

and links are connected together to create an internetwork or a large network, the connecting devices called Router and Gateway, route to the packet to their final destination.

## ii) Transport Layer :-

The transport layer is responsible for source to destination delivery of the data message whereas network layer oversees end-to-end delivery of individual packets. It doesn't recognise any relationship between those packets. It treats each one independently. The transport layer on the other hand ensures that the whole message arrive in fact and in order, overseeing both error control and flow control, all the source to destination level. For added security, the transport layer may create a connection b/w the two end parts. A connection is a single logical path between the source and destination that is associated with all packets in a message creating a connection involve three steps :-

- i) Connection Establishment
- ii) Data Transfer
- iii) Connection Release

## iv) Session Layer :-

The service provided by the



first three layers are not sufficient for some process. This session layer is the network dial-up controller. It establishes, maintains and synchronises the intersection b/w communication. Some specific responsibilities of the session layer are as follows:

- i) **Dialog Control** :- The session layer allows two systems to enter into dialog box. It allows the communication b/w processes to take place either in half-duplex or full-duplex.
- ii) **Synchronization** :- The session layer allows a process to add checkpoint synchronization to point into a stream of bits.
- vi) **Presentation Layer** :- The presentation layer is concerned with the syntax of the information exchange b/w two systems. Specific responsibilities of the presentation layer are
  - i) **Translation** :- The process in two system is usually exchanging information in the



form of character string, numbers and so on. The information should be changed to bit stream before being transmitted. The presentation layer is responsible for its different encoding.

### ii) Encryption :-

Encryption means that the sender transforms the original information to another form to send the resulting message out over the network. Decryption means Reverse the original process to transform the message back to its original form.

### iii) Compression :-

Data compression reduces the number of bits to be transmitted. Data compression becomes important in the transmission of multimedia such as Text, Audio & Video

### vi) Application Layer :-

The application layer enables the user or software to access the network. It provides user interface & support for services.

The application layer included following services:-

#### i) File Transfer Access and Management :-

This application allows the user to access file in a remote



Computer to retrieve files and to manage files in a remote computer.

ii) Mail Services :-

This application provides the basis for email forwarding and storage.

iii) Directory Services :-

This application provides distributed database source and access for global information about various objects and services.

iv) Network Virtual Terminal :-

A network virtual terminal is a software version of physical terminal & allows the user to log on to a remote host.

### TCP/IP Reference Model

TCP/IP means Transmission Control Protocol and Internet Protocol. It is the network model used in the current internet architecture as well. Protocols are set of rules which govern every possible communication over a network. These protocols describe the movement of data b/w the source and destination on the internet. These protocols offer simple naming and