IPv6 migration

"No customer demand"

- Often heard from operators
  - But why should there be a demand?
  - We are running out of IPv4 addresses, and end-users just want their applications to continue working
- IPv6 does not bring new services - just more addresses
  - And will enable the customer base to keep growing

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Deployment

- Deployment of IPv6 capable hardware / software is incremental
  - As it should be
  - No associated additional revenue - just part of normal upgrade cycles
- Upgrades just for IPv6 makes no *short-term* commercial sense

Digital divide

- Operators in the developed as well as developing world faces the same challenges
  - Lack or commercial drivers
  - Run out of IPv4 addresses
- Developed world needs to upgrade all cable-TV modems, DSL-modems, home gateways, firewalls etc.
- Developing world might actually have an advantage!

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Operator upgrades

- Most backbone equipment is most likely IPv6 capable already
- We miss operational experience
  - And most likely tools
- Vendor pricing has previously worked against deployment - **but is changing**

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End-users

- We are urgently lacking support for IPv6 in end-user equipment
- Not all users can / want to migrate (yet)
  - For these the IETF is working on protocols to help leave "IPv4 islands" behind
  - This will also help bringing the IPv4 and IPv6 networks together

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Software

- Most software in use today support IPv6
  - At least in recent versions
- Enterprise applications might still need to be upgraded
- The IPv4 / IPv6 bridging technology being worked on by the IETF will be crucial for a smooth deployment

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Effects on my results?

- Upgrades part of normal CAPEX cycles

- Deployment and training will hit OPEX

  - But training and network upgrades should already be part of your OPEX

- IPv6 should be marginal cost

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Effects on my results?

- Very hard to separate out true cost for IPv6 deployment
  - Also not very interesting
  - You need to invest to keep the ability to grow your customer base
- IPv4 run-out is getting very close

Is there real deployment?

- Freetelecom in France have 250,000 triple play customers that actively ordered IPv6
  - Free of charge
  - One (the?) largest broadband IPv6 deployments
- Google's services

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