Wednesday 7th July 2021

Computer Networks – Protocols

What is a protocol?

A Protocol is a set of rules which allows two (or more) devices to communicate.

Internet Protocols:

**TCP/IP** is used by computers to communicate to each other. It is two protocols in one – TCP and IP. TCP (or Transmission Control Protocol) is used by two routers to communicate. IP (Internet Protocol) is used for routing packets around WAN’s.

**HTTP (HyperText Transfer Protocol)** is a client - server method used for sending and receiving http files (web pages). **HTTPS** is a more secure version of HTTP.

**FTP (File Transfer Protocol)** is used for transferring files between computers.

Email Protocols:

**POP (Post Office Protocol)** – Downloads your emails from the server to your computer and removes them from the server. This means the only copy is on your computer.

**IMAP (Internet Message Access Protocol)** is used for viewing your emails from an email server, Unlike **POP**, a copy remains on the server.

**SMTP (Secure Mail Transfer Protocol)** is used for sending emails from your device to another device.

Layering Protocols

Layering is done to divide the complex task on networking into smaller tasks which work with each other. The hardware or software for each layer has a specific role and provides a service for the device in the layer above it. The advantages of layering are:

* Reduces complexity of the problem
* Devices can be designed to work at a specific layer (for example a Wi-Fi card)
* Products from different companies will work together

TCP/IP has four layers. They are – Application, Transport, Internet, and Link.

Application – Web Browser or Email Client.

Transport – Sets up communications between client. Agrees on settings, such as language.

Internet - Packages data into packets and routes it around the network.

Link – Physical hardware interface. Provides connection to the internet.