Lab 3 – TCP

# Step 3: TCP Segment Structure

*TCP Segment sketch*

*Text, letter

Description automatically generatedtime sequence diagram*

Text

Description automatically generated

Diagram

Description automatically generated

*What TCP Options are carried on the SYN packets for your trace?*

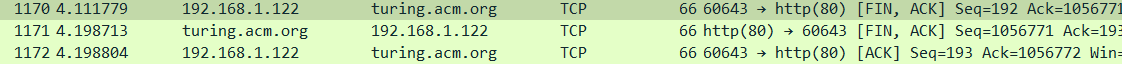
Max Segment Size

Window Scale

SACK permitted

No-Operation

*Teardown trace*



Diagram

Description automatically generated

I/O Graphs

Line chart

Description automatically generated

1. *What is the rough data rate in the download direction in packets/second and bits/second once the TCP connection is running well?*

24000packets/s

12000packets/s

1. *What percentage of this download rate is content? Show your calculation*. To find out, look at a typical download packet; there should be many similar, large download packets. You can see how long it is, and how many bytes of TCP payload it contains.

7449/14463 = 51.5%

1412\*5 + 305 + 84 = 7449 B

66+60+1466+2918+2918+1466+1466+646+2918+359+60\*3 = 14463 B

1. *What is the rough data rate in the upload direction in packets/second and bits/second due to the ACK packets?*

14 packets/s

4000bits/s

1. *If the most recently received TCP segment from the server has a sequence number of X, then what ACK number does the next transmitted TCP segment carry?*

X+1