



IPv6@Comcast

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Deployment

- Over 25% (and growing) of Comcast's customers provisioned with native dual stack broadband
 - ~22% customer home routers
 - ~3 standalone computers
- IPv6 is deployed to over 75% of Comcast's broadband network
 - 100% completion targeted for early 2014
 - Enablement of IPv6 has been achieved largely through software upgrades

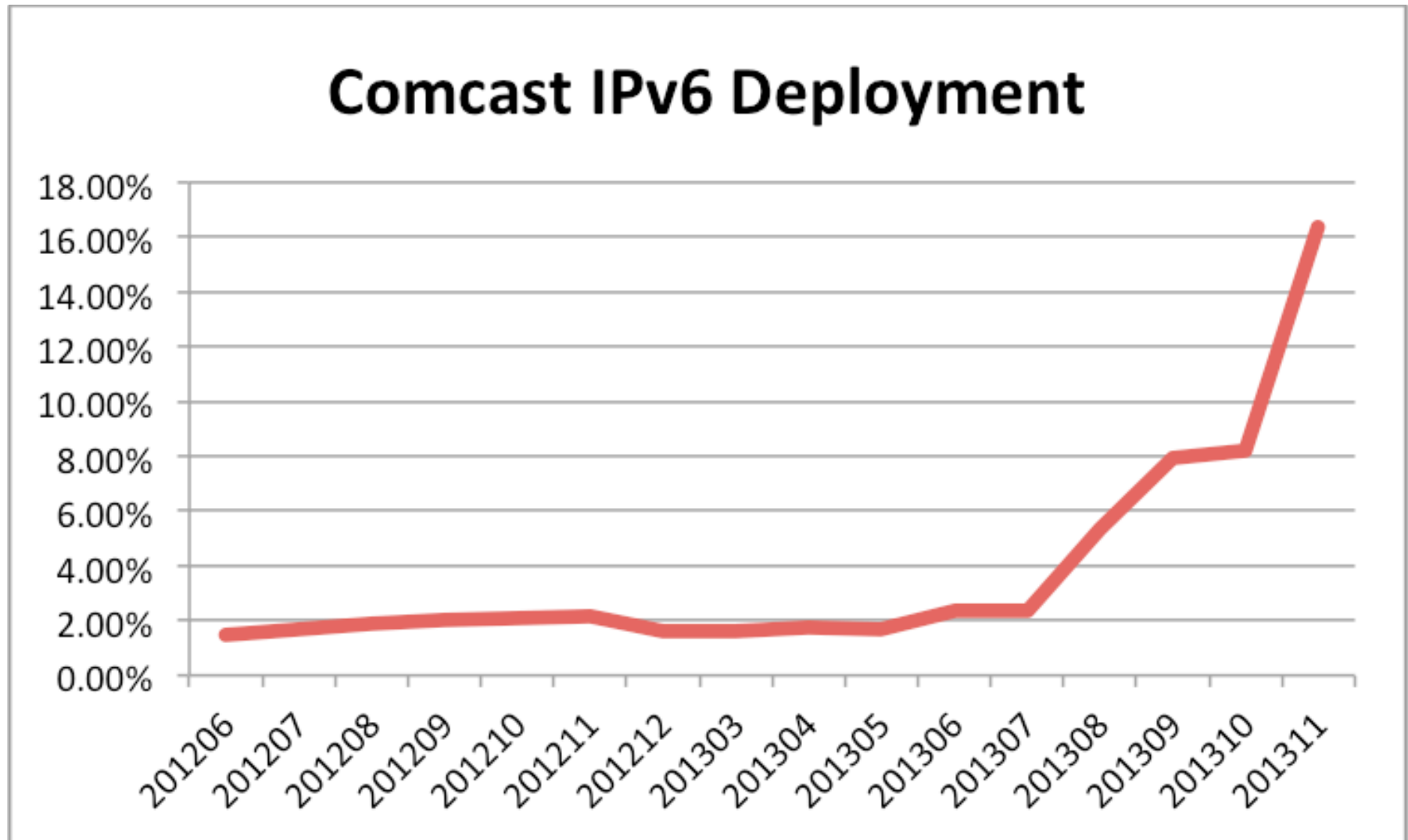
Deployment (continued)

- Significant increase in penetration planned in CY2014 and beyond
 - At least 50% increase by EOY2014
 - Combination of eRouter deployments and remote software updates
- Estimated 5% of actively provisioned customers are using a retail device that supports IPv6
 - The remaining 20+% is Comcast provided and managed

Deployment (continued)

- Introduction of IPv6 has been seamless for broadband customers
- Deployment focused on residential broadband to date
 - Additional cable modems and Comcast provided home gateways will be upgraded to support IPv6
- Commercial DOCSIS pilots underway, deployment targeted for early 2014
- Comcast Metro Ethernet service is IPv6 ready!

Deployment (continued)



Traffic

- Significant increase in traffic since January 2011
- Greatest increase observed beginning August 2013
 - Over 500% traffic increase
- Sadly IPv6 traffic is not growing proportionally to penetration
 - Comcast observes that just over ~5% of Internet traffic is IPv6
- CDNs, hosting companies, and consumer electronics manufacturers must enable IPv6 by default for all customers
 - Broadband providers did...

What else?

- All mainstream Comcast content is dual stack enabled
 - This includes our CDN
- Messaging platform also enabled to support IPv6
- IPv6 is used to manage various aspects of our network
 - Critical to manage IPv4 resource requirements

Motivations

- The obvious...
 - IPv4 depletion
 - Simplified infrastructure management
 - Transition technology avoidance or minimization
- What should be obvious...
 - Goal is IPv6 only Internet, divorce ourselves from limitations of IPv4
 - Ongoing IP resource management
 - Foundation for innovation

What's next

- Explore benefits of IPv6
 - Better performance
 - Additional operational benefits
- IPv6 support for all products and services
 - IPv6 only broadband
 - IPv6 only across the core network
 - Home automation and home networking advancements
- New consumer service creation enabled by IPv6

What's next (continued)

- Cable technology is leading the way for native IPv6 deployment
 - PacketCable 2.0 and DSG 3.0 for voice and video respectively
 - DOCSIS 3.0 and eRouter for broadband and home networking
- The bulk of this development was completed around 2007
 - Represents the basic use of IPv6 to enable services and manage resources

What's next (continued)

- The HIPnet project updates eRouter to ensure MSOs can advance the home network for the delivery of services over IP
 - Includes updates to harmonize with IETF working groups (v6ops, homenet, dnssd)
 - HIPnet is a key enabler for homenets in cable broadband networks
 - Homenet design team formed to ensure interoperability and incremental approach

Closing

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