CS & IT ENGINEERING

Computer Network

1500 Series

Lecture No.- 06

By- Ankit Doyla Sir

Recap of Previous Lecture

Topic

Topic

Computer Network Part 05

Topics to be Covered

Topic

Topic

Computer Network Part 06

[MSQ]

#Q. Which of the following is/are correct about IP Address?

(A)

A. Destination IP Address is a part of IP header.

B. TTL value of can be possible in IP header from range 1 to 256.

C. TTL value of can be possible in IP header from range 0 to 255

D. TTL is used in IP header to reduce the packet delay

[NAT]

$B = 40 * 10^9$ bits/sec $= 5 * 10^9$ Byte/sec

#Q. 7 number of extra bits must be used from the option field of TCP header to make the Wrap around time half of the normal life time of TCP segment. Consider the bandwidth of network is 40 Gbps.

LT = 180sec = 3min

WAT = 90sec

$$WAT = \frac{\text{Total sequence}}{(\text{Bandwidth})\ \text{Byte/sec}}$$

Total Sequence No = WAT * (Bandwidth) Byte/sec

$= 90\text{sec} * 5 * 10^9$ Byte/sec

$= 450 * 10^9$

$\approx 2^9 * 2^{30}$

$\approx 2^{39}$

$\lceil \log_2 450 * 10^9 \rceil$

Sequence No = 39 bit

extra bits = 39 − 32 (Seq No)

= 7

[MCQ]

#Q. Let assume, a TCP sends three consecutive segments having sequence number value 200, 250 and 300 consecutively. First and second segment were lost due to network traffic but the third segment reached the destination properly. Which of the given options is correct that specific the two parameters:

(i) Amount of data carried in first two segment

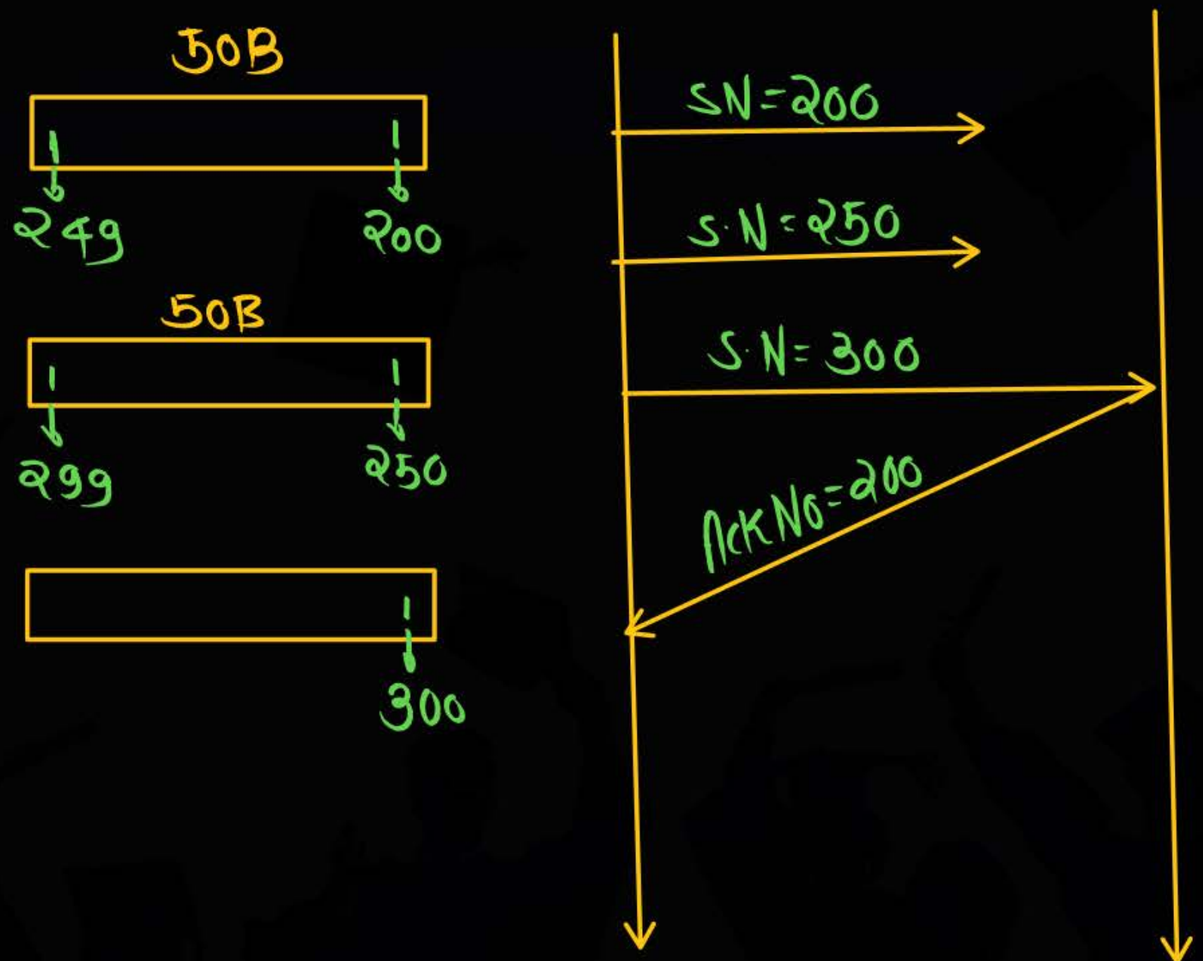
(ii) ACK number sent by the receiver, present while acknowledging the third segment

