

CS & IT ENGINEERING

COMPUTER NETWORKS

TCP & UDP

Lecture No-3



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A stylized laptop icon with a blue screen and an orange base. The screen displays the text 'TOPICS TO BE COVERED'.

TOPICS TO
BE
COVERED

A dotted orange arrow that originates from the laptop screen, points right, then turns upwards and then right again to point at the box containing the text 'Phases of TCP connection'.

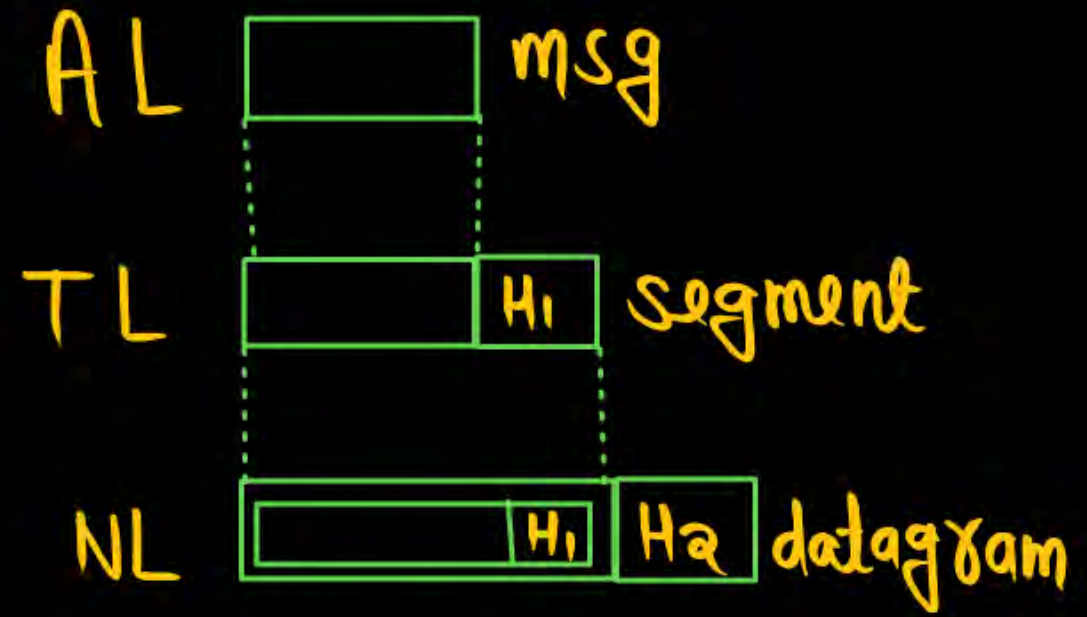
**Phases of TCP
connection**

Phases of TCP Connection

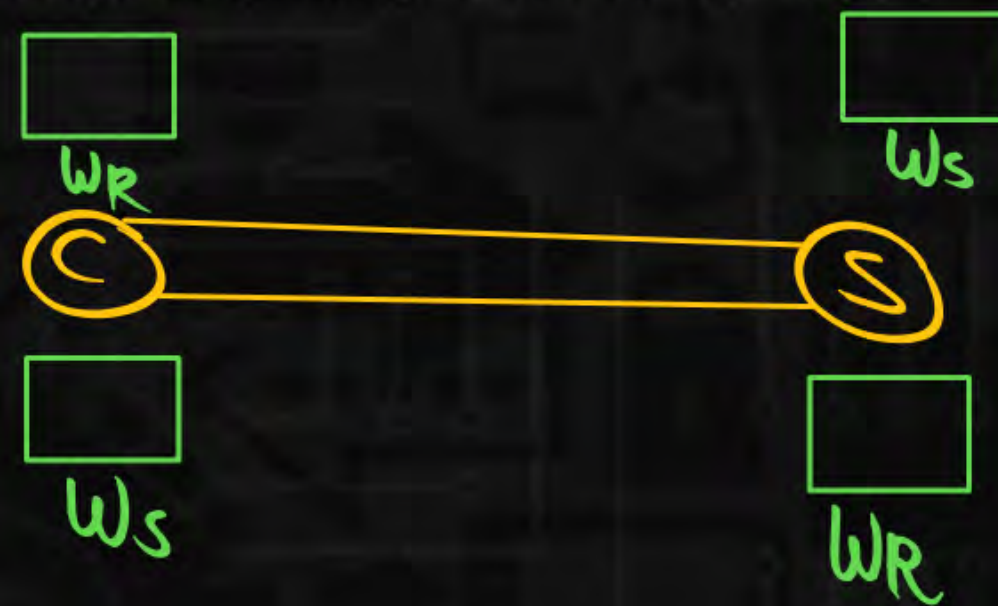
Important Points about TCP



- ✓ (1) TCP is a connection oriented & reliable protocol (TCP has both flow and error control mechanism)
- ✓ (2) It is a virtual connection & not physical i.e segments of TCP may follow different paths, some of them may lost or duplicated or arrive out of order. Segments are encapsulated in IP datagram.
- (3) Virtual Connection means resources like buffers are allocated in advance at the client and server side before starting transmission



