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Solo Work Week 3

1. Explain the difference between URLs, URIs, and URNs. Additionally, describe why the URL is most commonly referred to by internet users in general, and then discuss applications of each in creating networked applications.

A uniform resource identifier, or URI, can be a URL or a URN. A universal resource locator, or URL, is a combination of a protocol and location. For that reason, it is the most widely used. A URN, or uniform resource name, refers to a location, but doesn’t specify the protocol. Most often, URNs come up when dealing with resources shared over the network.

1. What factors accelerated the need to migrate from IPv4 to IPv6? Are there any situations in which we might need more than the 2128 unique addresses provided by IPv6?

Mainly the Internet of Things and the advent of mobile devices created a demand far beyond what was projected or expected. The only situation I could see us needing that many IP addresses, would be if we were to successfully mine asteroids and precious metals became a non-issue. Short of that, I don’t see us having enough copper and silver to create enough physical devices to use up all the addresses in IPv6.

1. How have network topologies changed and evolved in the last 20 years? How might they continue to change in the next 20?

We had to come up with NAT due to the limited number of IP addresses, smart switches replaced hubs, wires got thinner and their throughput greatly increased. Personally, I think lifi is going to see a big upswing. That would greatly reduce issues we see now with interference and packet loss, as lifi is unaffected by EMF radiation. It will require a new set of protocols to produce channels, perhaps a given device would only be listening on a very narrow band of the light spectrum so as to provide many channels.