutral & impartial
- Building the community around tools
 - asking for operators' needs and feedback
 - connecting users & developers

RIPE Labs

Operators Tools, Ideas, Analysis

Mirjam Kühne, RIPE NCC

 [mir_ripe_labs](#), [#RIPELabs](#)



What is RIPE Labs?

- RIPE Labs is a platform **for the community**
 - Launched in Sept. 2009, major update in June 2010
- Faster, tighter innovation cycle
 - Provide useful prototypes early in the 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

Example: IPv6 Customer Premise Equipment

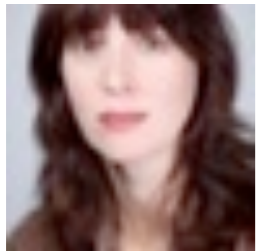
- Survey among CPE vendors
- Results updated regularly on RIPE Labs

	AVM (FRITZ!Box)	Draytek	Zyxel	Juniper (ScreenOS)	Juniper (JUNOS)	Cisco	D-Link
Hardware version required	7270, 7570	Vigor 2130 series, vigor 120	All models released in 2010	All	All	Most SOHO boxes	Most new boxes
Minimum software level required	"Labor" only	2130:v1.3.0 120:v3.2.4.3	Per model, check vendor	6.1	10.2	12.4T or 15	see notes
Status	Beta	General deployment	Beta	General deployment	Early deployment	General deployment	General deployment
WAN layer 2							
Docsis 3.0	vendor	no	no	no	no	-	-
ADSL 2+	confirmed	120 only	vendor	confirmed	confirmed	confirmed	no
VDSL	confirmed	no	vendor	no	vendor	-	no
Ethernet	confirmed	vendor	vendor	confirmed	confirmed	confirmed	confirmed
FTTx	-	vendor	vendor	no	no	-	no
WAN Layer 3							
PPPoA	confirmed	no	vendor	no	vendor	confirmed	no
PPPoE	confirmed	confirmed	vendor	confirmed	confirmed	confirmed	vendor
RFC1483/bridge	vendor	no	vendor	no	no	vendor	no
RFC1483/routed	-	-	vendor	vendor	vendor	vendor	no
Plain IP	-	vendor	vendor	confirmed	confirmed	confirmed	no

<http://labs.ripe.net/Members/mirjam/ipv6-cpe-surveys>

Community effort

- Please take a look and **participate**
- Write an article about your research
- Leave a comment under an article
- Questions and suggestions to **labs@ripe.net**



