



IPv6 Deployment Monitoring

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Contents

- Measurements
 - Objective
 - Approach
 - Intermediate Results
 - Next steps

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 - Intermediate Results
 - Next steps

Measurement objective

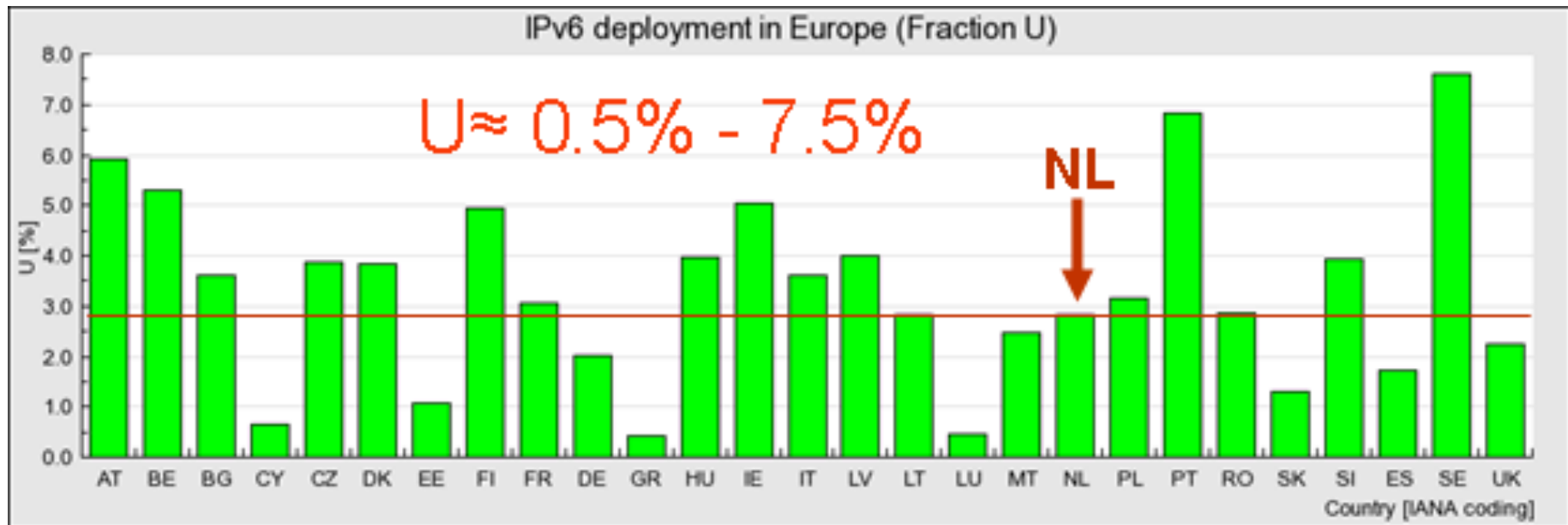
The fraction of unique users that is able to connect to the IPv6 Internet and access their most important content and service providers without noticing a major difference compared to IPv4

