



# IPv6

## IPv6 deployment monitoring



**A user centered approach**

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# Proposed EU IPv6 Survey

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# Why IPv6 Deployment Monitoring?

- The Internet has become a fundamental infrastructure, worldwide, for economic and social activity, and its usage continues to grow exponentially:
  - More users
  - New applications (eg mobile, RFID etc)
- The transition from IPv4 to IPv6 is the only sustainable option, in the long run.
- A smooth transition requires understanding the challenges, and a timely start.



# European IPv6 Action Plan

## May 2008

- Preparing for the growth in Internet usage and for future innovation
- Maintaining Europe's competitiveness
- So ... what can be done?



# Basically, it's simple

- The European Commission and Europe's Member States are committed to support a smooth transition towards IPv6, for clear public interest reasons
- Yet the IPv6 transition will be driven by the Internet community
  - Providers
  - Users
- How about making sure the European Commission knows what could be done, usefully, to help ensure that smooth transition?
  - Make sure we really understand the scope of the problem
  - Identify the bottlenecks
  - Propose useful steps to support the transition



## IPv6 Deployment Monitoring project: putting the facts on the table



- Measuring:
  - deployment in EU countries (% end users)  
These are source address based on passive measurements
  - availability (% IPv6 web-based services)
  - differences between IPv4 and IPv6 performance  
These are measurements on quality of service
- Information gathering:
  - Global sources
  - Key informant interviews
  - IPv6 Survey

The 2008 ARIN/CAIDA IPv6 questionnaire will be used as a starting point. Short and simple Internet-questionnaire ( $\pm 20$  questions) in co-operation with RIPE NCC and European Commission.



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*More details on measurement approach:  
AMSIX meeting on 8 May.*

## What about the survey ?



- Aim is to establish the best possible comprehensive view of present IPv6 penetration and future plans of IPv6 deployment
- Best way to establish this is to ask the Internet providers and users, basically: you!
- ARIN carried out such a survey with its members in March 2008, a starting point for the currently proposed survey
  - Survey will be carried out by TNO/GNKS in close collaboration with RIPE NCC, and seeks responses from RIPE members
  - Survey will be kept short, and focused on essentials
  - Privacy will be guaranteed: no data will be presented to anyone outside the survey team that can be related to individual respondents, unless explicit permission has been given

# IPv6 Deployment Survey - Outline

- 1<sup>st</sup> section: establish “profile” of responder
- 2<sup>nd</sup> section:
  - For responders not considering deployment of IPv6: why?
  - For all others:
    - Motivation
    - (Expected) hurdles
    - Experience
    - Plans
- 3<sup>rd</sup> section: other information of importance, and optional identification of responder in case of availability for follow up questions



# IPv6 Deployment Survey – Example

## Biggest hurdles according to ARIN members

- Cost, time, business case 36%
- Vendor support, back office 24%
- knowledge and education 18%
- User demand 18%
- Upstream Transit 18%
- Dual-stack interoperability 14%
- Multi-homing 4%
- allocation policy 2%
- Performance 2%

Source: ARIN/CAIDA survey  
2008





## IPv6 Deployment Survey – Proposed approach

- Draft questionnaire is ready for comments
  - We seek volunteers to provide feedback on its current set-up
  - Email interaction, facilitated by [maarten@gnksconsult.com](mailto:maarten@gnksconsult.com)
  - Final questionnaire input by 15 May
- Survey “in the air” for 2 weeks in June
  - Invite by RIPE NCC to all its members
  - When needed, additional week
- One question is “Participate again?”
  - With 50% or more positive response, repeat next year
- Questionnaire and results to be public

## Your assistance is essential

- With the assistance of RIPE NCC and RIPE members, we can
  - find the right experts
  - reach the relevant stakeholders with the survey
- With the assistance of AMSIX and its members, we can
  - gather relevant high-level data

If we want policy makers to get it right, we need to grant them access to the right information!

- Know what data is used by policy makers
- Gain insight into IPv6 *user* volumes, yourself



Thank you!



We would appreciate your participation in the questionnaire and the facilitation of the measurements.

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# Sources

## European IPv6 Action Plan

[http://www.ipv6.eu/admin/bildbank/uploads/Documents/  
Commision/COM\\_.pdf](http://www.ipv6.eu/admin/bildbank/uploads/Documents/Commision/COM_.pdf)

## ARIN/CAIDA survey

[http://www.caida.org/publications/presentations/2008/arin\\_survey/  
arin\\_survey\\_qs.pdf](http://www.caida.org/publications/presentations/2008/arin_survey/<br/>arin_survey_qs.pdf)

## ARIN/CAIDA survey results

[https://www.arin.net/participate/meetings/reports/ARIN\\_XXI/PDF/  
monday/IPv6\\_Survey\\_KC.pdf](https://www.arin.net/participate/meetings/reports/ARIN_XXI/PDF/<br/>monday/IPv6_Survey_KC.pdf)

# Survey Question examples



What motivated your organization to consider having an IPv6 allocation/assignment? *(multiple answers may apply)*

- Customer demand
- Couldn't get enough IPv4 addresses
- Want to benefit from the advantages of IPv6 as soon as possible
- Want to be “ahead of the game”
- To make sure IPv6 is supported in our products
- Other (please specify)

What has been (or will be) the biggest hurdle(s) to your organisation deploying IPv6?

