SNS COLLEGE OF TECHNOLOGY

Coimbatore-35
An Autonomous Institution

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DEPARTMENT OF ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING

19CSB302- COMPUTER NETWORKS

UNIT-4 TRANSPORT LAYER

- TCP is connection-oriented.

- A connection-oriented transport protocol establishes a logical path between the source and destination.

- All of the segments belonging to a message are then sent over this logical path.

- In TCP, connection-oriented transmission requires three phases:

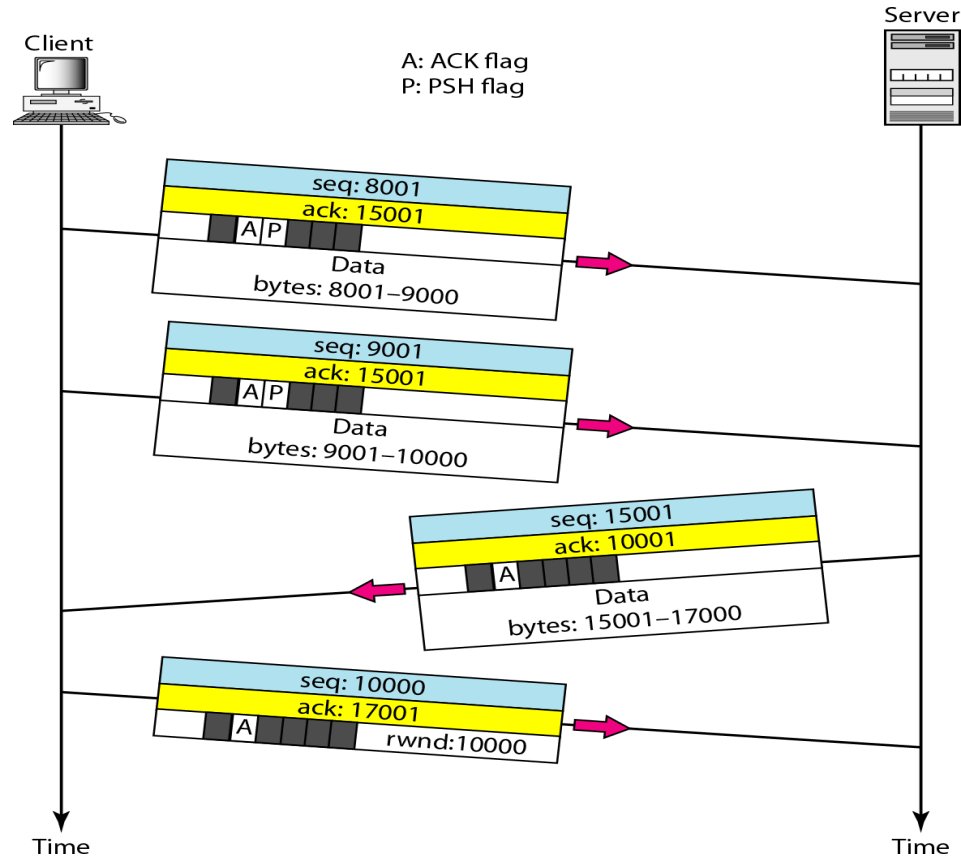- **Connection Establishment, Data Transfer and Connection Termination.**

Connection establishment using three-way handshaking
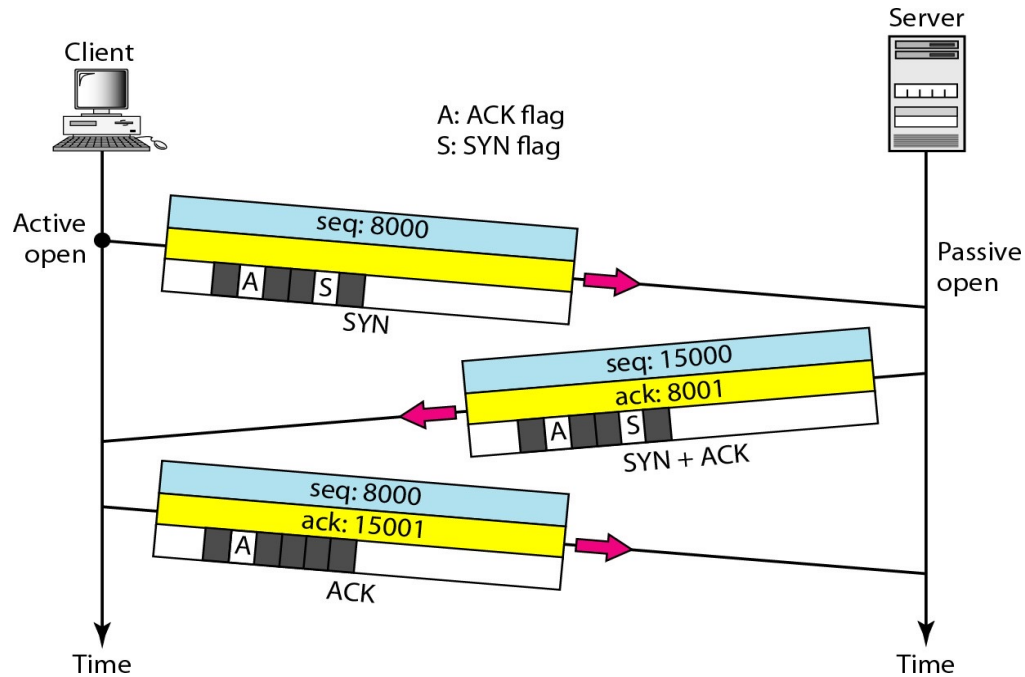
1. Client sends a SYN segment to the server containing its initial sequence number

2. Server responds with a segment that acknowledges client's segment and specifies its initial sequence number

3. Finally, client responds with a segment that acknowledges server's sequence number

Data Transfer

- After connection is established, bidirectional data transfer can take place.

- The client and server can send data and acknowledgments in both directions.

- The data traveling in the same direction as an acknowledgment are carried on the same segment.

- The acknowledgment is piggybacked with the data.

Connection Termination

Connection termination or teardown can be done in two ways :

- **Three-way Close**

- **Half-Close**

Three-way Close

Both client and server close *simultaneously.*

- Client sends a **FIN(Terminates the connection)** segment.

- The FIN segment can include last chunk of data.

- Server responds with FIN + ACK segment to inform its closing.

- Finally, client sends an ACK segment