mir_ripe_labs, #RIPELabs

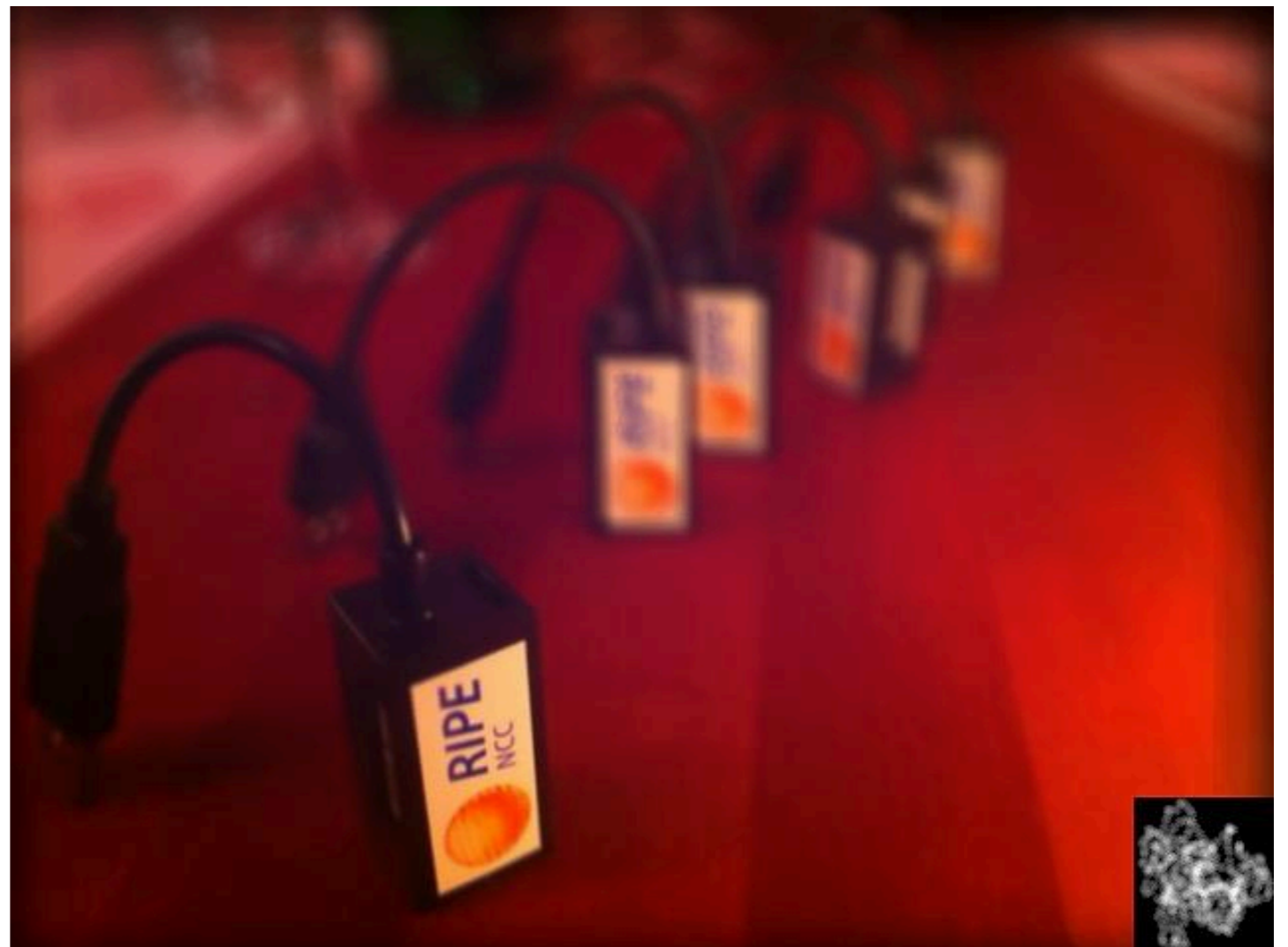
<http://labs.ripe.net/>

RIPE Atlas

RIPE Atlas

- Next generation Internet measurement network
 - To scale to thousands of measurement nodes
 - Potentially “be everywhere” and ready to run different measurements
 - Started last November
 - We’re still building it

<http://atlas.ripe.net>



Light map of Europe = probes distribution



Ambitious community effort

Instead of building small, separate,
individual & private infrastructures,

build a

huge common infrastructure

that serves **both** the private goals

and the community goals.

What's in it for you?

- Individual Benefits
 - Less expensive than rolling your own
 - More vantage points available
 - More data available

- Community Benefits
 - Unprecedented situational awareness
 - Wealth of data

Small hardware probes

- For accurate maps we need more measurements nodes
- Deploying very many TTM boxes too expensive
- Smaller probes
- Easily deployable
- USB powered
- 24 x 365 capable
- Doing ping & traceroute (for now)



Technical details of “probes”

- Probe (v1 / generation 1):
 - Lantronix XPortPro
 - Very low power usage
 - 8MB RAM, 16MB flash
 - Runs uClinux
 - No FPU, no MMU, virtually no UI
 - A reboot costs <15 (<5) seconds
 - An SSH connection costs ~30 seconds
 - We can remotely update the firmware



