1. Retransmission of lost data can be done at the link, transport, and application layers. What are the pros and cons of doing it at each layer?
2. Compare Implicit versus Explicit congestion signals. What are the advantages and disadvantages of each?
3. What are the main functions of the transport layer? Describe briefly.
4. How does the transport layer perform multiplexing and demultiplexing?
5. Why does TCP wait for three duplicate acknowledgments before retransmitting a packet? What do the triple duplicate acks represent?
6. How does TCP set its timeout value?
7. TCP congestion avoidance is done via AIMD. Explain.
8. What is goal of network fairness? Is TCP fair? If so, explain what resources TCP allocates in a fair manner.
9. What is the throughput of TCP? The throughput is the average rate that packets are successfully decoded at the receiver. Note that the rate that packets are sent by the sender is an upper bound on the actual throughput and since it is easily computable, we use it to estimate the throughput.
10. We said that the goal of the transport layer (layer 4) was end-to-end reliability. Recall that layer 2 also has reliability, but it is hop-by-hop reliability. Why do we have reliability at both layers? Are they both necessary?