LAB 6

1. What is the sequence number of the TCP SYN segment that is used to initiate the TCP connection between the client computer and www.bits-pilani.ac.in? What is it in the segment that identifies the segment as a SYN segment?

ANS:The sequence number of the TCP SYN segment is 0 since it is used to imitate the TCP connection between the client computer and gaia.cs.umass.edu. According to above figure, in the Flags section, the Syn flag is set to 1 which indicates that this segment is a SYN segment.

2. What is the sequence number of the SYNACK segment sent by www.bits-pilani.ac.in to the client computer in reply to the SYN? What is the value of the Acknowledgement field in the SYNACK segment? How did www.bits-pilani.ac.in determine that value? What is it in the segment that identifies the segment as a SYNACK segment? Hint: Observe the middle window in your trace for the specified packet

ANS: According to the above figure, the sequence number of the SYNACK segment sent by www.bits-pilani.ac.in to the client computer in reply to the SYN is 0. The value of the acknowledgement field in the SYNACK segment is 1. The value of the ACKnowledgement field in the SYNACK segment is determined by the server www.bits-pilani.ac.in. The server adds 1 to the initial sequence number of SYN segment form the client computer. For this case, the initial sequence number of SYN segment from the client computer is 0, thus the value of the ACKnowledgement field in the SYNACK segment is 1. A segment will be identified as a SYNACK segment if both SYN flag and Acknowledgement in the segment are set to 1.

3. The sequence numbers that you observed so far in your trace are the actual sequence numbers? Is it overruling the things which you read in the text? Don’t be confused. Are you really wanted to know the actual things? Follow Edit->preferences->protocols >tcp and unmark the Relative Sequence Number and Window Scaling. Now check the sequence numbers in your trace. Did you observe any change? Explain the reason.

ANS: It changes the TCP packet sequence number according to the in the SYN packet according to how many packets were sent since client boot. The ACK no in SYNACK is this sequence no of the client SYN packet and the sequence no of the SYNACK packet is the number of packets sent by server since boot.

4. What is the length of each of the first three TCP segments for www.robio2018.org/?

ANS: 74

5. Are there any retransmitted segments in the trace file? What did you check for (in the trace) in order to answer this question?

ANS: SYN and SYNACK is retransmitted. I checked the flags. sequence numbers are not monotonically increasing.