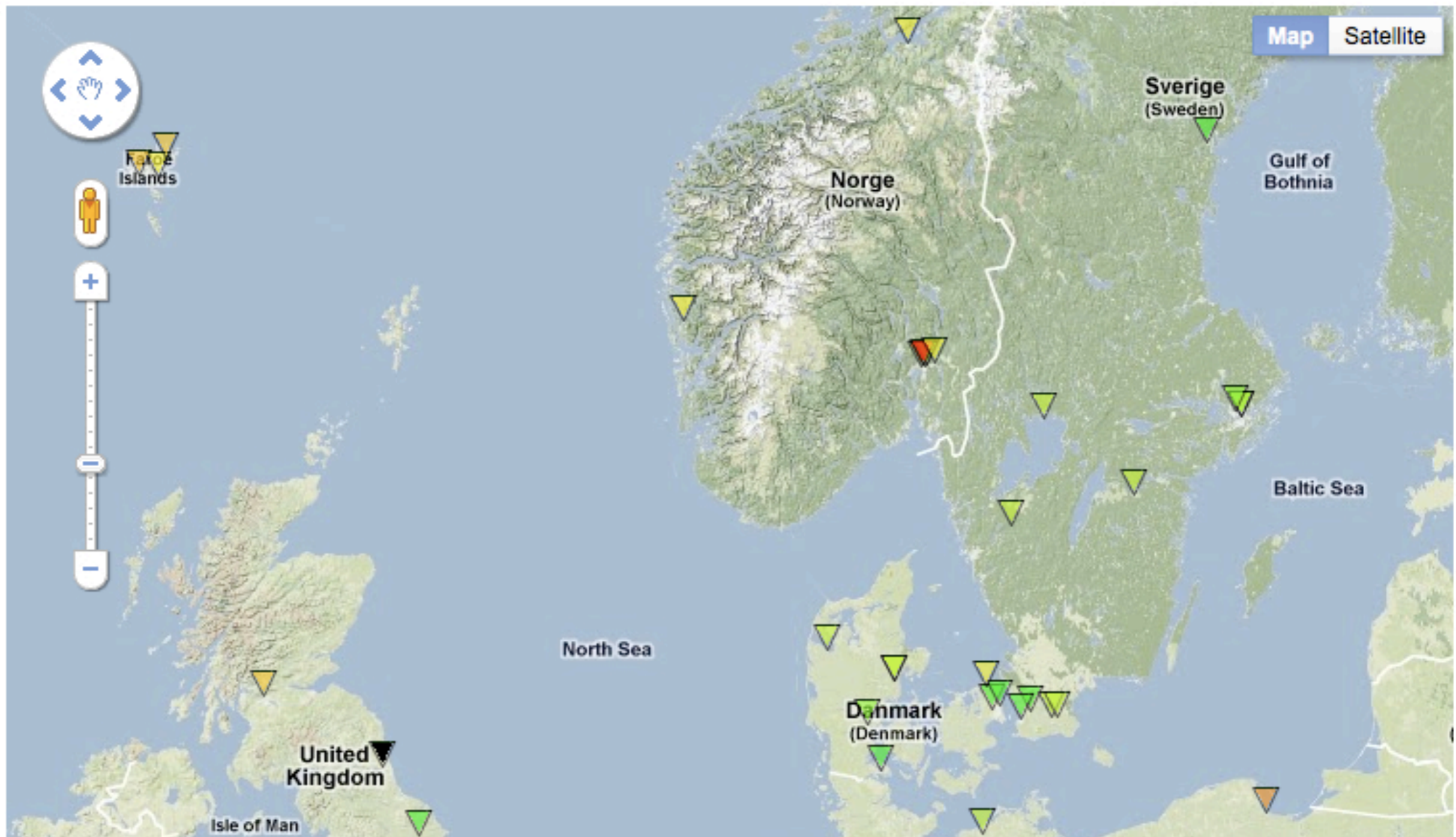
Probes deployed today



How .se see k.root-servers.net (IPv6 RTT)

Select measurement to visualise: Showing 338 results. [Refresh now!](#)

Showing results of last measurements. Key (minimum RTT): ▼ <=10ms ▼ <=20ms ▼ <=30ms ▼ <=40ms ▼ <=50ms ▼ <=100ms ▼ <=200ms ▼ <=300ms ▼ <=500ms ▼ (unreachable)



What can you do with / for Atlas

- We publish maps and analysis
- Anybody can look up results of “public” probes
- You can “host” a probe
 - you get measurements of your own probe + public ones
- If you want more probes: become a sponsor
- As a community: give us feedback & features requests
- Next phase: User Defined Measurements