Action Plan EC: Jacques.Babot@ec.europa.eu

Measurement approach

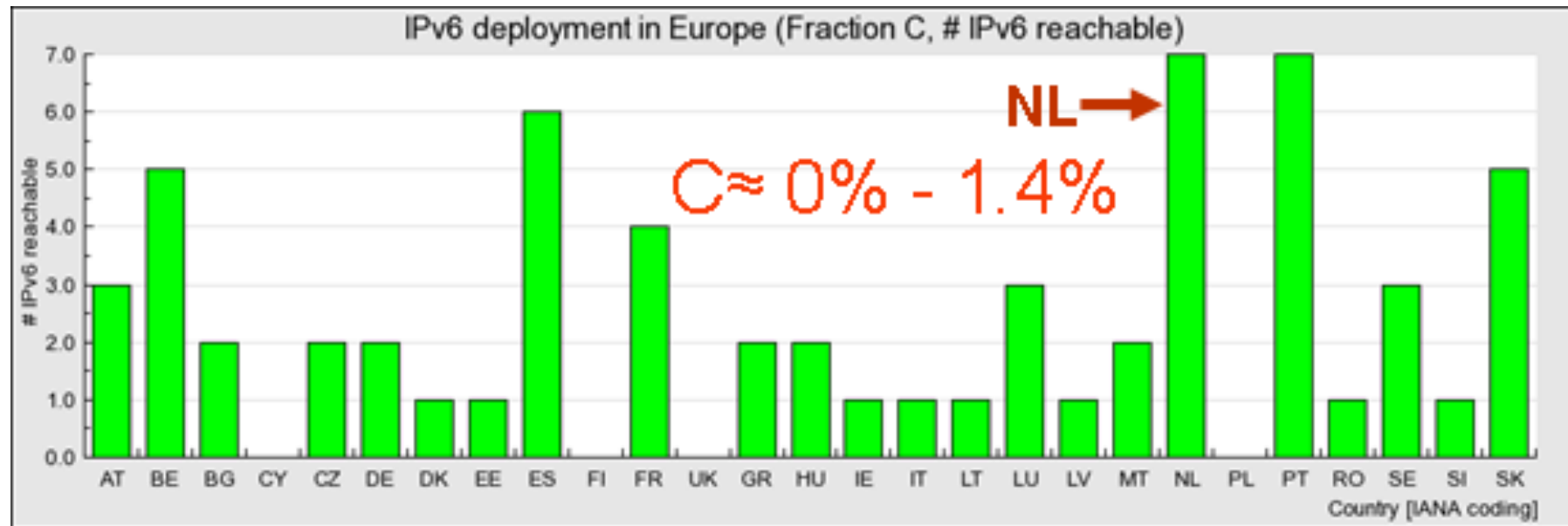
- Three metrics that determine IPv6 deployment:
 - U: ratio of *unique users* seen on IPv6
 - C: ratio of number of ALEXA-500 listed websites accessible on IPv6
 - R: ratio of IPv6 sites with performance not significantly worse compared to the same site accessed on IPv4

