

BIS Perspective on the likely IPv4/IPv6 Migration, and the Way Ahead with 6UK





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with thanks to Jim Reid, 6UK





Introduction – what we are going to look at

- Problem
 - Business needs
 - Public policy considerations
- What BIS has done so far
- What is happening next





IPv4 is running out...

- IANA runs out of /8s in 2011
 - RIRs run out of IPv4 blocks in 2012
- What comes next?
 - Lots more address translation
 - Likely market in IPv4 address space
 - Widespread IPv6 adoption/migration
- Probably a combination of all 3





Public Policy Considerations

- What is optimum long term solution?
- Impact on national competitiveness can UK organisations get enough address space?
- Convergence trends: telephony/TV
- Fairness of any emerging market solutions
 - Consumer confidence, competition issues, etc.
- How best to achieve a transition to IPv6?
 - Least user/institution costs & confusion





Difficult decisions

- Negligible IPv6 deployment and usage to date
- Almost no IPv6 content, so few users/ applications
- Few users/applications because little IPv6 content
- IPv6 perceived as being "experimental"
 - Hardly any mass-market CPE supports IPv6
 - Limited number of ISPs offer IPv6 connectivity





BIS Workshops – Outcomes 1

- Industry soundings in workshops
- Mixed:
 - Some saw little business justification for IPv6
 - No killer app or customer/user demand
 - First mover advantage for some others
 - General wait and see attitude
 - "Drivers for IPv6 won't emerge until lack of IPv4 starts to hurt"
- Have an "IPv6-ready" mark for CPE?





BIS Workshops – Outcomes 2

- No real surprises....
 - Not much usage of IPv6
 - Awareness of IPv4 run-out largely confined to ISPs and telcos
 - More education and awareness needed
 - Focus of IPv6 uptake is avoiding future problems
- Need to raise awareness, suggest migration paths, educate, encourage IPv6 adoption and so on so that all happens together in cost effective way



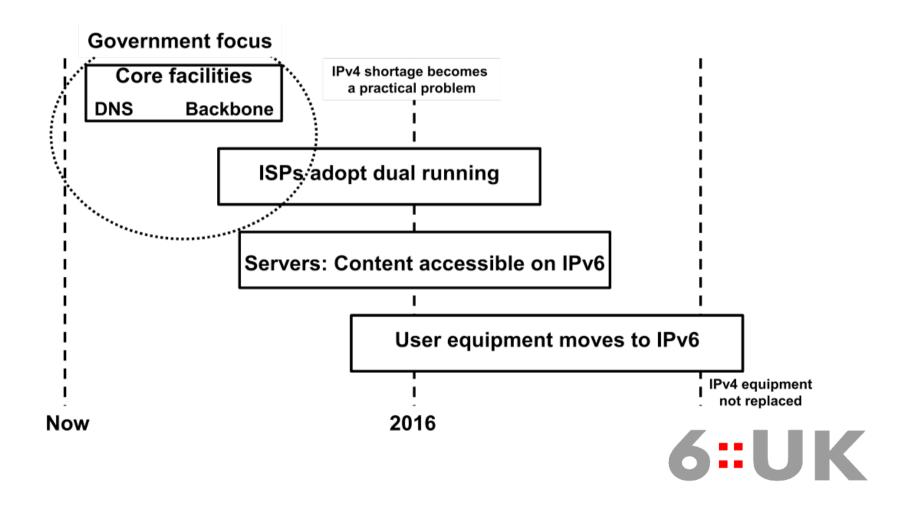
A Possible Migration Plan

- Focus on the core of the network and build out to the edge:
 - IXes, major carriers, backbone routers, etc.
 - "Important" DNS servers
 - Key web and mail servers
 - Open question: how to get more IPv6 content?
 - Regional and local ISPs
 - Organisations and end users





Tentative Timeline





General Principles that evolved - 1

- It is a long term issue and Government isn't going to fund an IPv4-IPv6 migration
- Migration/transition activity should begin at the core of the Internet and gradually move outwards
 - Intention is to remove bottlenecks and blockages inhibiting market-led uptake of IPv6
 - Organisations can deploy IPv6 when they are ready
 - Needs suitable products and services in the market





General Principles that evolved - 2

- Migration/transition activity should be market-led
 - Up to service & equipment providers to offer IPv6 solutions commercially
 - Assumes core infrastructure is IPv6 ready
 - Organisations deploy IPv6 when it suits them
 - Public sector uptake will proceed in tandem with UK industry/business
- BIS will work with governments and others to identify migration milestones



UK AND IPv6

- Difficult to measure take up of IPv6 very small amount of data uses it
- UK sits around the EU average take up on most measures of IPv6 readiness
- UK is in top 4 of EU states for amount of IPv6 traffic (still less than 1%)
- UK is working on extensive rollout of superfast broadband + we are introducing smart metering ⇒ IPv6 is the best long term way of underpinning these needs, if we can get it universal and cost effective



What is 6UK?

- Not for profit membership association
- Seed funding from UK government BIS
- Objectives:
 - Promote uptake of IPv6 and raise awareness about the IPv4 run-out
 - Provide a clearing house for information sharing, case studies, migration plans, advice, tools, etc.
- Aspiration is to get UK business (and other Internet users) IPv6-capable before IPv4 runs out





What is 6UK for?

- Raise awareness though education and outreach
 - Targeted training (largely for IT management)
 - Presence at trade events
 - Promotional activities & workshops
 - Forum to exchange knowledge & experiences
 - Special Interest Groups?
 - Procurement panels
- Creative commons licence for 6UK material





The journey begins

- Launch event in London with personal attendance by Vint Cerf in November 2010
- Members starting to join
- Join us at <u>www.6uk.org.uk</u>

