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# Network Models Part-2

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**Layer 5: The Session Layer**

- This layer manages and synchronizes conversations between different applications. This is the level at which user will establish system to system connection.
- It controls logging on and off, user identification, session and bill management.
- In the transmission of the data from one system to the other, at session layer streams of data are marked and resynchronized property so that the ends of messages are not cut prematurely and data loss is avoided.

**Layer 6 : Presentation Layer**

- The presentation layer makes it sure that information is delivered in such a form that the receiving system will understand and use it.
- The form and syntax(language) of two communication systems can be different e.g. one system is using ASCII code for file transfer and the other one uses IBM's EBCDIC
- Under such conditions the presentation layer provides the "translation from EBCDIC to ASCII
  and vice-versa"

**Layer 7: Application Layer**

- Application layer is at the top of all the layers. It provides different services such as manipulation of information in various ways, retransferring the files of information, distributing the results etc. to the user who is sitting above this layer.
- The functions which includes LOGIN or password checking are also performed by the application layer.

**Merits of OSI reference model :**

- It distinguishes very clearly between the service , interfaces and protocols
- The protocols in OSI model is better hidden. So they can be easily replaced by new protocols as the technology changes.
- OSI model is truly a general model
- This model supports connection oriented as well as connectionless service.

**Demerits of OSI model:**

- Presentation and Session layers are not of much use
- This model was devised before the protocols where inverted. So in real life there is problem fitting protocols into a model.

**TCP/IP Reference Model:**

- This is the other reference model which was used earlier by ARPANET and then it is being used in the internet .
- TCP/IP is short form of transmission control protocol and internet protocol.
- ARPANET was a research network sponsored by the US department of defence
- It includes many universities and government installation using the leased telephone lines. Later on the satellites and radio network were added to it.
- This inclusion could not be handled by the existing protocols at the time . So new reference architecture was needed.

- This new architecture is known as TCP/IP reference model due to the use of the two protocols TCP and IP
- While designing the new model certain goals were to be achieved. Some of them were as follows :
  1. First design goal was to have an ability to connect multiple network together in a seamless way.
  2. Another goal was that the network should be able to survive loss of subnet hardware with existing conversation not being broken
  3. Next , a flexible architecture was needed to deal successfully with the divergent requirements of various applications.

## Difference between OSI and TCP/IP:-

| S.No. | OSI | TCP/IP |
|---|---|---|
| 1 | It has seven layer | It has four layer |
| 2 | Transport layer guarantee delivery of packets | Transport layer does not guarantee the delivery of packets |
| 3 | Horizontal approach | Vertical approach |
| 4 | Separate session layer | No session layer , characteristics are provided by transport layer |
| 5 | Separate presentation layer | No presentation layer characteristics are provided by application layer |
| 6 | Network layer provides both connectionless and connection oriented services | Network layer provide only connection less service |
| 7 | It defines the interfaces, services and protocols very clearly and make a clear distinction between them | It does not clearly distinguish between interfaces , services and protocols |
| 8 | The protocols are better hidden and can be easily replaced as the technology changes | It is not easy to replace the protocols |
| 9 | OSI is truly a general model | TCP/IP can not be used for any other applications |
| 10 | It has a problem of protocol fitting into a model | The model does not fir any other protocol stack. |

**Demerits of TCP/IP:-**

- TCP/IP models does not clearly distinguish the concept of interfaces, protocols and interface
- This model is not at all general and it cannot describe any protocol stack other than TCP/IP
- The host-to-network layer is not a layer at all in the normal sense. It is simply an interface.
- The TCP/IP model does not even mention the physical data link layer . A proper model should include both the layer as separate layer.

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