Measurement results (1/3): factor U



More users need to participate in the measurement campaign

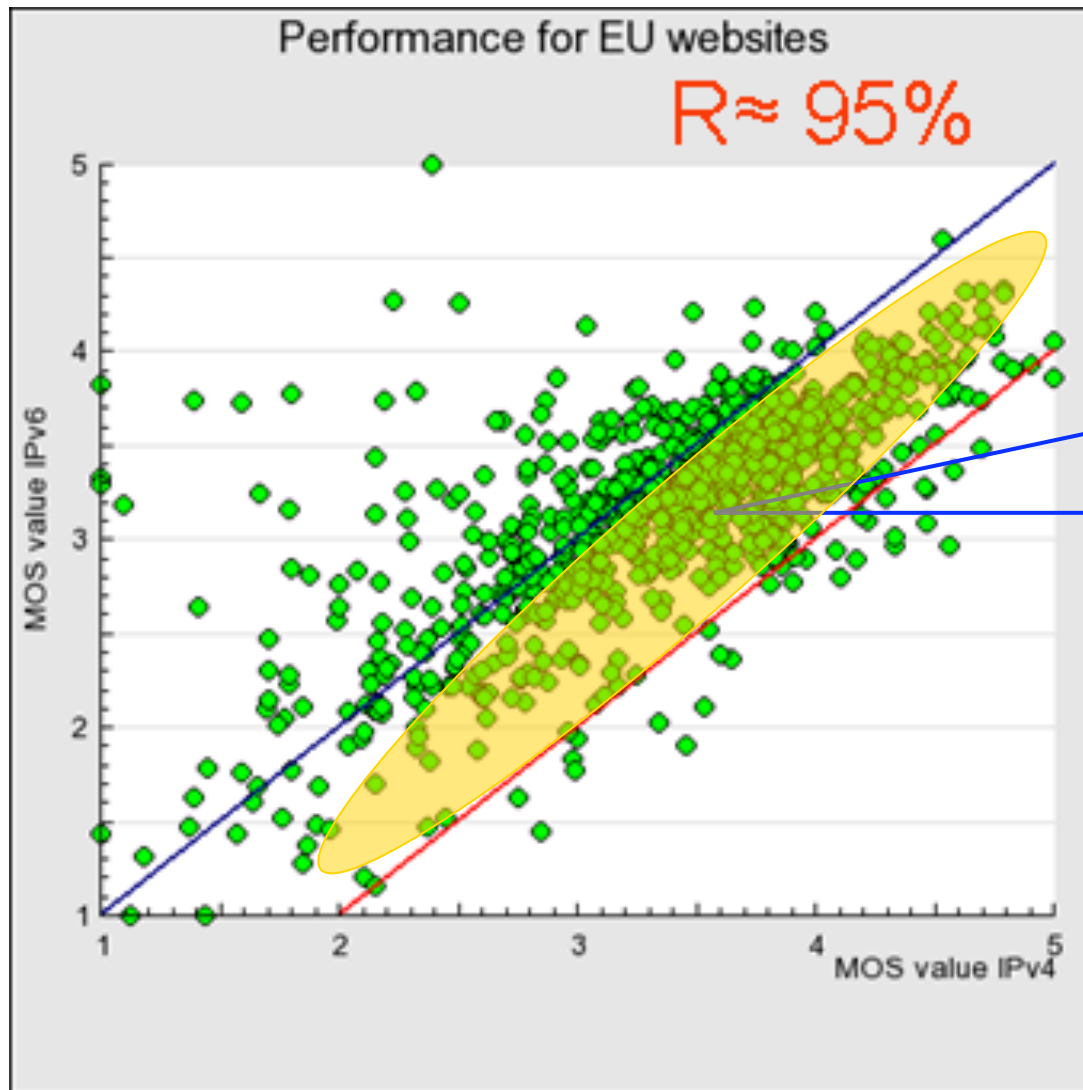
Measurement results (2/3): factor C



We expected more websites to be accessible over IPv6.

- Less need for the popular ones!
- Too costly because of volume and complexity?

Measurement results (3/3): factor R



Suggests
Performance over
IPv4 to be better than
over IPv6

Sixy.ch directory for IPv6
accessible websites

Measurements – Next steps

- Increase number of websites to obtain more uniformity:
 - Partner with RIPE NCC is currently worked on
 - Leverage of more information that is enclosed in the data
 - Involve RIPE members
 - Involve non-RIPE webmasters and hosts
- Improve presentation of results:
 - Sliding time-window
 - Near real-time (automated) presentation of data
 - Improve performance of platform.

Survey objective

- Establish the best possible comprehensive view of:
 - present IPv6 penetration and
 - future plans of IPv6 deployment.

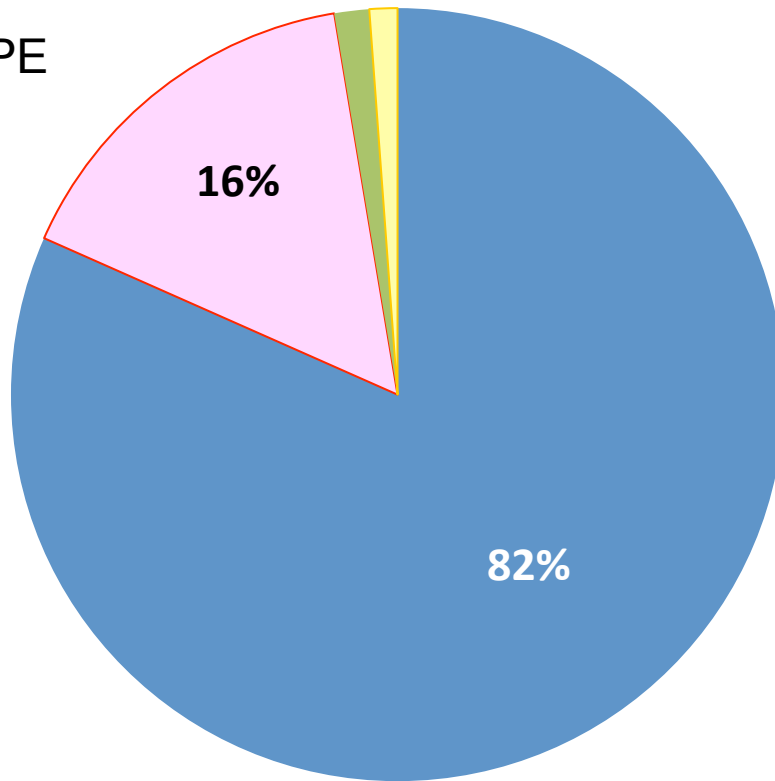
Involve Internet providers and users, basically: the RIR region participants

