CS 5450 Network and Distributed System

Go-Back-N

Project 2
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Description:

Compare to stop-and wait protocol, Go-back-N introduced a window size N, which allows the sender to transmit multiple packets without waiting for a single ACK. As my understanding, it is more like a pipelined server. The N means that the server still can transmit N packets before hearing an ACK. The sliding window works as following: first label each packet with a sequence number (not necessarily starts at 0, can be random, but server and receiver must have same sequence number); the receiver ACK packet if correctly received and must be in-order. If the sequence number is corrupted or out-of-order, simply discard and ignore it. If timeout occurs to the sender, it must begin to resend from n all over again. Several advantages of sliding windows are: we can have more packets in pipe; overall reduced time; piggybacked ACKs.

Trick Part of Implementation:

1. use of state_t: I think it was actually the trickiest part and the dumbest part. I was struggling a while for how to transfer server/sender address information between those two due to lack of parameters in gbn_sendto(). The initial thought was overriding those methods, but Piazza's answer informed us we cannot modify receiver.c or sender.c. I spent a certain amount of time for figuring this out. It turns out we also need to modify the header file gbn.h. There is state_t for handshake. This part can have parameters to record state, windowSize, sequm, and address.

2. lack of global state. C is not object oriented language. But we need a global variable to keep track of state change. extern state_t was created in the gnb.h so "s" can act a global variable in gbn.c

3. Another important factor is inside gbn_send(): once the case is ESTABLISHED, we need pay close attention to keep track of window size and number of data needs to be sent. So many variables and logic needs to be followed here, need to be extremely careful in checking conditions.