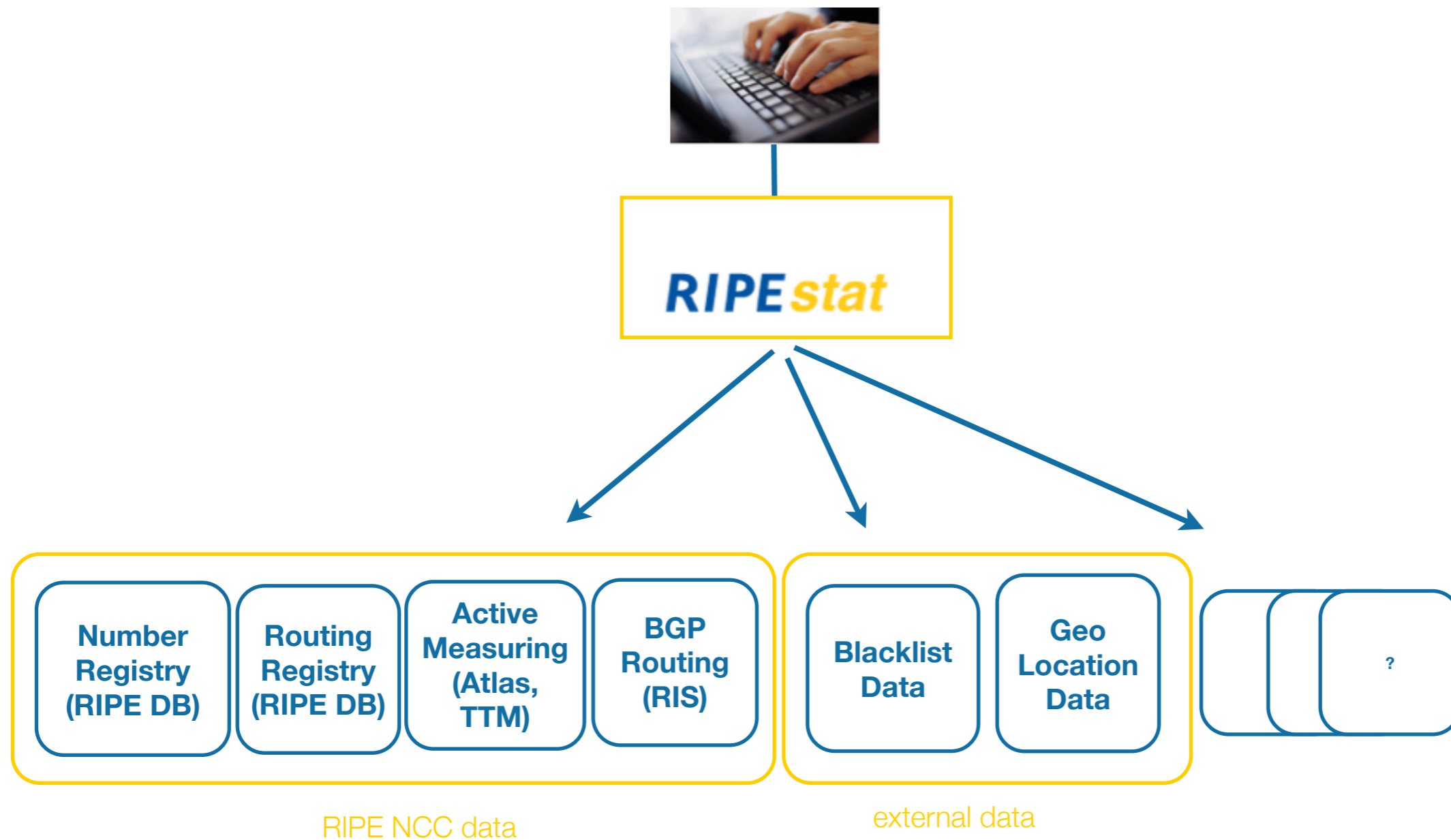
<http://atlas.ripe.net>

RIPEstat

What is **RIPE***stat*

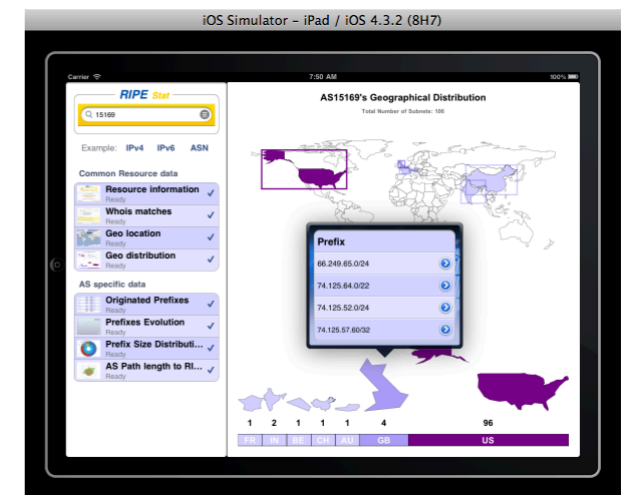
- “Numbers are Us”: IPv4 / IPv6 Addresses, ASNs
- Modular & Extendable Toolbox
- “stat” means
 - Statistics (time, aggregation, zoom)
 - Status (real time, aggregation, zoom)
- Beta: **<http://stat.ripe.net>**
- Eventually to replace most measurement tools

RIPEstat data sources



RIPEstat Mobile

- Article: <http://labs.ripe.net/Members/gdl/ripestat-mobile>
- Video: <http://www.youtube.com/watch?v=UXq5-W1hBUQ>
- iTunes Store:
 - **FREE on the App Store**
 - Released: Sep 21, 2011
 - Version: 1.1 ; 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



Prefix	First seen	Last seen	Peers	Length
2001:67c:2e8...	2010-09-28 16:00:00	2010-09-28 16:00:00	74	48
2001:610:240...	2008-01-01 00:00:00	2008-01-01 00:00:00	11 - 31	42

Prefix	First seen	Last seen	Peers	Length
193.0.10.0/23	2010-09-28 16:00:00	2010-09-28 16:00:00	95	23
193.0.0.0/21	2008-01-01 00:00:00	2008-01-01 00:00:00	98	21
193.0.20.0/23	2008-03-27 00:00:00	2008-03-27 00:00:00	108	23

Please give us feedback!