Survey approach

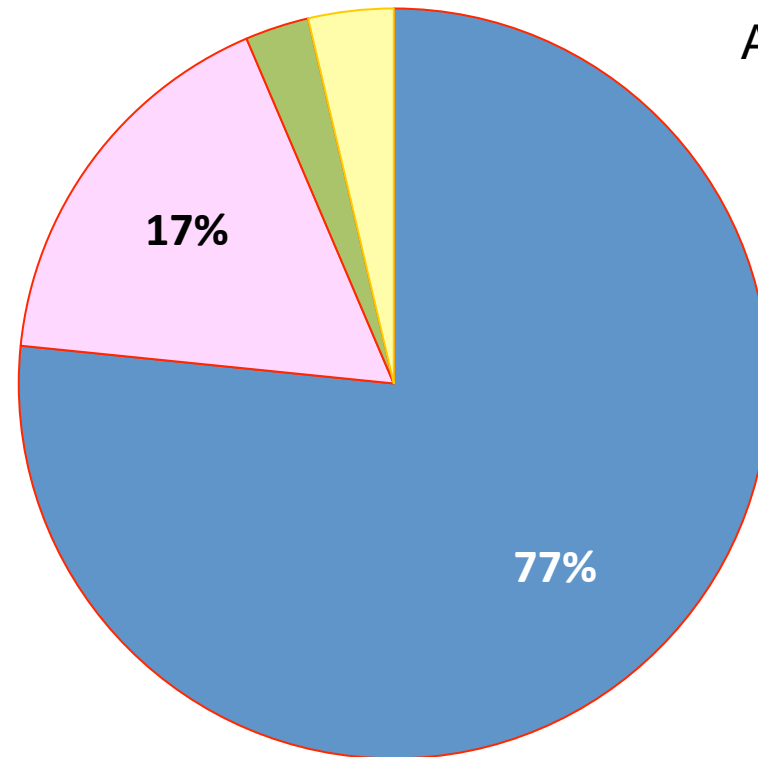
- A first survey was carried out by ARIN with its members in March 2008. This provided a starting point for the currently proposed survey, that was also carried out in 2009, in the RIPE and APNIC region:
 - Survey was prepared and carried out by TNO/GNKS in close collaboration with RIPE NCC. It was kept short, and focused on essentials. More than 1000 replies were collected.
 - The results were shared with the RIPE and APNIC community
 - Privacy is guaranteed

Survey results

RIPE



APNIC



- IPv6 traffic is insignificant
- IPv6 traffic is less than IPv4 traffic
- IPv6 traffic is same as IPv4 traffic
- IPv6 traffic is greater than IPv4 traffic

source: TNO/GNKS 2009

Survey results

We thank all 2009 respondents
for their contributions !

- More than 70% indicated their willingness to collaborate to further follow up questions
- More than 90% indicated their willingness to respond again, next year

Survey – Next steps

- In 2010, we want to include all RIRs in the survey
 - time line preparations with RIRs: upto May
 - time line measurements: June
 - time line presentation: Sep
- It is our intent to repeat the Global Survey in 2011 and 2012. To make this possible, additional funding will be sought.

Intermediate conclusions (more info in D-S2)

- ISPs are key actors in this transition: they need to move first by enabling IPv6
- Governments can play a role, most importantly by raising awareness on the real issues
 - support sharing knowledge
 - adopt/use IPv6 themselves
 - implement financial incentives



www.ipv6monitoring.eu/

Questions regarding the measurements:

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& survey:

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Time line

- March: proposal (for measurements in 2010, 2011 and 2012) from GNKS/TNO discussed with RIPE and APNIC
- April: Reaching out to other RIRs
- May: final preparation, pre-announcements
- June: measurements
- September: presentation of results*

* Results will be shared with all participating RIRs, European Commission, OECD and ISOC

This survey could not have been done without the help of RIPE NCC, and APNIC

Thanks to the European Commission who has made this possible by granting GNKS Consult and TNO a study contract on IPv6 Deployment, in line with the EU IPv6 Action Plan

Thanks to all RIPE members that helped improve the survey instrument, before it was launched.

Thanks to RIPE and APNIC staff for support and help, and for sending out the survey to their mailing lists.

Special thanks to KC Claffy (CAIDA), Karine Perset (OECD), Leslie Daigle (ISOC), Paul Rendek and Nick Hyrka (RIPE NCC), Miwa Fujii and Paul Wilson (APNIC) for their feedback, advice and support.

The European IPv6 Web Site



http://ec.europa.eu/information_society/policy/ipv6

Questions regarding the Action Plan to the
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