



IPv6 to the Home

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Background (continued)

- Seven years and counting...
- Initial preparations focused on the internal use of IPv6 for device management
 - Provided the building blocks and prepared diverse infrastructure for subsequent deployment phases
- Evolved early on within Comcast to include IPv6 service enablement
 - Before IPv6 adoption picked up across service and content provider ecosystem (> 4 years ago)

Background

- Primary focus is enabling IPv6 support for high speed data services
 - IPv6 support for others services currently being planned
- What is taking so long?

Motivation (continued)

- The Chicken and Egg conundrum was no longer relevant
- Focus on infrastructure readiness required to deliver production grade services over IPv6
 - Design, development, trial, and deployment
 - All non-trivial tasks, each requiring a great deal of time and planning
- Initiate trials and deployment planning to motivate and stimulate Internet ecosystem
 - Content and services
 - Home networking
 - Consumer electronics
 - Cable specific technology readiness

Motivation

- Doing nothing results in perpetual reliance on IPv4
 - Ultimate goal, divorce from IPv4
 - Relying on IPv4 or IPv4 life support is not a plan
- The seamless introduction of and transition to IPv6 is paramount
 - Advanced planning is an enabler of this objective
 - Transition technology avoidance

Path (continued)

- Like the introduction of any technology, incremental deployment and enablement are key
 - IPv6 is no different and perhaps has greater applicability in this case
- Initial launches announced November 2011
 - Introduction of support for *native dual stack* standalone computer provisioning
 - Nationwide launch of standalone computer support for IPv6 underway since early 2012

Path (continued)

- Embraced a balanced, conservative approach to expedite launch activities while ensuring stability and seamlessness
- Trials and launch planning continued for IPv6 home networking
 - Select pilot sites recently launched for native dual stack basic IPv6 home networking
- Focus of basic IPv6 home networking support for IPv6
 - Comcast tested CPE or home routers
 - <http://mydeviceinfo.comcast.net>
 - Initially supporting a /64 IPv6 delegated prefix

Path

- Why only a /64?
 - Interoperability issues found during testing for prefixes shorter than /64
 - Most CPE or home routers can only support a /64
 - Goal was to launch sooner rather than later

Evolution

- Introduction of support for shorter delegated IPv6 prefixes
 - Largely to support expanded use of IPv6 within the home
 - Must be aligned and tested with CPE or home router capabilities
- Also provides the infrastructure for advancement and innovation

Innovation

- The initial preparation and deployment can be viewed as designing and deploying new roads
 - Now is the time to explore innovative opportunities
- Future innovation is not solely about IPv6, IPv6 should be viewed as an enabler
 - Advanced, intelligent home networking and communications
 - Simplification of in home services
 - Others...

Challenges (continued)

- Initial launch orbits around one of our key CMTS platforms
 - Allow for significant coverage and enablement for Comcast customers
 - The remainder of the CMTS platforms must be production ready and launched to increase adoption rates
 - NOTE – the goal is migrate away from IPv4
- IPv6 home networking support is generally improving
 - Upgrade of home networking equipment is still required
 - May require purchase of new hardware or software upgrade

Challenges

- Internet based content and services must also support IPv6 by default
 - IPv6 must be turned on and left on
 - World IPv6 Launch
- Consumer electronic support for IPv6
 - Awareness building still required, followed by implementation
 - Like all other IPv6 introduction, must be seamless

Reactions

- Deployment of IPv6 has evolved over time, each phase building on the previous
- IPv6 efforts have evolved over time
 - Infrastructure readiness
 - Device management
 - Enabling services (e.g. broadband)
 - Content
 - Consumer Electronics
- Collaboration with the Consumer Electronics Association
 - IPv6 Working Group formed late in 2011

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