**DISCUSSION BOARD 2:**

1.) There are a lot of things to compare and contrast between IPV4 and IPV6

Address Length:

IPV6 uses a 128-bit address which allows for an extremely large amount of addresses that are unique. Right around 340 Undecillion

IPV4 uses a 32-bit address which only allows for around 4.3 billion unique addresses which we as a global population have already used. It is only still usable due to techniques such as Network Address Translation (NAT) which allows for us to use the same addresses over an over on private networks.

Address notation

IPV6 addresses are written in hexadecimal format with 8 groups of four characters such as 2001:Odb8:85f3:0000:0000:8a2e:0370:7334

IPV4 addresses are written in decimal format with four sets of numbers like 192.198.0.1

Auto-configuration:

IPV6 addresses support the ability for a device to auto-configure itself based on the prefixes of the network that it finds itself on, which makes set up a bit simpler in theory.

IPV4 address do not support auto-configuration and have to be set up manually or through a DHCP server.

Built in security:

IPV6 has IPsec built into it, greatly improving security at the network layer

IPV4 did not have security built in but it can have things like IPsec added to it.

2.) I believe that IPV4 will still be in use for a lot of the foreseeable future either due to the cost of upgrading to IPV6 compatible hardware or just some hold outs that don~~t want to change. I also believe that IPV6 is being steadily adopted but not at an extremely rapid rate. I am not currently employed but when I left the army they were starting to convert to IPV6 but it wasnt wide spread at that point yet.~~

~~3.) There are a lot of things that would have to change in order for UDP to take over for TCP. TCP is is a reliable, and secure protocol that has been widely adopted into the applications and networks worldwide. In order to switch over to UDP the protocol would have to be optimized performance and security wise, as far as I understand it is mainly used in situations where you want low latency. It would have to see widespread adoption, network admins would have to be trained in the best practices of the use of UDP and network hardware would have need to be able to effectively use UDP for things like Quality of Service (QoS) on the network which would likely require a little bit more development.~~