ASSIGNMENT-Computer Network

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REG NO: 22BCE8756

8	0.107840	172.18.161.67	128.119.245.12	TCP	54 61617 → 80 [FIN, ACK] Seq=1 Ack=1 Win=513 Len=0
9	0.108024	172.18.161.67	128.119.245.12	TCP	54 61616 → 80 [FIN, ACK] Seq=1 Ack=1 Win=510 Len=0
10	0.108089	172.18.161.67	128.119.245.12	TCP	54 61613 → 443 [FIN, ACK] Seq=1 Ack=1 Win=512 Len=0
11	0.108154	172.18.161.67	128.119.245.12	TCP	54 61612 → 443 [FIN, ACK] Seq=1 Ack=1 Win=512 Len=0
12	0.108554	172.18.161.67	128.119.245.12	TCP	66 61622 → 80 [SYN] Seq=0 Win=64240 Len=0 MSS=1460 WS=256 SACK_PERM
13	0.108767	172.18.161.67	128.119.245.12	TCP	66 61623 → 80 [SYN] Seq=0 Win=64240 Len=0 MSS=1460 WS=256 SACK_PERM
15	0.406951	128.119.245.12	172.18.161.67	TCP	66 80 → 61623 [SYN, ACK] Seq=0 Ack=1 Win=29200 Len=0 MSS=1460 SACK_PERM WS=128
16	0.406951	128.119.245.12	172.18.161.67	TCP	60 80 → 61617 [ACK] Seq=1 Ack=2 Win=229 Len=0
17	0.407142	172.18.161.67	128.119.245.12	TCP	54 61623 → 80 [ACK] Seq=1 Ack=1 Win=131328 Len=0
18	0.413155	128.119.245.12	172.18.161.67	TCP	66 80 → 61622 [SYN, ACK] Seq=0 Ack=1 Win=29200 Len=0 MSS=1460 SACK_PERM WS=128
19	0.413505	172.18.161.67	128.119.245.12	TCP	54 61622 → 80 [ACK] Seq=1 Ack=1 Win=131328 Len=0
36	0.965601	172.18.161.67	128.119.245.12	TCP	54 [TCP Retransmission] 61616 → 80 [FIN, ACK] Seq=1 Ack=1 Win=510 Len=0
37	1.013082	172.18.161.67	128.119.245.12	TCP	54 [TCP Retransmission] 61613 → 443 [FIN, ACK] Seq=1 Ack=1 Win=512 Len=0
40	1.063119	172.18.161.67	49.44.194.56	TCP	66 61624 → 80 [SYN] Seq=0 Win=64240 Len=0 MSS=1460 WS=256 SACK_PERM
41	1.089248	172.18.161.67	128.119.245.12	TCP	54 [TCP Retransmission] 61612 → 443 [FIN, ACK] Seq=1 Ack=1 Win=512 Len=0
42	1.095731	49.44.194.56	172.18.161.67	TCP	66 80 → 61624 [SYN, ACK] Seq=0 Ack=1 Win=64240 Len=0 MSS=1460 SACK_PERM WS=128
43	1.096036	172.18.161.67	49.44.194.56	TCP	54 61624 → 80 [ACK] Seq=1 Ack=1 Win=131328 Len=0
44	1.096258	172.18.161.67	49.44.194.56	HTTP	165 GET /connecttest.txt HTTP/1.1
45	1.171944	172.18.161.67	128.119.245.12	TCP	666 61623 → 80 [PSH, ACK] Seq=1 Ack=1 Win=131328 Len=612 [TCP segment of a reassembled PDU]
46	1.172271	172.18.161.67	128.119.245.12	TCP	15… 61623 → 80 [ACK] Seq=613 Ack=1 Win=131328 Len=1460 [TCP segment of a reassembled PDU]
47	1.172271	172.18.161.67	128.119.245.12	TCP	15… 61623 → 80 [ACK] Seq=2073 Ack=1 Win=131328 Len=1460 [TCP segment of a reassembled PDU]
48	1.172271	172.18.161.67	128.119.245.12	TCP	15… 61623 → 80 [ACK] Seq=3533 Ack=1 Win=131328 Len=1460 [TCP segment of a reassembled PDU]
49	1.172271	172.18.161.67	128.119.245.12	TCP	15… 61623 → 80 [ACK] Seq=4993 Ack=1 Win=131328 Len=1460 [TCP segment of a reassembled PDU]
50	1.172271	172.18.161.67	128.119.245.12	TCP	15… 61623 → 80 [ACK] Seq=6453 Ack=1 Win=131328 Len=1460 [TCP segment of a reassembled PDU]
51	1.172271	172.18.161.67	128.119.245.12	TCP	15… 61623 → 80 [ACK] Seq=7913 Ack=1 Win=131328 Len=1460 [TCP segment of a reassembled PDU]
52	1.172271	172.18.161.67	128.119.245.12	TCP	15… 61623 → 80 [ACK] Seq=9373 Ack=1 Win=131328 Len=1460 [TCP segment of a reassembled PDU]
53	1.172271	172.18.161.67	128.119.245.12	TCP	15… 61623 → 80 [ACK] Seq=10833 Ack=1 Win=131328 Len=1460 [TCP segment of a reassembled PDU]
54	1.172271	172.18.161.67	128.119.245.12	TCP	15… 61623 → 80 [ACK] Seq=12293 Ack=1 Win=131328 Len=1460 [TCP segment of a reassembled PDU]
56	1.178041	49.44.194.56	172.18.161.67	TCP	60 80 → 61624 [ACK] Seq=1 Ack=112 Win=64256 Len=0
57	1.178041	49.44.194.56	172.18.161.67	HTTP	241 HTTP/1.1 200 OK (text/plain)
58	1.178041	49.44.194.56	172.18.161.67	TCP	60 80 → 61624 [FIN, ACK] Seq=188 Ack=112 Win=64256 Len=0

