

**ADDIS ABABA INSTITUTE OF TECHNOLOGY**

**CENTER OF INFORMATION TECHNOLOGY AND SCIENTIFIC COMPUTING**

**DEPARTMENT OF** **SOFTWARE ENGINEERING**

**Lecture One Based Assignment**

Prepared by: Nabek Abebe

Submitted To: Mr. Fitsum Alemu

February 2020

**1.History of Internet**

[1] The history of the Internet started in the United States in the early 1960s. This was the Cold War period, when the world was bi-polar; The United States and the Soviet Union were competing in expanding their influence in the world, viewing each other with great caution and suspicion. On October 4, 1957 the Soviet Union launched the first space satellite, Sputnik. The Sputnik success necessitated American reaction. It was a question of pride and leadership. The US Department of Defense responded by establishing the Advanced Research Projects Agency (ARPA, 2004), designed to promote research that would ensure that the USA to compete with and excel over the USSR in any technological race. ARPA’s mission was to produce innovative research ideas, to provide meaningful technological impact that went far beyond the convention evolutionary developmental approaches. One of the ARPA offices was the Information Processing Techniques Office (IPTO) which funded research in computer science designed to mobilize American universities and research laboratories to build up a strategic communication network (Command and Control Research) that would make available messaging capabilities to the government.

The Internet had its roots during the 1960's as a project of the United States government's Department of Defense, to create a non-centralized network. This project was called ARPANET (Advanced Research Projects Agency Network), created by the Pentagon's Advanced Research Projects Agency established in 1969 to provide a secure and survivable communications network for organizations engaged in defense-related research. In order to make the network more global a new sophisticated and standard protocol was needed. They developed IP (Internet Protocol) technology which defined how electronic messages were packaged, addressed, and sent over the network. The standard protocol was invented in 1977 and was called TCP/IP (Transmission Control Protocol/Internet Protocol). TCP/IP allowed users to link various branches of other complex networks directly to the ARPANET, which soon came to be called the Internet.

Researchers and academics in other fields began to make use of the network, and eventually the National Science Foundation (NSF), which had created a similar and parallel network, called NSFNet, took over much of the TCP/IP technology from ARPANET and established a distributed network of networks capable of handling far greater traffic. Businesses rapidly realized that, by making effective use of the Internet they could tune their operations and offer new and better services to their customers. So, they started spending vast amounts of money to develop and enhance the Internet.

In 1973, ARPANET was connected to international hosts. File transfer Protocol (FTP) came into existence and developed using a Client Server Architecture. The file-transfer protocol specified the formatting for data files traded over the network. FTP made it possible to share files between machines. Telnet, FTP and TALK were the first applications to become available on ARPANET and are still used in some form or another on the Internet today.

Also, in 1989, Englishman Tim Berners Lee, a researcher at the European research organization (CERN) in Geneva, proposed the idea of an international system of protocols. Building a distributed hypermedia server which would allow Net users to prepare electronic documents that are composites of or pointers to many different files of potentially different types, scattered across the world. Berners-Lee called it the World Wide Web (WWW). He wrote the first WWW client (a browser-editor running under and most of the communications software, defining URLs (Uniform Resource Locator, webpage address), HTTP (Hypertext Transfer Protocol between a server and clients) and HTML (interactive Hypertext Markup Language). His hypermedia software program enabled people to access, link and create communications in a single global web of information.

**1.1 Internet Now and Then**

[2] In 1984, when ARPANET was released from military control and began to merge with the National Science Foundation Network (NSFNET) to form what we now call “the Internet,” the cutting-edge hardware that carried its traffic pushed data at 56 Kilobytes(K) per second [4]. That’s a speed best remembered as the fastest possible in the not-so-distant days before broadband internet. By way of comparison, the average Internet access speed in the US today is 134 Megabytes (MB) per second according to the speed test website [5] which is about more than 150 times faster.

By 1998, there were approximately 150 million Net users in more than 60 countries, representing about 2.5 percent of the world’s population. The vast majority or 130 million of those users were located in the 15 most industrialized countries. Thus, despite its dramatic growth, large disparities in Internet access and usage persisted. A more accurate examination of the late-90’s Internet usage reveals a user rate of 6.5 percent in a small number of high-usage nations and only a 0.5 percent usage rate in the remaining 200 countries.

At the beginning of the 21st Century, the Internet embraces some 300,000 networks stretching across the planet. Its communications travel on optical fibers, cable television lines, and radio waves as well as telephone lines. The traffic continues to grow in a rapid pace. Mobile phones and other communication devices are joining computers in the vast network. Some data are now being tagged in ways that allow websites to interact. Today, the growth of cloud computing is providing powerful new ways to easily build and support new software. Because companies and individuals can rent computing power and storage from services like the Amazon Elastic Compute Cloud, it is much easier and faster for someone with a good idea to turn it into an online service. This is leading to an explosion in new uses for the Internet and a corresponding explosion in the amount of traffic flowing across the Internet.

**References**

[1] Raphael Cohen Almagor, International Journal of Techno ethics, April 2011

[2] Barry M. Leiner, Vinton G. Cerf, David D. Clark, Robert E. Kahn, Leonard Kleinrock, Daniel C. Lynch, Jon Postel, Larry G. Roberts, Stephen Wolff, Brief History of the Internet, 1997

[3] Internet live status, https://www.internetlivestats.com/, February 29, 2020

[4] National Science Foundation Network, https://www.livinginternet.com/i/ii\_nsfnet.htm, February 29, 2020

[5] Speed test, https://www.speedtest.net/global-index, February 29, 2020