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Week 10 Essay

Reflection on Internet Protocol Suite

The internet protocol suite is built on TCP/IP protocols (Transmission Control Protocol and Internet Protocol respectively). It was developed by the United States Department of Defense through DARPA. The first early research started with DARPA’s ARPANET in 1969. Later DARPA started working on other data transmission technologies. Eventually they started using a common internetwork protocol instead of relying on the network for reliability.

Initially the development of the internet protocol was not layered enough, it was built more as a monolithic design which would have created scaling issues. Eventually it was switched into a better design, specifically the TCP/IP protocols which divided the work very well and allowed for better scaling. It was so simple that it does not do anything except transmit data from one point to another. All real data manipulation and other useful processes are done at the end points of data transfer. TCP/IP only transfers data, it does not waste time doing anything else.

The protocol was first tested in several different universities. During the testing process the version developed from version 1 to version 4, and version 4 (IPv4) is still used in the internet today (along with the newer version IPv6). In 1975 the first test between Stanford and University College London was successful. Over the next few years, it would continue to be developed in research labs in universities. In 1982 the US Department of Defense declared TCP/IP to be the standard for all military networking. This was the start of mainstream adoption for TCP/IP. It was fully integrated into the existing ARPANET on January 1, 1983.

Over time the simplicity of only sending data and not performing other processes has slightly complicated. The need for firewalls and security have forced more complexity into TCP/IP. Overall, the system is still simple and tries to have as little computation along the way as possible. TCP/IP also still exists using the concept of layering. Specifically, the link layer, internet layer, transport layer, and application layer.