- Private feedback: [<ripestat@ripe.net>](mailto:ripestat@ripe.net)
- Comments: on the website, all public (for now)
- RIPE labs: <http://labs.ripe.net/ripestat>
- Measurement, Analysis and Tools working group:
 - <http://www.ripe.net/ripe/wg/mat/>
 - E-mail: [<mat-wg@ripe.net>](mailto:mat-wg@ripe.net)
- Regular Public Demos, every 4 weeks
 - next one during RIPE63, Vienna, 1-4.11.2011.

IPv6 RIPEness

IPv6 RIPEness

- Measurement of IPv6 capabilities of LIRs
- One “star” for having IPv6 space
- More stars:
 - visible in RIS / route6 object in RR / reverse DNS
 - All four stars: listed on the **4*** page:
 - <http://ipv6ripeness.ripe.net>
- Once you have 4 stars, ask for a T-shirt!
 - ncc@ripe.net
- **<http://IPv6ActNow.org>**



[All LIRs offering services in Sweden](#)

This list contains the LIRs with 4-star IPv6 RIPLEness that offer services in Sweden.

Legend:

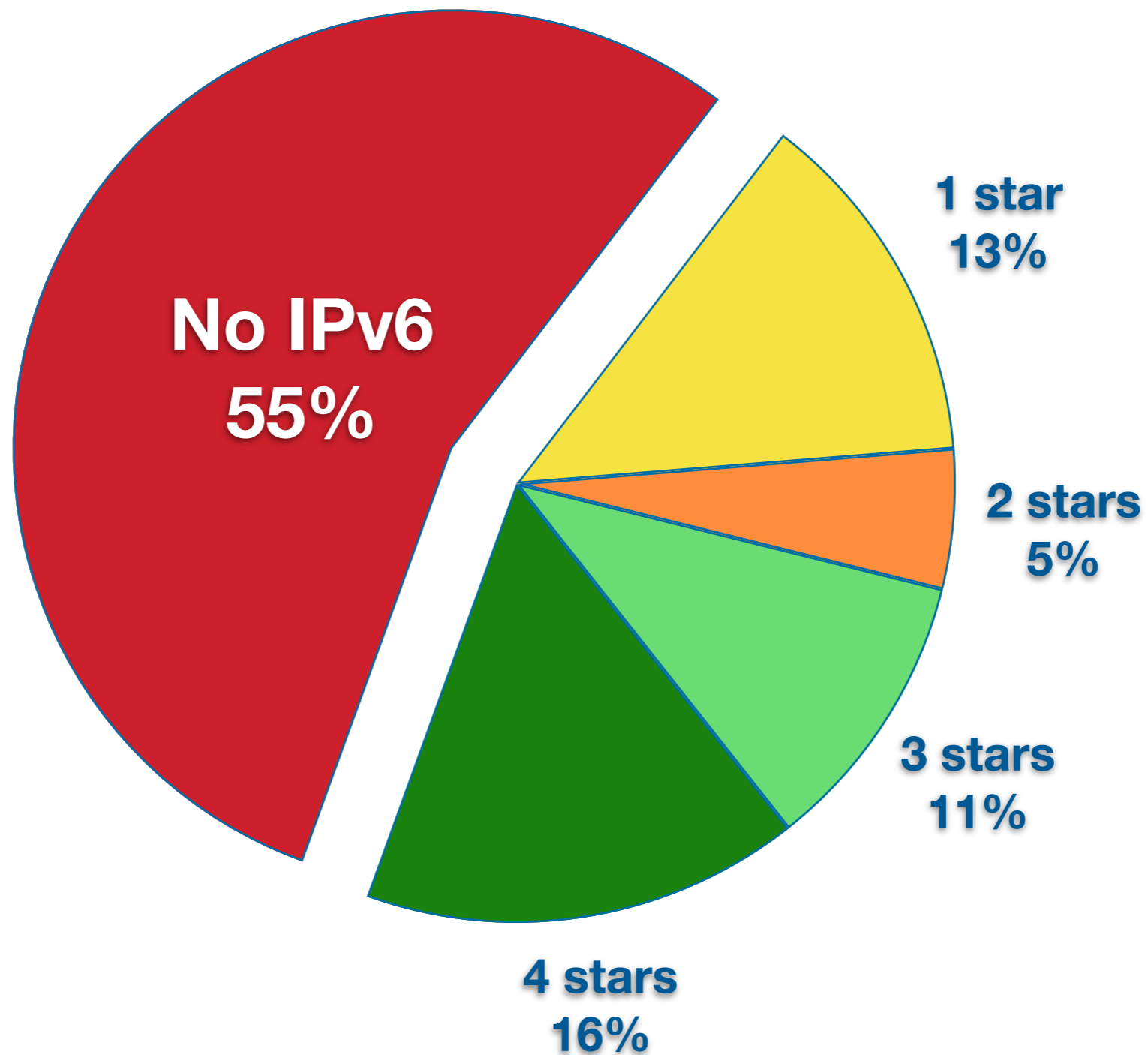
EXTRA_LARGE

- [Elisa Oyj](#) <Registry based in FI>
- [Hi3G Access AB](#)
- [TDC A/S](#) <Registry based in DK>
- [Tele2 Sverige AB](#)
- [UPC Broadband Operations B.V.](#) <Registry based in NL>

