

Computer Network Assignment 5

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April 26, 2019

Problem 1

a)

SEQ = 1030, ACK = 3848 F=ACK WIN=4000, it carries 1200 due to the acknowledgement.(2230 - 1030).

b)

To inform the other side of the connection that the part of the data in the buffer has been consumed, and the window size has changed since.

c)

SACK works by sending the received segment range in the duplicate acknowledgement. This will allow the other side of the transmission to send only the missing segment, not all the segment after the lost segment.

The two number in the SACK indicates the left edge and the right edge of the segment received. Since we cannot simply specify the segment missing, we can, in the other words, specify the segments(ranges of the data) we received.

d)

In segment 8, the ACK is used to indicate missing segments. Left edge is 3430, right edge is 4630

e)

The client goes to the wait state. Client initiated the closing(active close), sending a FIN, receive a ACK and FIN, then send the ACK back and go to wait in case ACK got lost in the flight.

Problem 2

a)

$1300000/12 = 108,333 \text{ p/s}$

b)

Minimum: 30000 Maximum: 300000

c)

6 segments got lost and is not yet transmitted at $t = 12$

d)

At the beginning of the TCP connection, a large number of groups of TCP fragments are send from $t=0.5$ to $t=1.4$. However, a lot of them are lost and retransmitted during $t=1.6$ to $t=3.3$. From $t=3.3$ onwards is the normal TCP communicartion.