ARIN
October 6, 2010

IANA Reserved IPv4 Prefix for IPv6 Transition

draft-weil-opsawg-provider-address-space-01

Agenda

- History Lesson
- Problem Statement
- Problem Solution
- Support

History Lesson

	NCP to IPv4	IPv4 to IPv6
Transition Plan	RFC801 in 1981	RFC5211 in 2008
Transition Date	1983	2011 IANA Exhaust
Mechanism	Flash Cut	?
BROKENNESS INTERVAL	6 MONTHS	?

Problem Statement

- IPv4 Exhaustion imminent – Q2 2011
- IPv6-Only Deployment not sufficient for widespread residential deployment
  - Many home CE devices only support IPv4,
  - Many applications only support IPv4 (e.g. Skype)
  - Most content is not IPv6 capable – 95+ percent per draft-arkko-ipv6-only-experience-01
- Providers must continue supporting IPv4 for multiple years
  - 6RD, NAT444 require IPv4 space in the provider's translation realm
- RFC1918 Problems
  - Large providers are running out
  - Overlap with enterprise or residential 10/8 problematic

Problem Solution

- draft-azinger-additional-private-ipv4-space-issues-04 explores 4 solutions for this space
  - Redefine existing unicast space as Private
  - Shared Operator Space
  - Do Nothing – Provider Dependent Solutions (Squat or Split Networks)
  - Redefine future use space – 240.0.0.0/4
- Recommendation: Use Solution that Sucks the Least
  - *Request IANA to reserve one /8 space as for Shared Use*
- Benefits
  - Most predictable solution
  - Best customer experience
  - Allows operators to focus on IPv6 Internet deployment

Shared Address Space

- Shared Address Space Defined

  "Shared Transition Space is IPv4 address space reserved for Service Provider or large enterprise use with the purpose of facilitating IPv6 transition and IPv4 coexistence deployment."

- Recommended Usage
  - SHOULD be used between CGN and CPE Router
  - SHOULD NOT be used by Home Networks
- Benefits of a single global allocation
  - Flexibility – allows for flexible transition scenarios in all but the largest providers
  - Efficiency – saves addresses usage across all service providers
  - RFC1918 Overlap – removes issues with overlap in the home or edge networks
  - Security – allows for simplified routing and security policy at network edges

Support for This Draft

- Received support from multiple large service providers representing over 80+ million broadband customers
  - AT&T
  - Telsta
  - NTT
  - KDDI
  - Time Warner
  - Cablevision
  - Charter
  - Rogers
- Contact the authors if you are interested in supporting
- Time is of essence

Related Work

- http://tools.ietf.org/html/draft-shirasaki-nat444-isp-shared-addr-04
- draft-ford-shared-addressing-issues-02
- draft-fuller-240space-02
- http://tools.ietf.org/html/draft-hain-1918bis-01
- draft-davies-reusable-ipv4-address-block-00