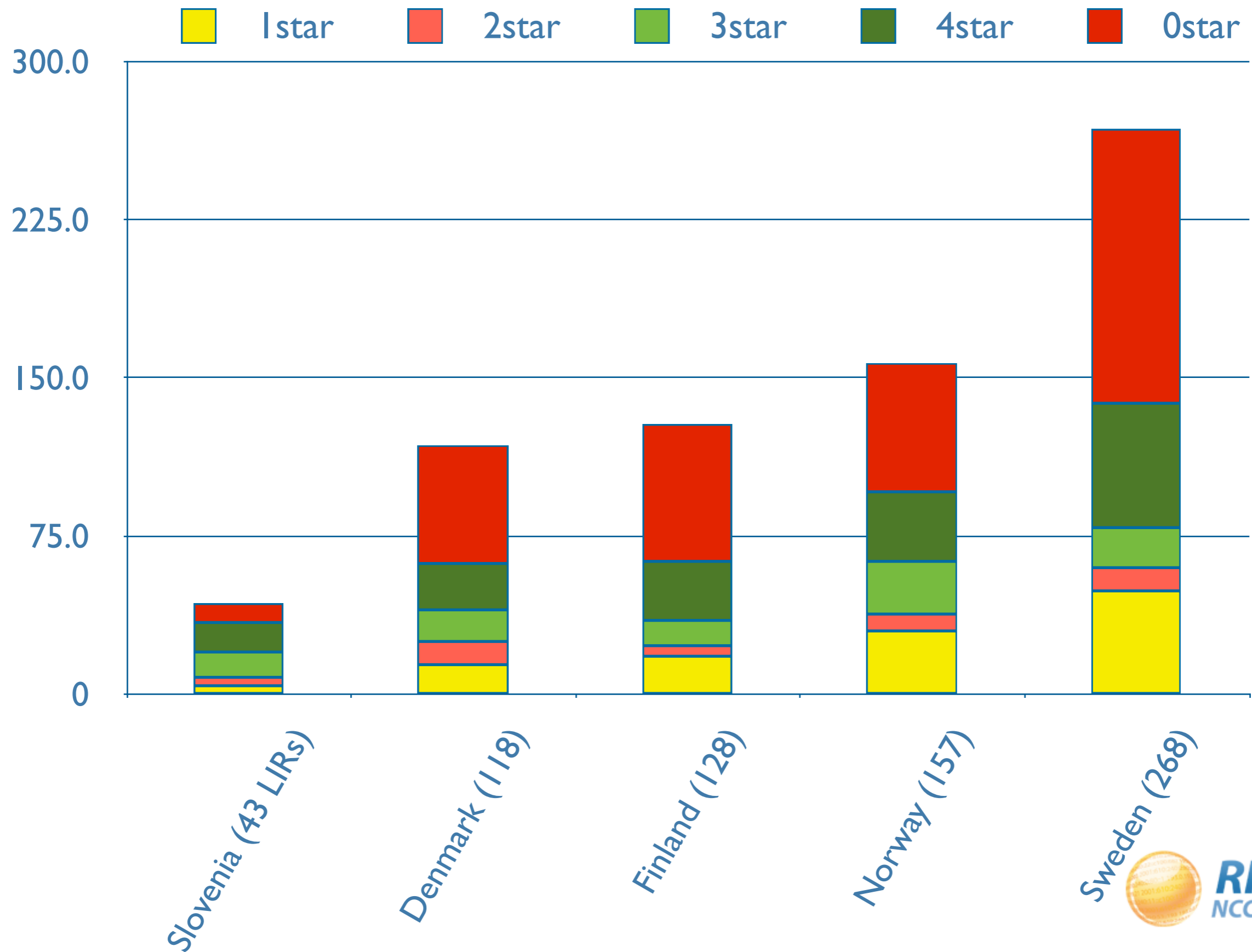
LARGE

- [B2 Bredband AB](#)
- [Bahnhof Internet AB](#)
