WIRESHARK ASSIGNMENT 2

1. *What IPv4 protocol does YouTube use for video streaming? Can you justify this design choice of engineers at YouTube?*

   Youtube uses TCP(transmission control protocol) for video streaming. This design choice has advantages over UDP. Such advantages are:

   - TCP is reliable data transfer protocol whereas UDP is unreliable
   - TCP sends data in the order whereas in UDP, incoming data are out of order
   - YouTube needs to regulate the video quality based on network congestion, this congestion can be detected with the help of TCP. UDP cannot adjust the data sending rate.

2. *What is your computer's IP address, YouTube's IP address and ceng.metu.edu.tr's IP address?*

   My computer IP address is 10.70.163.31.

   YouTube's IP addresses are

   172.217.17.174,
   172.217.169.110.
   172.217.17.174
   172.217.169.174
   172.217.169.206
   172.217.169.142
   216.58.212.46
   216.58.206.206
   216.58.206.174

   ceng.metu.edu.tr IP address is 144.122.171.44.

3. *What is the destination and source ports for the GET requests made to ceng.metu.edu.tr? Draw a table.*

Packet Number	***Source Port***	***Destination Port***	***Packet Info***
10512	33018	80	GET /~hbostan/ceng435/ HTTP/1.1
10518	33018	80	GET

			/~hbostan/ceng435/images/ceng.png HTTP/1.1
10531	33020	80	GET /~hbostan/ceng435/images/odtuclass.png HTTP/1.1

4. *What are the Numbers of packets in the first 3-Way handshake with the ceng.metu.edu.tr? What are their sequence and ack numbers?*

   For packet number 10509 : Sequence number is 0 and Ack number is 0

   For packet number 10510 : Sequence number is 0 and Ack number is 1

   For packet number 10511 : Sequence number is 1 and Ack number is 1

5. *What are the packet numbers and segment numbers of the first 5 packets of all packets transmitting the image 'ceng.png'? What is the length of each segment used to transmit the image?*

Packet Numbers	***Sequence Numbers***	***Length***
10520	4190	1448 bytes
10521	5638	1448 bytes
10523	7086	1448 bytes
10524	8534	5792 bytes
10528	14326	4344 bytes

6. *What is the minimum amount of available buffer space advertised at the receiver for the entire trace? Does the lack of receiver buffer space ever throttle the sender?*

   The minimum amount of available buffer space advertised at the receiver is 28960. When all the entries in the pcapng file were invested, calculated window size value was decreased in some periods. That means sender was been throttled.

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