Computer Communication Network

Transport Layer-Review

Spring 2015

Question 6-1

How does the 3 way handshaking work in TCP? Illustrate with figure.

Question 6-2

Describe how the sending and receiving windows are managed by a TCP session.

Question 6-3

A route from node A to node B goes via routers R_1 and R_2. Packets sent over this network have headers that are 20 bytes long. The A-R_1 has MTU size of **1200 bytes**, the R_1–R_2 link has MTU size of **800 bytes**, and the R_2–B link has MTU size of **400 bytes**. A wants to send a message of length 2100 and transmits the message as two packets of size **1200 and 940 bytes** respectively. (Note that the first packet carries 1180 bytes of payload and the second packet carries 920 bytes of payload.)

Question 6-4

Why does UDP exist? Would it not have been enough to just let used processes send raw IP packets?

Question 6-5

Consider a TCP connection with RTT of 20 ms and a receiver buffer size of 100 kilobits. Assume that the network capacity is 10Mbps and the packets are 1250 bytes. What is the smallest sliding window size that maximizes network utilization while not overrunning the receiver buffer?

Question 6-6

Why estimating the round trip time (RTT) correctly very important in TCP?