- (4) TCP connection have 3 phases.
- (i) Connection Establishment
 - (ii) Data Transfer
 - (iii) Connection Termination
- (5) TCP Connection is a Full Duplex Connection i.e data can be sent in both the direction
- (6) TCP uses sliding window protocol for its flow control ($GBN + SR$)
- (7) Each TCP connection have 4 window.



Communication

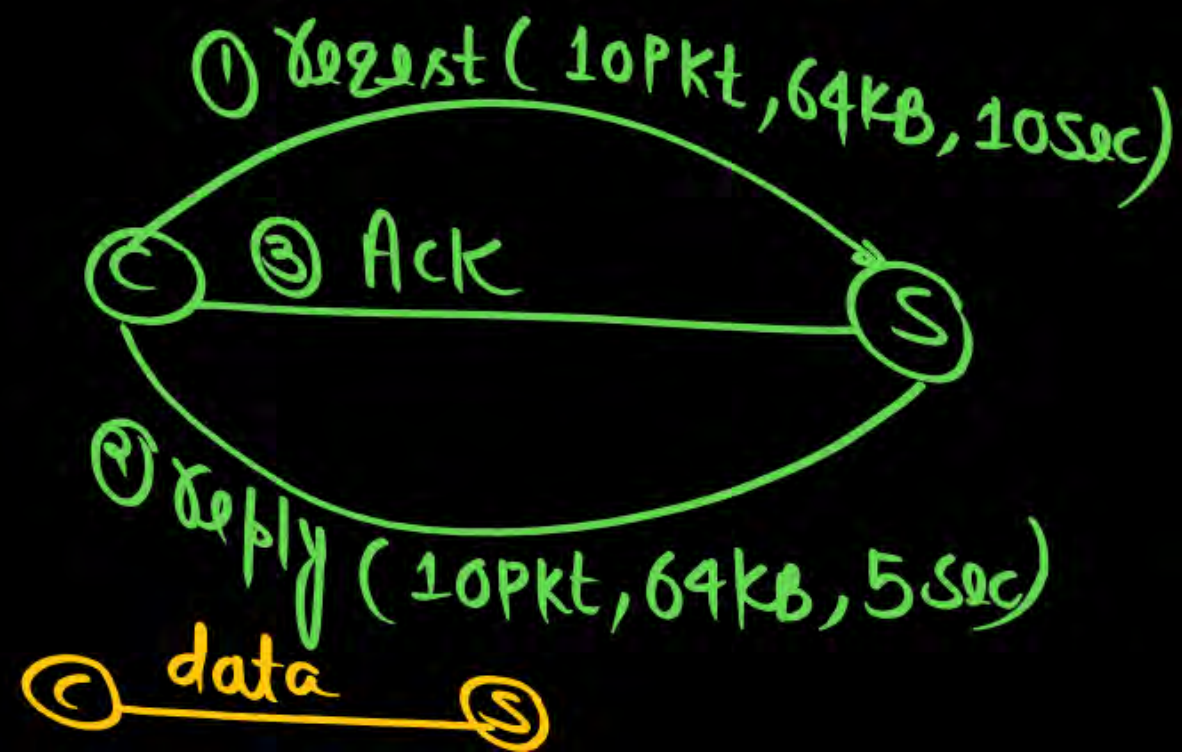
Connection oriented

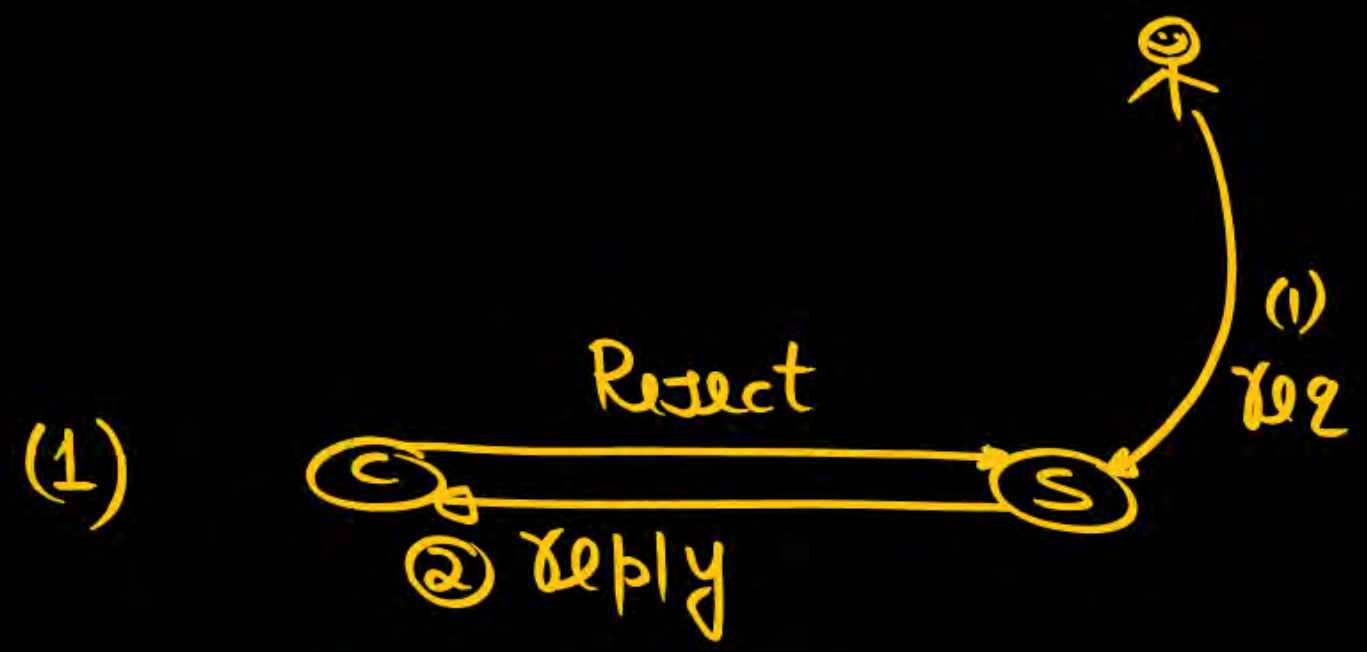
Connection Less

Connection establishment

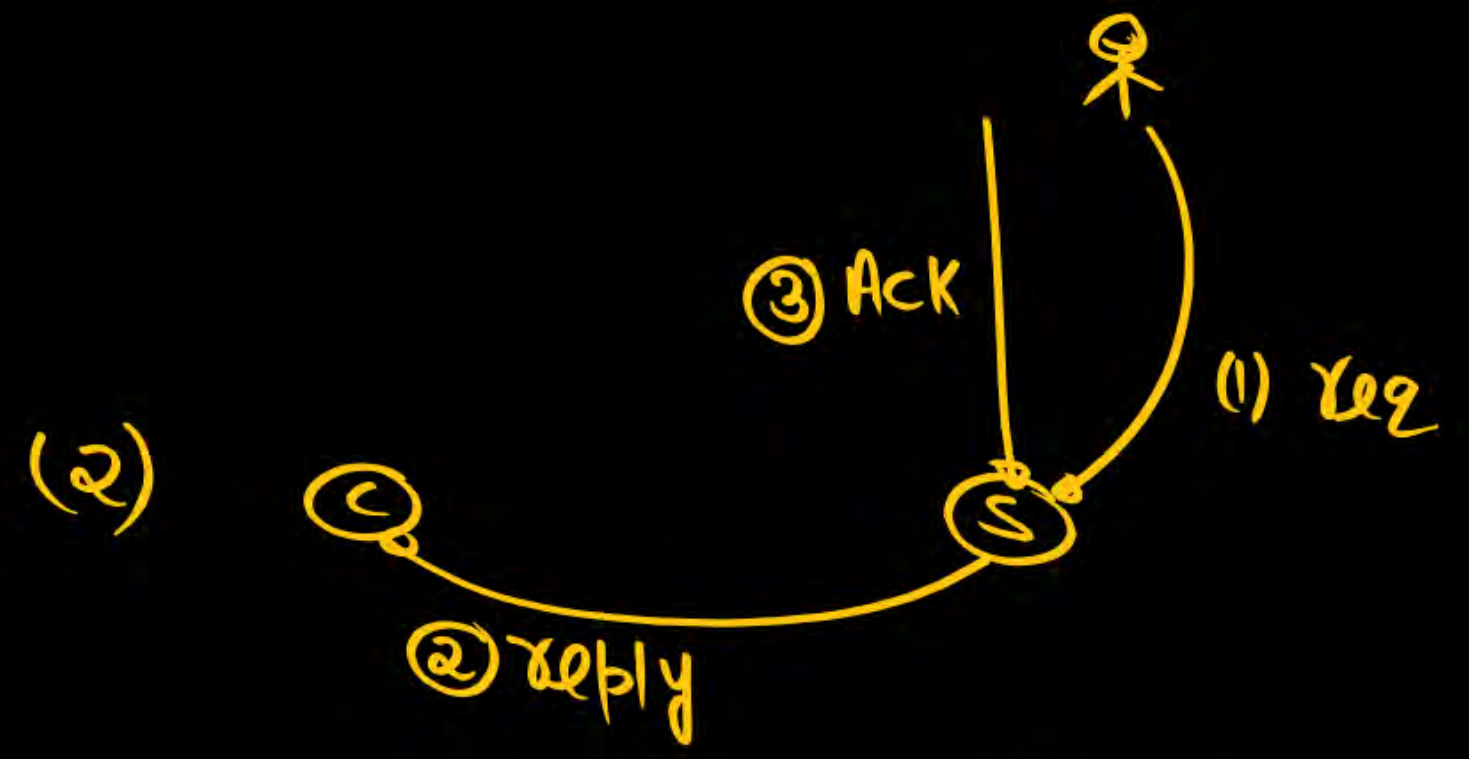


