The Internet

The Internet is a global, interconnected computernetwork in which every computer connected to it can exchange data with any other connected computer.

The Internet's History

Significant events in the history of the Internet.

1962- J.C.R. Licklitерconceives of the idea of a "galactic network".
1969 - ARPANETgoes online, connecting four computers.
1972 - Ray Tomlinson invents e-mail.
1983 - Internet protocols begin.
1989 - The World Wide Web is developed.
1994 - The first graphical Web browser is developed.
1995 - Barriers to commercial activity are lifted.

Hosts

A computer that is connected to a TCP/IP network, including the Internet. Each host has a unique IP address.

Internet Service Provider (ISP)

A company that provides Internet services, including personal and business access to the Internet. ISPs provide the following types of Internet connections

- Dial-up Connections
- Broadband Connections
- Internet Leased Lines

ISPs are connected to each other through Network Access Points (NAP)
Examples: SLT, Dialog, Etisalat, Lankacom, Suntel

Internet Backbone

The Internet consists of main cables which connect the main nodes (or segments) of the globally distributed network. Such Bus cables are known as Backbones.

Bandwidth

The amount of data that can be transmitted within a unit time. For digital devices, including the Internet, the bandwidth is usually expressed in bits per second (bps) or bytes per second.

Internet Usage

According to statistics the growth rate of the Internet users have been more than 500% from 2000 –2012.

Internet Technologies

The suite of communications protocols used to connect hosts on the Internet. TCP/IP uses several protocols, the two main ones being TCP and IP.

During the 1980s the **TCP/IP Protocol suite** was introduced by **Winton Cerf** and **Robert Khan,** which laid the foundation to the modern Internet.

Internet Protocol

IP specifies the format of packets, also called datagrams, and the addressing scheme. IP by itself is something like the postal system. It allows you to address a package and drop it in the system, but there's no direct link between you and the recipient.

Transmission Control Protocol (TCP)

Whereas the IP protocol deals only with packets, TCP enables two hosts to establish a connection and exchange streams of data. TCP guarantees delivery of data (Acknowledgement) and also guarantees that packets will be delivered in the same order in which they were sent.(Synchronization)

Intranet

A network based on TCP/IP protocols (an internet) belonging to an organization, usually a corporation, accessible only by the organization's members, employees, or others with authorization. An intranet's Web sites look and act just like any other Web sites, but the firewall surrounding an intranet fends off unauthorized access.

Extranet

An intranet that is partially accessible to authorized outsiders. Whereas an intranet resides behind a firewall and is accessible only to people who are members of the same company or organization, an extranet provides various levels of accessibility to outsiders. You can access an extranet only if you have a valid username and password, and your identity determines which parts of the extranet you can view.

Packet switching

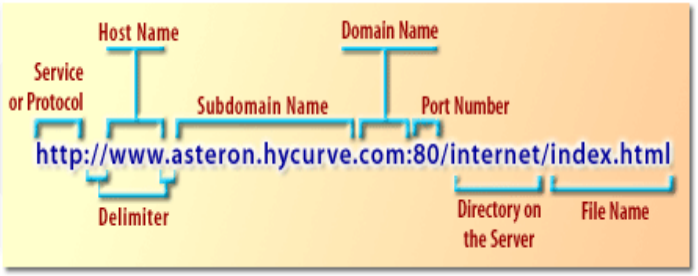
Introduced by **Leonard** Kleinrock. Which was later extended into a communication technique over the network by **Paul Baran**. Messages are divided into packets before they are sent. Each packet is then transmitted individually and can even follow different routes to its destination.
Once all the packets forming a message arrive at the destination, they are recompiled into the original message. Most modern Wide Area Network (WAN) protocols, including TCP/IP, X.25, and Frame Relay, are based on packet-switching technologies. Packet switching is known as a connection-less method of communication, as opposed to the PSTN with circuit switching where connection-oriented method is used.

Routing

The process of moving a packet of data from source to destination is called routing. Routing is usually performed by a dedicated device called a router. Each intermediary computer performs routing by passing along the message to the next computer until it reaches its destination marked by the IP address. Part of this process involves analyzing a routing tabletop determine the best path at a given time. Because the traffic patterns change with time, packets may take different routes to reach the destination.

URLs

Uniform **R**esource **L**ocator (URL) it is the global address of documents and other resources on the World Wide Web.



Cookies and Sessions

A **Cookie** is a message given to a Web browser by a Web server. The browser stores the message in a text file. The message is then sent back to the server each time the browser requests a page from the server. The main purpose of cookies is to identify users and possibly prepare customized Web pages for them. A **Session** is a cookie that is erased when the user closes the Web browser. The session cookie is stored in temporary memory and is not retained after the browser is closed. Session cookies do not collect information from the user's computer.

IETF

Short for **I**nternet **E**ngineering **T**ask **F**orce, the main standards organization for the Internet. The IETF is a large open international community of network designers, operators, vendors, and researchers concerned with the evolution of the Internet architecture and the smooth operation of the Internet. It is open to any interested individual.

Services provided over the Internet

- World Wide Web
- Email
- File transferring
- Chatting
- Electronic funds transfer (EFT)
- E-commerce
- Content Streaming

WWW

A system of Internet servers that support specially formatted documents. The documents are formatted in a markup language called HTML (Hypertext Markup Language) that supports links (hyperlinks) to other documents, as well as graphics, audio, and video files. Pages containing such links are called hyper media. This means you can jump from one document to another simply by clicking on hot spots. World Wide Web is **not** synonymous with the Internet.

Web Browsers

A software application used to locate, retrieve and also display content on the World Wide Web, including Web pages, images, video and other files. As a client/server model, the browser is the client run on a computer that contacts the Web server and requests information. Many browsers offer plug-ins which extend the capabilities of a browser so it can display multimedia information (including sound and video) Mobile browsers are typically "stripped down" versions of Web browsers and offer fewer features in order to run well on mobile devices.

Services on the WWW

- Newsgroups
- Portals
- Blogs
- VoIP
- Social Networking

Newsgroups

Same as forum, an on-line discussion group. On the Internet, there are literally thousands of newsgroups covering every conceivable interest. To view and post messages to a newsgroup, you need a news reader, a program that runs on your computer and connects you to a news server on the Internet.

Eg: Google Reader
News Crawler

Portals

A Web portal or public portal refers to a Web site or service that offers a broad array of resources and services, such as e-mail, forums, search engines, and online shopping malls.

Eg: www.gov.lk

Blogs

Short for We**b log**, a blog is a Web page that serves as a publicly accessible personal journal for an individual. Typically updated daily, blogs often reflect the personality of the author.

VoIP

Short for **V**oice **o**ver **I**nternet **P**rotocol, a category of hardware and software that enables people to use the Internet as the transmission medium for telephone calls by sending voice data in packets using IP rather than by traditional circuit transmissions of the PSTN.

There are many Internet telephony applications available. Some, like Cool Talk and NetMeeting, come bundled with popular Web browsers. Others are stand-alone products. VoIP also is referred to as Internet telephony, IP telephony, or Voiceover the Internet (VOI)

W3C

Short for *World Wide Web Consortium,* an international consortium of companies involved with the Internet and the Web. The W3C was founded in 1994 by Tim Berners-Lee, the original architect of the World Wide Web. The organization's purpose is to develop open standards so that the Web evolves in a single direction rather than being splintered among competing factions.