1. What is the IP address and TCP port number used by the client computer (source) that is transferring the file to gaia.cs.umass.edu? To answer this question, it's probably easiest to select an HTTP message and explore the details of the TCP packet used to carry this HTTP message, using the "details of the selected packet header window"?

➔IP Address: 172.18.161.67

Client TCP port number: 61617

2. What is the IP address of gaia.cs.umass.edu? On what port number is it sending and receiving TCP segments for this connection?

➔IP Address: 128.119.245.12

Client TCP port number: 80

3. What is the IP address and TCP port number used by your client computer (source) to transfer the file to gaia.cs.umass.edu?

➔ IP Address: 192.168.81.54

Client TCP port number: 50247

4. What is the sequence number of the TCP SYN segment that is used to initiate the TCP connection between the client computer and gaia.cs.umass.edu? What is it in the segment that identifies the segment as a SYN segment?

➔Sequence Number: 1 (relative sequence number)

Sequence Number: 1355855218 (raw)

5. What is the sequence number of the SYNACK segment sent by gaia.cs.umass.edu to the client computer in reply to the SYN? What is the value of the Acknowledgement field in the SYNACK segment? How did gaia.cs.umass.edu determine that value? What is it in the segment that identifies the segment as a SYNACK segment?

➔ Acknowledgement Number: 1 (relative sequence number)

Acknowledgement Number: 1560956116 (raw)

6. What is the length of each of the first six TCP segments?

➔ First TCP segment Len: 0 (Frame 8)

Second TCP segment Len: 0 (Frame 9)

Third TCP segment Len: 0 (Frame 10)

Fourth TCP Segment Len: 0 (Frame 11)

Fifth TCP Segment Len: 0 (Frame 12)

Sixth TCP Segment Len: 0 (Frame 13)

7. What is the throughput (bytes transferred per unit time) for the TCP connection? Explain how you calculated this value.

➔The total amount data transmitted can be computed by the difference between the sequence number of the first TCP segment (i.e. 1 byte for

Frame 8) and the acknowledged sequence number of the last ACK (152934 bytes for Frame 456). Therefore, the total data are 152934 - 1 = 152933 bytes. The whole transmission time is the difference of the time instant of the first TCP segment (i.e., 0.0000000 second for Frame 8) and the time instant of the last ACK (i.e., 7.36436 second for Frame 456). Therefore, the total transmission time is 7.364360 - 0.000000 = 7.36436 seconds. Hence, the throughput for the TCP connection is computed as 152933 / 7.36436 = 20.76 KByte/sec.