3 way Handshaking



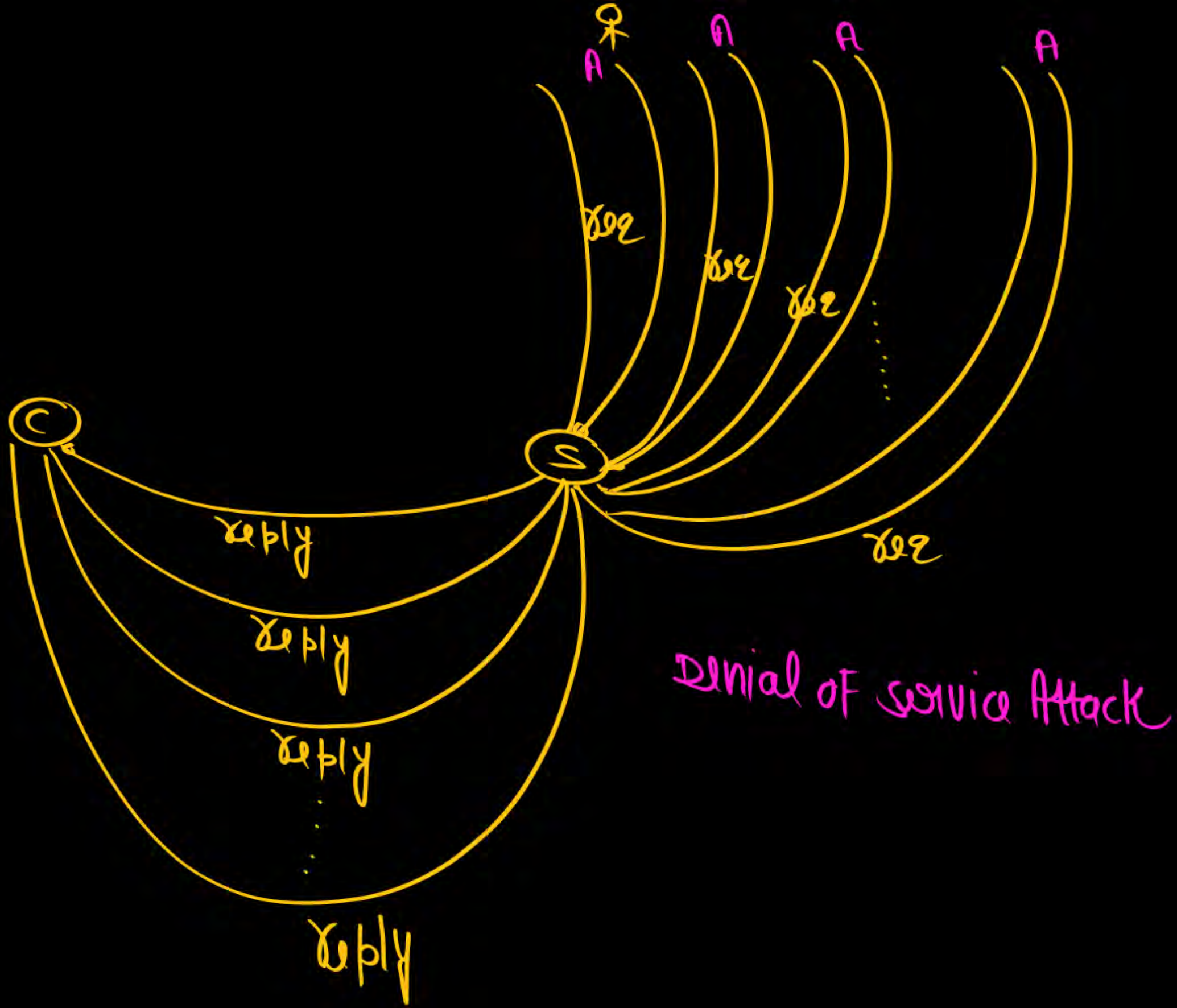


Connection Not established



Connection established

(3)



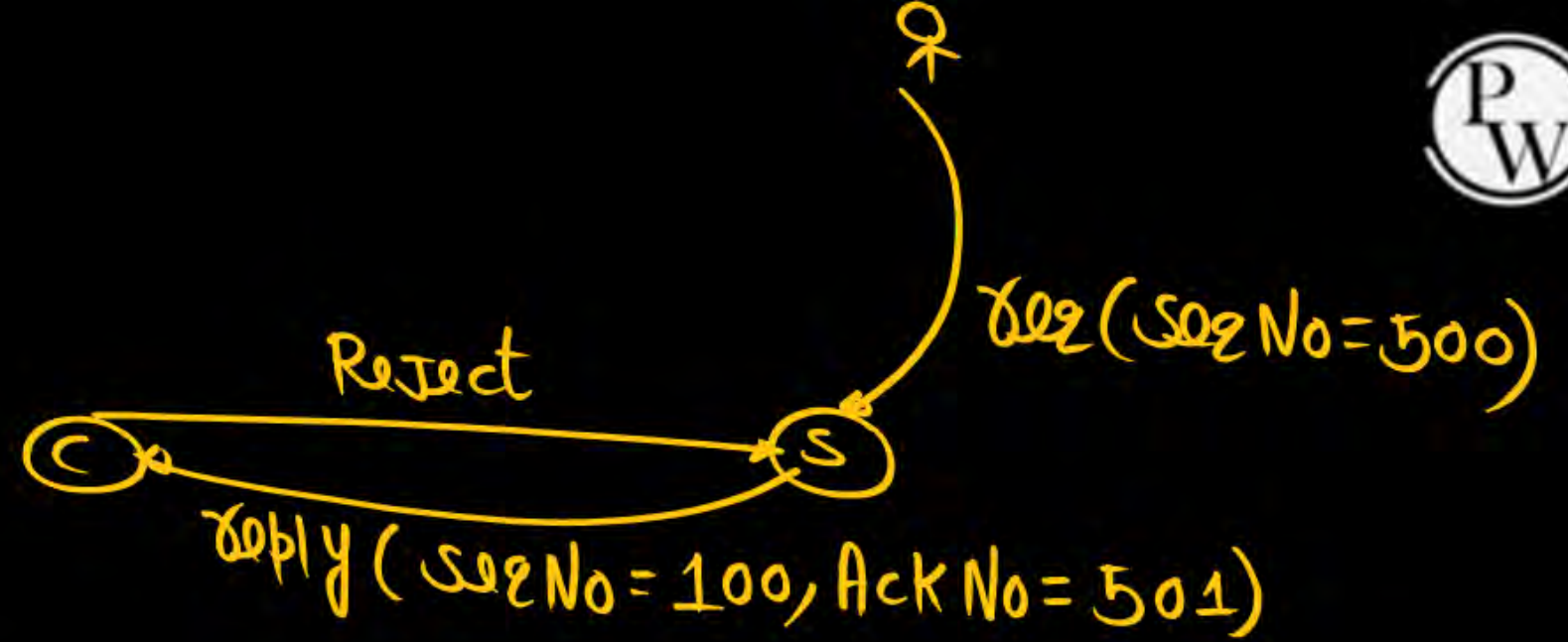
① seq (SeqNo = 500)