- Costs (required financial investment/time of staff)
- Vendor support
- Availability of (knowledgeable) staff
- Information security
- Business case (including user demand)
- Other (please specify)



If your organization has tried IPv6 in production, but then turned it off, why? *(multiple answers may apply)*

- o Technical problems
- o Lack of user demand
- o Budget issues
- o Other (please specify)

# Examples of ARIN/CAIDA Survey Results

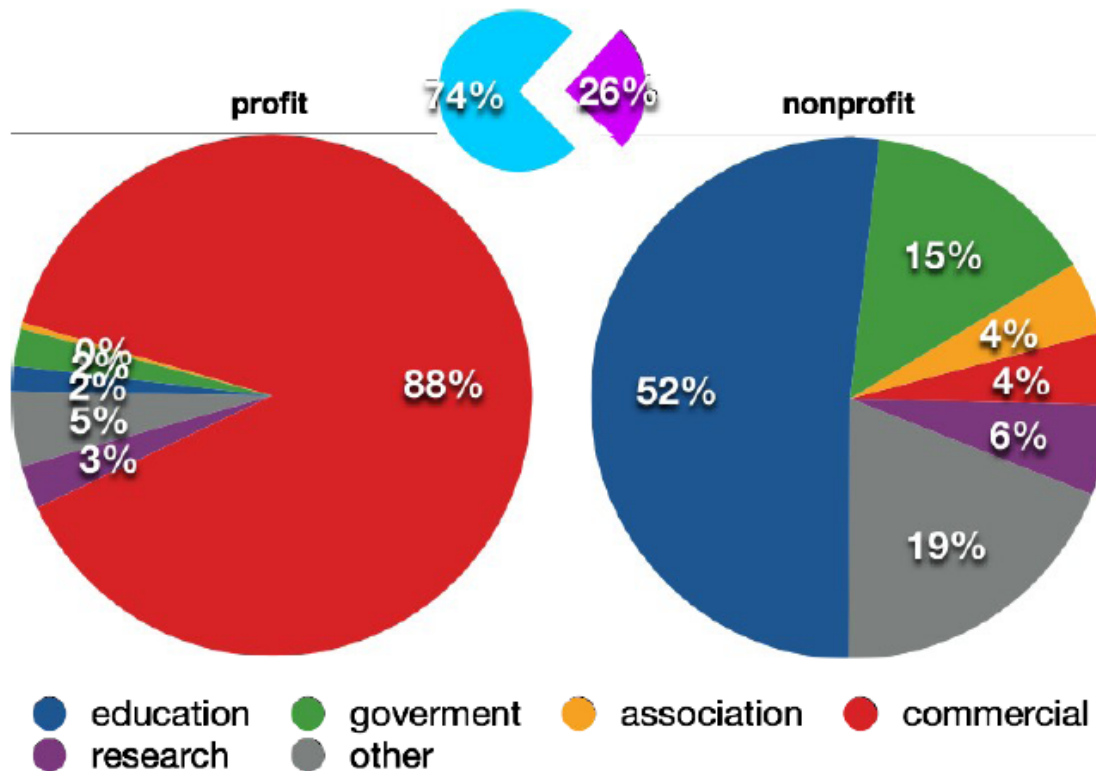


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# IPv6 Deployment Survey - Approach



Depiction of results through pie charts (example):

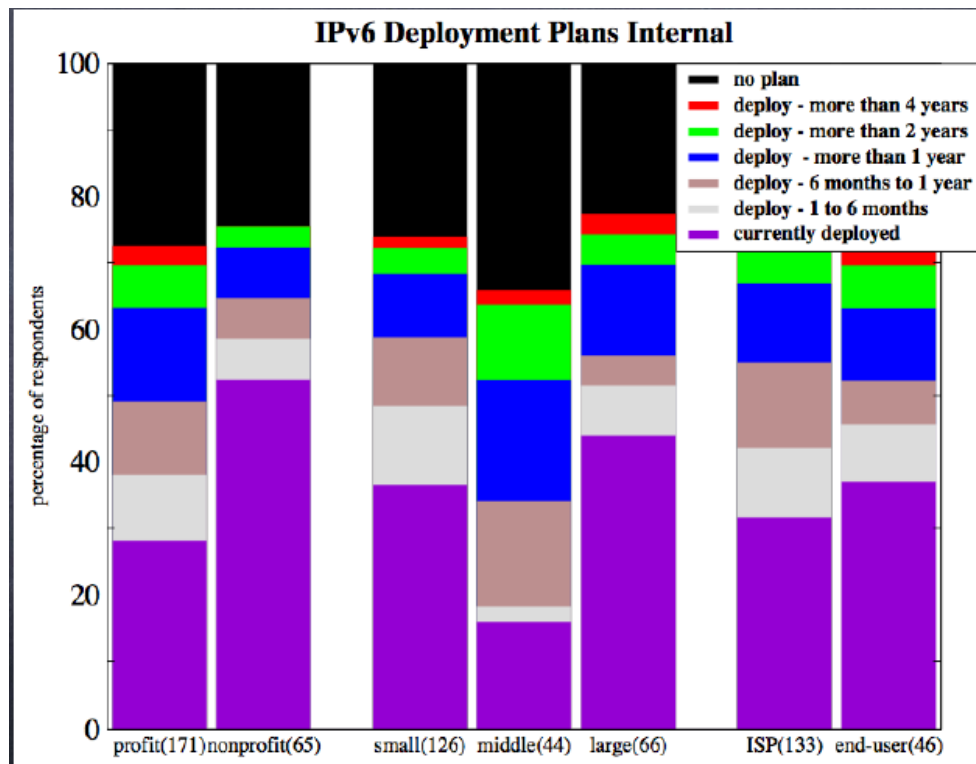


Source: ARIN/CAIDA survey 2008

# IPv6 Deployment Survey - Approach



Depiction of results through bar graphs (example):



Source: ARIN/CAIDA survey  
2008



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