IPv4-IPv6 Co-existence: dual-stack lite

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- Internet Systems Consortium

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We've all heard the news....

- Unallocated IPv4 is running out
  - Gone in 2012? Sooner?
  - Functionally already gone for large network operators
- Applications aren't IPv6-enabled
- Content providers are mixed at best
- ISPs/access providers have to bridge the gap

IPv4-IPv6 co-existence

- A variety of technologies being discussed

- Some people think we'll just do more IPv4 NAT, or NAT64/DNS64, or Host-based dual-stack

- We're here to talk about dual-stack lite: https://datatracker.ietf.org/doc/draft-ietf-softwire-dual-stack-lite/

Dual stack lite

- Allows IPv4 applications behind IPv6 CPE to communicate with IPv4 servers and peers over IPv6 infrastructure
- One AFTR ("Address Family Transition Router") can handle many clients
  - Tunnel over IPv6 infrastructure
  - NAT to IPv4

How it works

- Network sees both IPv4 and IPv6 in use:
  - One IPv6 delegation for the customer site
  - One IPv4 delegation for the AFTR
- Customer sees "business as usual"
  - IPv6-aware applications can use Ipv6
  - IPv4-only applications Just Work

An open source implementation

- ISC with support from Comcast has released an open source implementation of dual-stack lite

- Distribution is:
  - Client side DHCP with functionality to set up tunnel (the "B4" element in the spec)
  - Server side tunnel concentrator/NAT (the "AFTR" element in the spec)

- http://www.isc.org/software/aftr

Try it out!

- Dual-stack lite is just one of the tools in the kit.
- We think the use case goes way beyond large access networks
  - If you're growing a network and can only get IPv6 addresses,
  - And you have an installed base of IPv4 end nodes....

We want to hear from you

- The usual open source mechanisms:
  - Mailing lists
  - AFTR Forum
- Look for us here, IETF, RIR meetings....
- Drop me or our product manager a line:
  - Suzanne Woolf (woolf@isc.org)
  - Larissa Shapiro (larissas@isc.org)