- [Bredband2 AB](#)

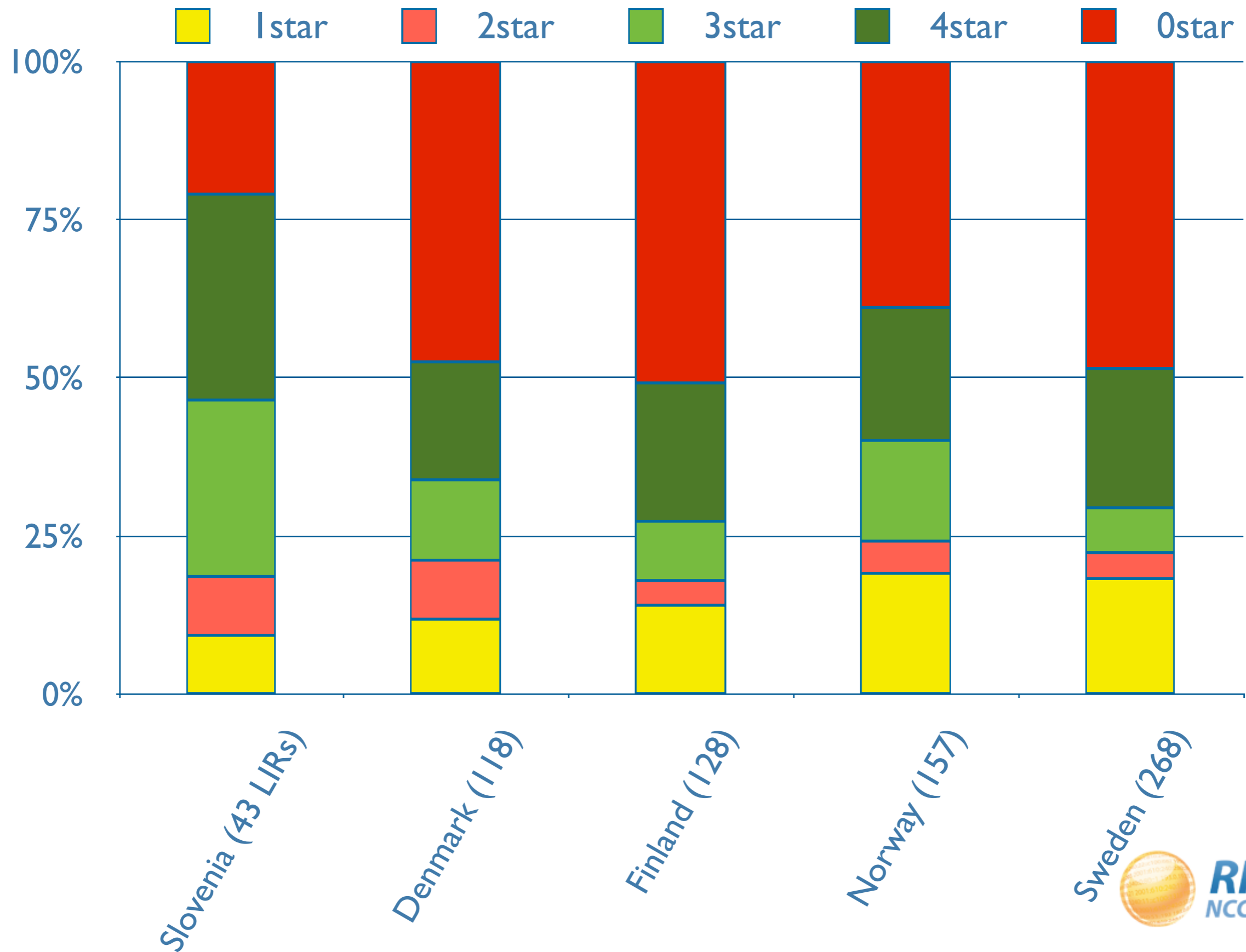
IPv6 RIPEness: 7745 LIRs (5.9.2011.)



