H.H.

Networking

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# Early Networks

For many years, scientists have tried to find ways for computers to connect and exchange information. With modern days, none can think of a world without interconnectedness as it has become mundane to our environment. The history of networks airs back to 1960, when networks were simple telephone networks, mainly using circuit switching to transmit data from a sender to a receiver. After the cold war, the US wanted to establish a complete communication network. Therefore, the idea of packet-switching was brought into use in contrast to connection-oriented circuit switching, where only two devices were able to communicate at the same time.

The concept of packet switching was to encrypt information in short messages with a fixed format consisting of a header and a payload in a connectionless manner, meaning no channel has to be established for two or more devices to communicate. In packet-switching, data is broken down into individual packets to reach a receiver. Since packets are independent from another, they travel different routes within a network. This often implied that packets were not arriving in the correct order as to prior when first sent. The receiver often had to reassemble the packets to read data from them.

In 1969, with the advent of the ARPANET (Advanced Research Projects Agency Network), the first connected computer network which later then was renouned as the “internet” was initiated. The ARPANET was developed by ARPA, a subset of the Department of Defence (DoD) with the intent to keep lines in communication in the case of hazardous exploits.

The ARPANET was a computer network consisting of only four nodes in its early forms,  
located in University of California at Los Angeles (UCLA), Stanford Research Institute (SRI), University of California at Santa Barbara (UCSB) and University of Utah. The ARPANET was expanded to connect to these universities, and later, clusters of networks were formed. This clusters of networks was later known to be the “internet”.

In 1974, Telenet was the first adaption of the ARPANET introducing the concept of an Internet Service Provider (ISP), with the idea that an ISP’s is to provide an uninterrupted internet connection to its customers with an affordable rate.

With commercialization, more and more networks were developed in different parts of the world, each using a different protocol for communication. However, it this issue disallowed to communicate between different networks seamlessly. To mitigate for this circumstance, the seamless network World Wide Web (WWW) was established.