A 50, 250

B 50, 200

C 200, 200

D 50, 201


50B
249
200
50B
299
250
300
SN=200
S.N=250
S.N=300
AckNo=200

[MCQ]

(K&R)

#Q. Let the size of congestion window of TCP connection be 64kb when a time out occurs. The round trip time of connection is 100 milliseconds and the maximum segment size used is 4kb. The time taken (in milliseconds) by the TCP connection to get back to 64kb congestion window is

A 1100 to 1300

B 800 to 1000

C 1400 to 1600

D 1500 to 1700

NTH = 32KB

$$11RTT = 11 * 100msec = 1100msec$$

(1100 - 1300)

Consider the following statements regarding the congestion avoidance phase of the TCP congestion control algorithm. Note that cwnd stand for the TCP congestion window and MSS denotes the Maximum Segment Size.

i. The cwnd increases by 1 MSS on every successful acknowledgment.

ii. If an ACK arrive the size of the cwnd increases only 1/cwnd portion of MSS

iii. The cwnd increases by 1 MSS every round trip time.

iv. The cwnd approximately doubles every round trip time

Which one of the following is correct?

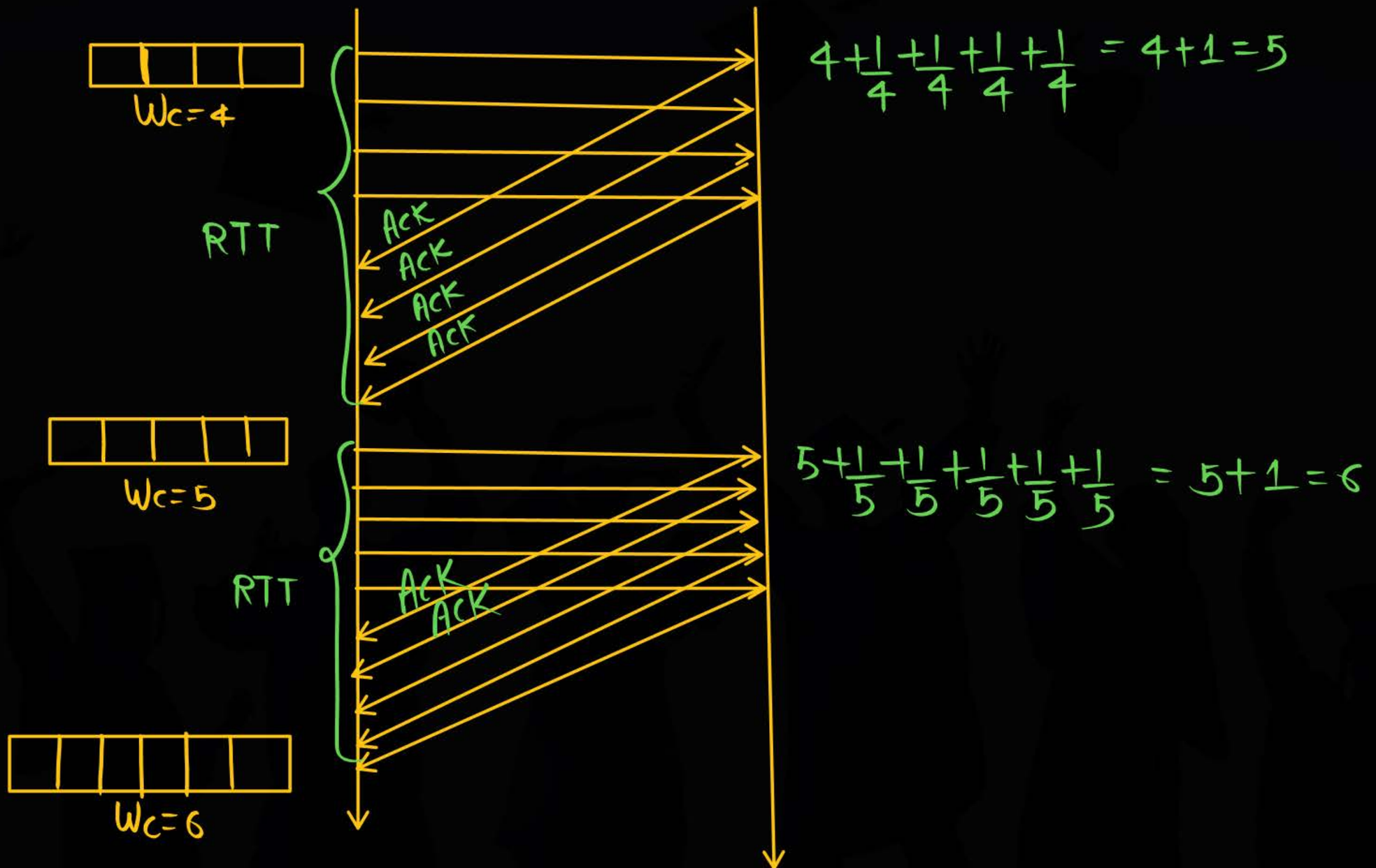
A Only (ii) and (iii) are true

B Only (iv) is true

B Only (i) and (iii) are true

D Only (i) and (iv) are true

Congestion Avoidance Phase



$4+\frac{1}{4}+\frac{1}{4}+\frac{1}{4}+\frac{1}{4} = 4+1=5$

$5+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5}+\frac{1}{5} = 5+1=6$

[NAT]

If window receiver size is 64 KB and The round trip time of a connection is 50 msec and maximum segment size used is 4 KB. If Sender received 3rd duplicate acknowledgement on 5th transmission then find congestion window size (in KB) on 10th transmission (34KB)

$W_R = 64KB$ segmentsize = 4KB

$TH = \frac{1}{2} W_R$

$TH = 32KB$

[NAT]

If window receiver size is 64 KB and The round trip time of a connection is 50 msec and maximum segment size used is 4 KB.In slow start phase the current congestion window size is 16 MSS and sender gets 4 ACK then then what should be value of congestion window (In KB)_____

TO

2 mins Summary

- **Topic** One
- **Topic** Two
- **Topic** Three
- **Topic** Four
- **Topic** Five

THANK - YOU