To move data across a network from point A to point B, the TCP/IP network provides a framework for transmitting this data. Each layer provides tcp/ip with the basic information it needs to move our data across the network. Each layer communicates with adjacent layers. The upper layer functions need not to be known by lower level layers.

**Physical layer**

It is responsible for actual connection between the devices. When receiving the data this layer will get the signal received and convert into 0’s and 1’s and send them to the data link layer which will put the frame back together. Hub, Modem cables are physical layer devices.

**Data link layer**

It is responsible for node to node delivery of the message. The main function is to make sure data transfer is error free from one node to another over the physical layer. It’s responsibility is to transmit it to the host using its mac address. Switch and bridge are dll devices.

**Network layer**

It is the transmission of data from one host to the other located in different networks. It also takes care of packet routing. Segment in network layer is referred as packet. It is implemented by networking devices such as routers.

**Transport layer**

It provides services to application layer and takes services from network layer. The data in the transport layer is referred to as segments. It is responsible for end to end delivery of the complete message. It also provides the acknowledgement of the successful data transmission and retransmits the data if an error is found.

**MAC Address**

Media Access Control Address is a unique identifier assigned to a network interface controller for the communication at the data link layer. It is used by media access control which is a sublayer of data link layer. It can be also known as physical address of a network device.

**IP Address**

Internet Protocol address is a unique address that devices used to identify itself and communicate with other devices in the IP network. Any device that is connected to the IP network must have a unique IP address within the network.

**TCP port**

It is a way to identify a specific process to which an internet is to be forwarded when it arrives at a server.

**Checksum check**

Checksum is a simple type of redundancy check that is used to detect errors in data.

**Routing table**

Routing table is a data table stored in a router that lists the routes to a particular network. It means a set of rules that is used to determine where data packets travel over an IP network.

**TTL**

TTL means time- to - live : It is the number of hops that the packet is permitted to travel before it is being discarded by a router.