

NETWORK PROTOCOLS

- Refers to SET OF RULES
- In Network there are variety of computer connected to each other and data in many ways.
- For interaction among these, some rules are applied like how and when a device can send and receive data, how to send the data packet and how to receive etc. There are many protocols used like:
 - TCP/IP
 - FTP
 - PPP
 - HTTP
 - SMTP
 - POP3

TCP/IP

- Stands for Transmission Control Protocol and Internet Protocol
- TCP is connection oriented protocol i.e. first the connection between sender and receiver is established through process called handshake (RTS,CTS,ACK etc.)
- TCP divides the large packets to transmit into smaller data packets called datagrams.
- At the receiving end it also reassemble the packet for form original message.
- **IP (INTERNET PROTOCOL)** : responsible for providing address of each computer and performing routing. Each packet is assigned with destination IP address.

- Stands for File Transfer Protocol
- It allows transferring of files from one system to another like uploading of file from local machine to web server using FTP Client like FileZilla etc.
- FTP offers these advantages:
 - Useful to transfer files from one network to another
 - It is an effective way to get geographically dispersed group to co-operate on a project.
 - It is popular way to update web sites.
- It is not just name of protocol, but also name of program or command by typing ftp followed by another site and press enter.

PPP

- Stands for Point-to-Point Protocol
- Point - to - Point Protocol (PPP) is a communication protocol of the data link layer that is used to transmit multiprotocol data between two directly connected (point-to-point) computers.
- It is a byte - oriented protocol that is widely used in broadband communications having heavy loads and high speeds.

HTTP

- ◉ Stands for Hypertext Transfer Protocol
- ◉ Used to transfer all files and other data(resources) from one computer to another on the world wide web.
- ◉ Client(Browser) send request to Web Server using HTTP protocol and Server respond back to Client using HTTP i.e. Client and server over web communicate using HTTP protocol.
- ◉ HTTP is stateless protocol, various technique applied to make HTTP as State full like Cookies.
- ◉ See the format of URL:
 - <http://www.google.com>

SMTP

- ◉ Stands for Simple Mail Transfer Protocol
- ◉ **SMTP** is a set of communication guidelines that allow software to transmit an electronic mail over the internet is called Simple Mail Transfer Protocol.
- ◉ It is a program used for sending messages to other computer users based on e-mail addresses
- ◉ Port 25 (non-encrypted, unsecure)
- ◉ Port 465 (encrypted, secure)

POP3

- Stands for Post Office Protocol (Version-3.0)
- **POP3** is a client/server protocol in which e-mail is received and held for you by your Internet server.
- Periodically, you (or your client e-mail receiver) check your mail-box on the server and download any mail, probably using **POP3**.
- It also allows to download the received messages on local machine using tool like Outlook so that user can read them even when they are not connected to the Internet.
- Port 110, default POP3 used for unsecured email communication
- Port 995 – the encrypted port used for secured communication using POP3

- Voice over Internet Protocol
- It is a protocol that enables voice communication over the Internet through the compression of voice into data packets that can be efficiently transmitted over data network and then convert back into voice at receiving end.
- It uses packet switching (store and forward)
- It is an alternate to traditional telephone network.

Remote Login

- Remote login is a network application that permits a user sitting at a different location to work on a specific program on another program.
- The user need ID of that computer generated by remote login application.
- It is done only when both PC are connected to Internet.
- Mainly used by customer support system to do some installation, setting on client computer.
- The main programs are:
 - Telnet
 - AnyDesk
 - Team Viewer

Telnet

- Telnet is one of the earliest remote login protocols on the Internet.
- Telnet is a user command and an underlying TCP/IP protocol for accessing remote computers.
- Through Telnet, an administrator or another user can access someone else's computer remotely. On the Web, HTTP and FTP protocols allow you to request specific files from remote computers, but not to actually be logged on as a user of that computer.
- With Telnet, you log on as a regular user with whatever privileges you may have been granted to the specific application and data on that computer.

THANKS