

## CED's IPv6 preparation primer

Although many service providers – including most major MSOs – are well into the process of adding support for IPv6, CED has been assured that as recently as last month (December), there was a startlingly large number of service providers of all stripes that hadn't even started planning for the transition, let alone initiated any preparations.

Incognito Software is one of the vendors that deliberately developed expertise in the area to help its customers make the transition. To help out those that haven't started their IPv6 planning yet, we asked Incognito CTO Chris Busch to draft a checklist of actions any company could use to start their transition, or maybe even to supplement plans already in process.

### IPv6 Checklist

- IPv6 delegation from RIR (Regional Internet Registry)
  - It all starts with your allocation of IPv6 space
- IPv6 hierarchy planning, design
  - With IPv6, it really does begin with the end in mind
  - Planning out use across your network to include:
    - v6 loopback interfaces
    - v6 peering interfaces
    - v6 core network space
    - v6 prefix space for each region
    - Planning space within each region to include modem and CPE /64 widths
    - Planning space, if applicable, within each region to include Prefix Delegation /48 or /56 space
- IPv6 space is large and onerous to manage, driving the need for IPAM planning and reporting tool
- Internal audit both network and application systems for IPv6 support
  - Router v6 routing and multicast
  - Web servers
  - Mail servers
  - Any other applications that will require or make use of IPv6
- DNS systems
  - DNS is critical to mixed IPv4 and IPv6 operations, implementing DNS 'Quad A' infrastructure if not already automated by IPAM tool
- DOCSIS and PacketCable provisioning
  - Systems need to support DHCPv6, DHCPv6-PD, CableLabs changes for IPv6, PacketCable 2.0, DDNS over v6, SNMPv2/3 over v6
  - Simultaneous operation and provisioning of IPv4 with IPv6 devices
  - Subscriber IP audit facilities for both IPv4 and IPv6
- Network monitoring and deep packet inspection
  - SNMP over v6
  - Network probe and promiscuous filter tool support for applications transport over IPv6
- Identify products sold today and how they may be impacted in a mixed IPv4/IPv6 or an IPv6-only deployment
- Customer client dependencies
  - These are the hardest devices to touch; many of them are beyond your control
  - Dual-stack modem support delivers the most seamless service possible
  - Tunneling techniques require investigation and planning where required
- Address network and subscriber client needs for CGN
- Test, test and more test

As should be obvious, adding support for IPv6 is not something that can be done in a couple of weeks. Comcast, for example, began testing various IPv6 strategies in the spring; in October, it reported that testing was successful – but was still ongoing.

Keep in mind that IPv6 could touch almost anything. Unexpected IPv6-related hiccups have popped up with everything from Microsoft's Windows OS to service provider billing systems.

Failure to move expeditiously toward support of IPv6 will have some serious ramifications for a service provider, ranging from not being able to support some of its customers' new consumer electronics devices to not being able to accommodate any new customers at all.

We hope this checklist will prove useful.