Computer Networks

Connection-oriented vs Connection-less Services

- Both Connection-oriented service and Connection-less service are used for the connection establishment between two or more than two devices.
- These type of services are offered by network layer.

Connection-oriented Services

- Connection-oriented Services, are similar to telephone system where parties use **handshake method** to establish connection between sender and receiver.
- These services include connection establishment and connection termination.

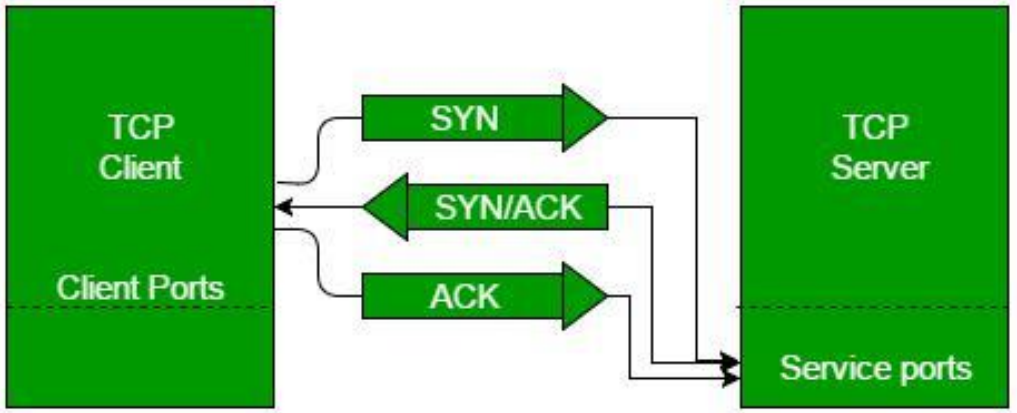

Fig. Handshake Method

Connection-less service

- **Connection-less service** is related to the postal system.
- It does not include any connection establishment and connection termination.
- Connection-less Service does not give the guarantee of reliability.
- In this, Packets do not follow same path to reach destination.

Difference between Connection-oriented and Connection-less Services

Sr. No.	Key	Connection-oriented Services	Connection-less Services
1	Analogy	Connection-oriented Services are similar to Telephone System.	Connection-less Services are similar to Postal System.
2	Usage	Connection-oriented Services are used in long and steady communication networks.	Connection-less Services are used in volatile networks.
3	Congestion	No Congestion in Connection-oriented Service.	Congestion is quiet possible in Connection-less Services.
4	Reliablility	Connection-oriented Service are highly reliable.	In Connection-less Services, no guarantee of reliablity.
5	Packet Routing	In Connection-oriented Service, packets follows same route.	In Connection-less Services, packets can follow any route.

https://www.geeksforgeeks.org/difference-between-connection-oriented-and-connection-less-services/

Service Primitives

- Service Primitives were formalized for each protocol in OSI reference model.
- In a network layered architecture, when one layer requires another layer to carry out a service, the communication between the layers is carried out by service primitives
- Each protocol which communicates in a layered architecture (e.g. based on the OSI Reference Model) in a peer-to-peer manner with its remote protocol entity.
- Communication between adjacent protocol layers (i.e. within the same communications node) are managed by calling functions, called **primitives,** between the layers. There are various types of actions that may be performed by primitives. Examples of primitives include: Connect , Data, Flow Control, and Disconnect.

Service Primitives

- There are four categories of primitives: those that **request** a service, those that **inform** an entity that an event has occurred, those that **represent responses** to a service request, and those that **confirm** that the data associated with a request has arrived.
- So, for example, a layer that sends an email requests that the email is sent, is informed that this has taken place, receives data about the event, and responds to the event by signalling to another layer that the event has been successful.

https://www.geeksforgeeks.org/service-primitives/

ARPANET

- ARPANET stands for **Advanced Research Projects Agency Network**
- ARPANET or ARPAnet began development in 1966 by the United States ARPA.
- ARPANET was a **Wide Area Network** linking many Universities and research centers, was first to use packet switching
- ARPANET was created to make it easier for people to access computers, improve computer equipment, and to have a more effective communication method for the military.