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Title: An assignment on a brief history of computer network

Introduction: A computer network is a collection of devices/nodes which can share data and resource through a medium using some protocols. There is a sender node/device which sends some data to the receiver. The receiver receives data from sender. These nodes or devices may be computer, router, switch, hub. In these sending and receiving methods there are some rules need to be followed. These rules are called protocols. There is also need a transmission medium by which data are travelled. These transmission medium may be guided medium or unguided medium. Twisted pair cable, coaxial cable, fiber optical cable are guided medium. In unguided medium there are radio wave, micro wave, infrared wave. There are seven layers in data communication network. These are application layer, presentation layer, transport layer, data link layer, network layer, physical layer. These all layers work collaboratively to send and receive data.

History: Now we will make an overview on history of computer network. The evolution of computer network did not make overnight. It had took a long time to reach present situation of computer network. Let's see in briefly:

In the 1960s, computer networking was essentially synonymous with mainframe computing and telephony services and the distinction between local and wide area networks did not yet exist. Mainframes were typically "networked" to a series of dumb terminals with serial connections running on RS-232 or some other electrical interface. If a terminal in one city needed to connect with a mainframe in another city, a 300-baud long-haul modem would use the existing analog Public Switched Telephone Network (PSTN) to form the connection. The technology was primitive indeed, but it was an exciting time nevertheless. The quality and reliability of the PSTN increased significantly in 1962 with the introduction of pulse code modulation (PCM), which converted analog voice signals into digital sequences of

bits. DS0 (Digital Signal Zero) became the basic 64-Kbps channel, and the entire hierarchy of the digital telephone system was soon built on this foundation. Next, a device called the channel bank was introduced. It took 24 separate DS0 channels and combined them using time-division multiplexing (TDM) into a single 1.544-Mbps channel called DS1 or T1. (In Europe, 30 DS0 channels were combined to make E1.) When the backbone of the Bell system became digital, transmission characteristics improved due to higher quality and less noise. This was eventually extended all the way to local loop subscribers using ISDN. The first commercial touch-tone phone was also introduced in 1962.

In the 1980s, the growth of client/server LAN architectures continued while that of mainframe computing environments declined. However, the biggest development in the area of LAN networking in the 1980s was the evolution and standardization of Ethernet. While the DIX consortium worked on standard Ethernet in the late 1970s, the IEEE began its Project 802 initiative, which aimed to develop a single, unified standard for all LANs. When it became clear that this was impossible, 802 was divided up into a number of working groups, with 802.3 focusing on Ethernet, 802.4 on Token Bus, and 802.5 on Token Ring technologies and standards. The work of the 802.3 group culminated in 1983 with the release of the IEEE 802.3 10Base5 Ethernet standard, which was called thicknet because it used thick coaxial cable and which was virtually identical to the work already done by DIX. In 1985, this standard was extended as 10Base2 to include thin coaxial cable, commonly called thinnet.

The development of the Network File System (NFS) by Sun Microsystems in 1985 resulted in a proliferation of diskless UNIX workstations with built-in Ethernet interfaces that also drove the demand for Ethernet and accelerated the deployment of bridging technologies for segmenting LANs. Also around 1985, increasing numbers of UNIX machines and LANs were connected to ARPANET, which until that time had been mainly a network of mainframe and minicomputer systems. The first UNIX implementation of TCP/IP came in v4.2 of Berkeley's BSD UNIX, from which other vendors such as Sun Microsystems quickly ported their versions of TCP/IP.