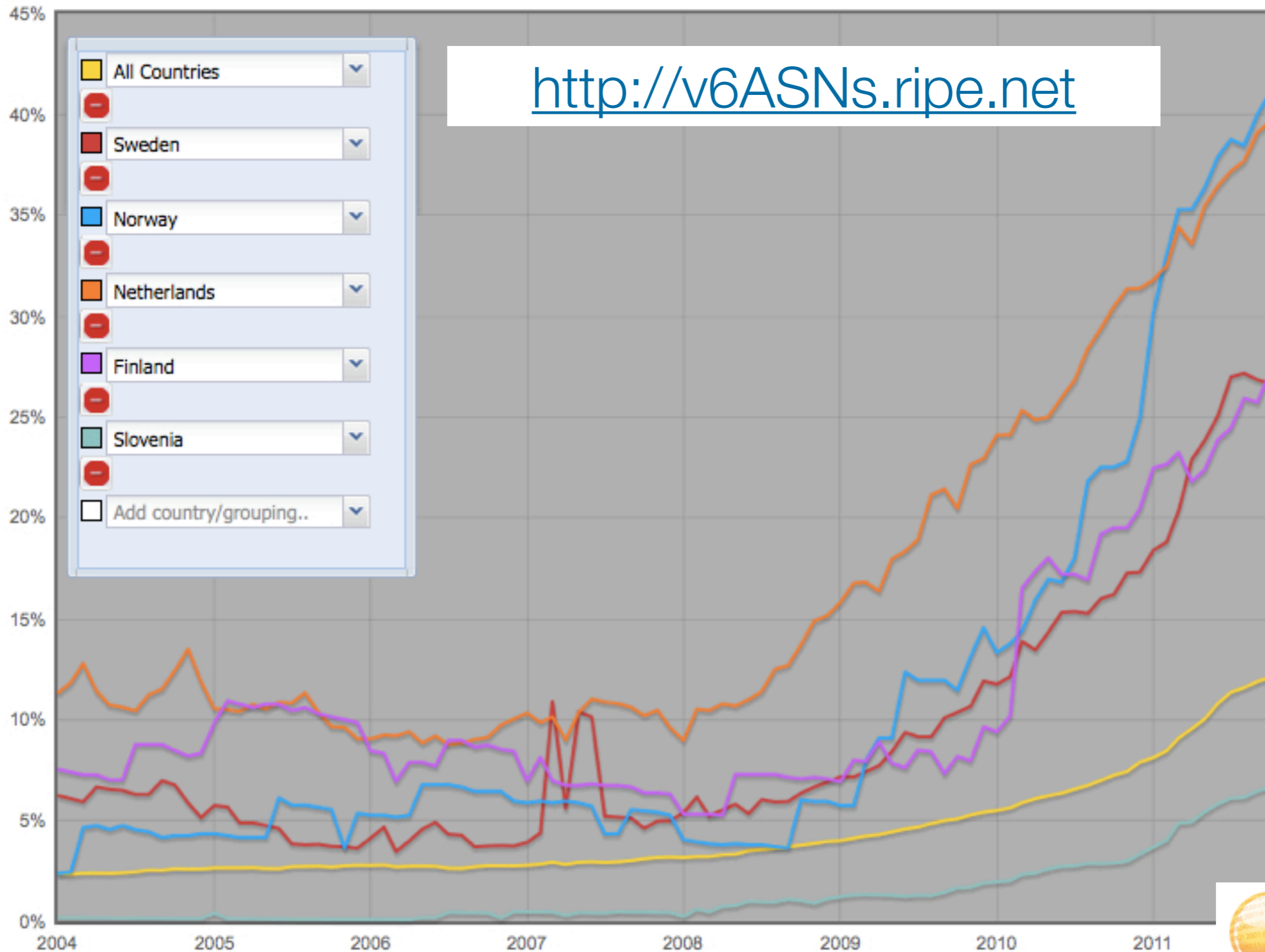
Scandinavia IPv6 RIPv6ness (5.10.2011.)



IPv6 RIPEness – relative (5.10.2011.)



IPv6 enabled ASes in global routing



RIPE NCC Measurements Tools: Summary

- Tools for YOU
- Please support us by
 - Using the tools
 - Giving us feedback
 - Taking part in the community effort to improve the measurements on the Internet, together
- Credits: Giordano Di Loza, Emile Aben, Mirjam Kuehne, Daniel Karrenberg

Questions?

