ITEC-4010-1 Week 1 Discussion: CIDR Alternative, Move to IPv6

Efficient IP address conservation is a must when considering IPv4 address space. This is apparent in the fact that sometime in the next three years available IP addresses will be exhausted (Huston, 2011). What this means is that there will be no more IPv4 Addresses left to allocate out, not that we will suddenly be unable to access the Internet.

With the introduction of CIDR, the IPv4 address range was extended by over two decades. Most likely, between NAT, DHCP, and FQDN/DNS IP sharing, the actual lifetime of IPv4 will extend well into the 20s. As such, we should not be considering a work around for IPv4, rather, we should consider moving on to IPv6 with all due haste.

IPv6 supports “2^128 unique IP addresses” (Das, 2008). While I will not go so far as saying we will never run out of IP addresses using this standard, 3.4028236692093846346337460743177e+38 addresses will last us well into the next millennium, in all likelihood (handing out 1,095,000,000,000 IPv6 addresses a day everyday will last 310,760,152,439,213,208,642,351,239 years). However, IPv6 is not IPv4, meaning it is not compatible with the current protocol standard of the internet. This means there will need to be a migration approach to moving production network to IPv6.

Back in ITEC 1020 I had this to say about IPv6 migration:

“[T]he overhead cost of switching an entire network to IPv6 from IPv4 is prohibitive to most organizations. Therefore, a hybrid setup is probably the best option for the foreseeable future.

Essentially, the organization would have its primary gateway to the internet setup using IPv6. All internal traffic would still be routed using IPv4. This would work as internally there is not likely to be more than 2^32 devices on the network (unless it is an enormously large organization). As such, IPv4 is not going to instantly dissappere with the advent of IPv6 functionality. Rather, it is more likely to slowly fade away (McClure, 2011).

By moving a network to IPv6 and avoiding the complications of further IPv4 CIDR (although there is still IPv6 CIDR), one ensure that their network is future proof against the changes which will occur over the coming years. IPv4 is legacy, the sooner organizations move away from it, the better.

Reference

Das, K. (2008). *IPSec & IPv6 - Securing the NextGen Internet*. Retrieved Dec 20, 2011, from IPv6.com: http://ipv6.com/articles/security/IPsec.htm

Huston, G. (2011, Feb 03). *IPv4 Address Report*. Retrieved April 17, 2012, from Potaroo: http://www.potaroo.net/tools/ipv4/index.html

McClure, J. (2011). *ITEC 1020: Week 3 Discussion.* Retrieved Dec 2011, from Walden University.

The Trustees of Indiana University. (2011, March 14). *What is a fully qualified domain name (FQDN)*. Retrieved April 18, 2012, from Indiana University: University Information Tecnoology Services: http://kb.iu.edu/data/aiuv.html