

Information Technology - INTERNET

Dr. GUVEN

Aerospace Engineer (P.hD)

Nuclear Science and Technology Engineer (M.Sc)

Information Technology & Data Processing Specialist

What is the Internet?

- Internet is the largest computer network in the world and it can be called the network of networks.
- Internet is a collection of more than 200,000 individual computer networks owned by governments, universities, non profit groups and companies.
- Internet is a massive electronic communications network amongst businesses, consumers, government agencies, school and public

ARPANET

- Internet was founded on a military network called ARPANET in 1969.
- ARPANET originally linked various military and government agencies as well as academic researchers and scientists.
- ARPANET allowed for sharing of resources between these parties

The Evolution from ARPANET to Internet

- ARPANET was widely used until the 1970's and its main communications network was picked up by USENET
- USENET was an academic network that linked up universities and research institutions.
- The Internet that was linked all across the world was not present until 1990's
- Nowadays, Internet is international spanning across all continents including Antarctica.

Infrastructure of the Internet

- Since it began as a US Government project, the international portions of the Internet are largely controlled and regulated by the United States.
- The service providers create the physical connectivity of the Internet and these service providers are:
 - Backbone Providers
 - Internet Service Providers (ISP)

Internet Connection

- In essence, the internet is a huge collection of computers that are connected by the world's largest WAN.
- With the internet, effectively every computer on planet Earth and even off planet computers are connected to each other.
- When you click a certain website, your signal actually passes through tens of computers called nodes.

Internet Service Providers

- Internet service providers are the companies that provide connectivity to the users
- Usually most internet service providers are telecommunications companies that offer landlines as well as mobile telephone services

Types of Internet Connection

- The types of internet connection that is available includes:
 - ADSL Broadband
 - Dial Up Internet through Landline
 - Cable Net
 - ISDN Net
 - Mobile Net through cellular network

Mobile Net Connections

- With the advent of 21st century, mobile internet use has become quite widespread. Some common ways of internet connection using mobile means are:
- 2G
- 3G
- Edge
- Dial Up

Addresses on the Internet

- Each computer on the Internet has an assigned address called IP (Internet Protocol) address.
- IP numbers have four parts separated by dots. Each computer on internet has an IP address such as 135.62.128.95
- IP addresses are translated into names by DNS or Domain Name System

Name Registration

- Names on the internet are registered through registrars.
- The main body that has control over the allocation of web names is ICANN or Internet Corporation for Assigned Names and Numbers (www.internic.net)
- Now by paying between \$9.99 to \$29.99, you can buy almost any kind of name from the net

Domain Names

- Companies called Registrars have the ability to sell you domain names. In actuality each domain name corresponds to an IP address.
- Typical domain names will have an extension of com, edu, mil, gov. org.
- Com = commercial
- Edu = educational
- Gov = government
- Org = organization
- Info = information
- Country abbreviations are shown by uk,ch, in etc
- www.upes.in etc.

Services Provided by Internet

- Some services provided by the net include:
 - E – mail
 - Social Networking
 - Usenet Newsgroups
 - Forums for Discussion
 - Chatting
 - Instant Messaging (MSN – Yahoo – AOL Messenger)
 - Websites
 - Cloud Data Management
 - Internet Telephony – VOIP
 - Streaming audio and video

Browsers

- Most of the activities on the net are done through browsers. Browser in essence is a way for your computer to decipher the data packets coming from the net.
- It translates the commands between the website and the user so that you can have a graphical interface to understand the data being presented to you.
- With today's browsers, you can easily get text data as well as animations, graphics, audio files, video files, real live streaming as well as online chatting etc.

Browsing

- The concept of browsing the net using browsers is called surfing.
- Web browsers offer a universal access as they deliver the same interface on any operating system that they run including Windows, MAC OS or Linux.
- Some popular browsers are:
 - Internet Explorer
 - Mozilla Firefox
 - Google Chrome
 - Opera
 - Safari

Search Engines

- Internet has become the most important platform for the distribution of information.
- The best way to reach information is by the use of search engines.
- Search engines crawl every web site on the planet and store them according to their relevance.
- Hence, when you search for a specific keyword, these search engines will try to spit out the nearest website that fits your needs

Major Search Engines

- Google is the most powerful and the most widely used search engine in the world.
- Using Google, you can find almost any information on the planet
- It is the first search engine to first index more than one billion web sites
- Some other search engines include:
 - Yahoo
 - MSN Search
 - AOL Search

Search Function in a Search Engine

- When a user enters a search query, the engine searches its database for relevant web pages.
- It matches the frequency of the keyword with the search parameters.
- Besides the frequency of the keyword, it will also look for relevance in content.
- The graphics and audio files as well as animations will have no weightage for that particular web site in a search.
- The popularity of a website through external links will also determine its ranking in the search results.

Search Engine Optimization

- It is essential that you worry about search engine optimization.
- Each website in the world is ranked in its relevance by each search engine.
- Hence, when you do a search on the net, you get results in the order of relevance and popularity.
- It is essential for a website to be ranked in the top 5 listings as others will not really be clicked.
- The concept of increasing your websites ranking in a search result is called Search Engine Optimization or SEO

Special Websites

- There are various special websites and web services that serve a special purpose.
- These include:
 - Blogs – internet articles
 - Twitter
 - Personalized web services

Internet Security

- Since most of our shopping and banking is currently done on the internet, security has become a very important issue.
- Encryption is the concept of scrambling outgoing data
- Digital Certificates are electronic identification cards that lets a business know that the person accessing that website is a valid user.

Intranet

- Intranet is a private network that uses internet software and TCP / IP protocols.
- In essence, an intranet is a private internet reserved for use by people who have been given an authority to use that network.
- Companies are increasingly using intranets powered by internal web servers to give their employees easy access to corporate information.
- Intranets are an effective medium for application delivery.

Applications of Intranet

- Document sharing
- Corporate telephone directories
- Human resources forms
- Training programs
- Customer databases
- Product catalogs
- Work manuals
- Organizational charts
- Electronic Bulletin Boards

Extranet

- Extranet is a type of inter-organizational information systems
- Extranets enable people who are located outside the company to work together with the company's internal employees
- Usually VPN s are used to access extranets.

Enterprise Information Portals

- EIP is a web based application that enables companies to access internally and externally stored information and provide users a single point of access to personalized information needed to make informed business decisions
- EIP integrates content management, business intelligence, data warehousing as well as data management applications

Data Warehouse

- External locations where the data can be stored.
- They are accessed through the net
- Cloud is a form of public data warehousing.
- The future trends are going for enhancing personal clouds