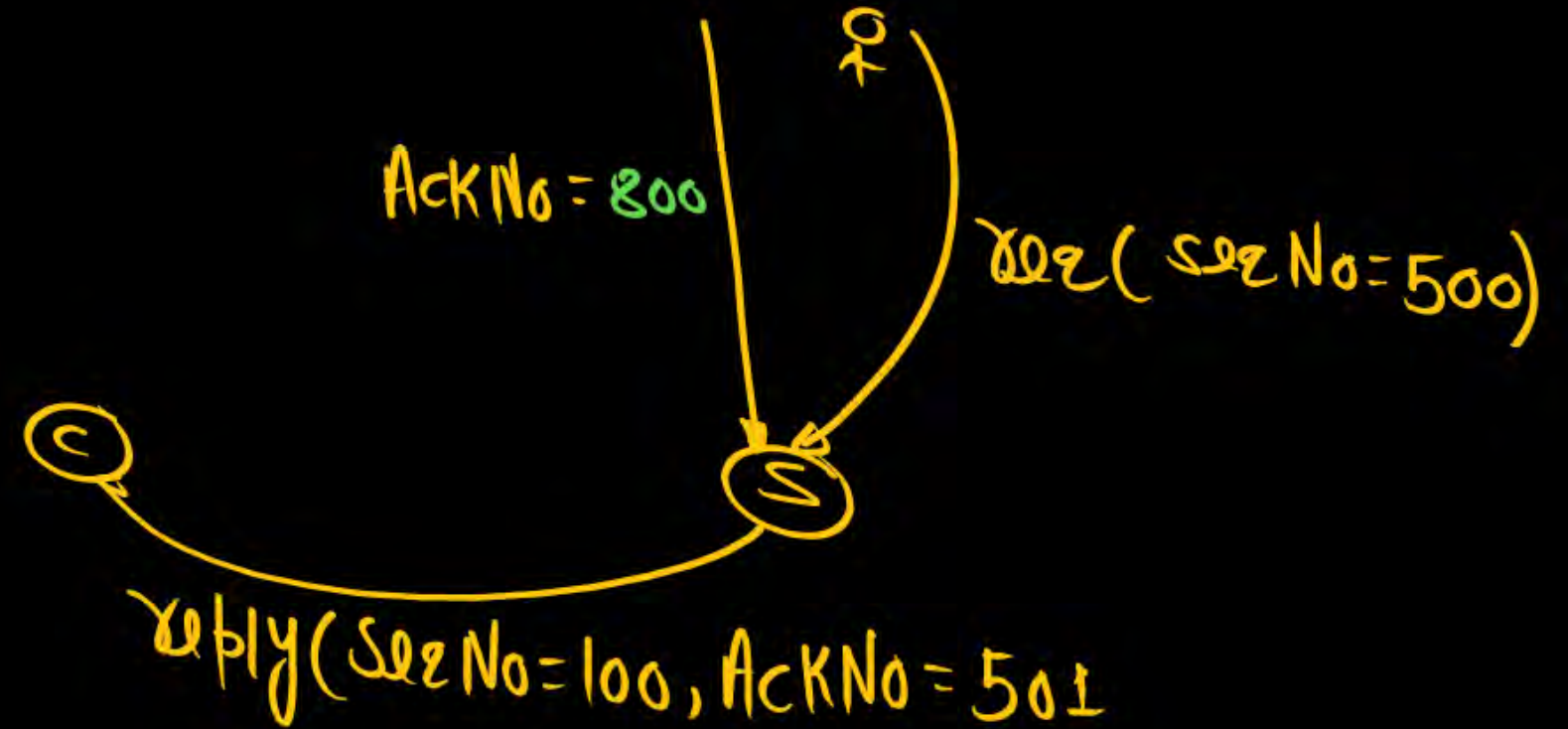
② reply (SeqNo = 100, AckNo = 501)

Note: Sequence Number and Acknowledgement Number are Also used For Authentication purpose.

(1)



(2)



Flags = 6 bit

- (1) URG → Urgent Flag
- (2) ACK → Acknowledgement Flag
- (3) PSH → Push Flag
- (4) RST → Reset Flag
- (5) SYN → Synchronization Flag
- (6) FIN → Finished Flag

Note

SYN and ACK Flags are used in the connection establishment phase

Phases of TCP Connection

- (1) connection establishment phase
- (2) data transfer phase
- (3) connection termination phase

