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Go-Back-N Protocol Report

1. Three-Way Handshake

One of the reason why TCP/IP is a reliable communication method is that it implements a three-way handshake rather than two-way. So we implemented this in our protocol as well. At first, we have a gbn\_init() to register the timout signal handler in the system, we initialize the initial state to CLOSED, we set the initial windowsize to 1, and we generate a random sequence number.

The sender will first send a SYN packet to the receiver, and wait for the SYNACK sent back from the receiver. Every time the sender or the receiver receives a packet, it will check the packet type, check checksum and the number of bytes it received. After receiver receiving the SYN packet, the sender will send back the SYNACK. Once the sender receives the SYNACK, it will send out the DATAACK packet. Now the connection is established.

1. Sliding window

We use the global variable to keep tack of the window size. As long it hasn’t reached the maximum number of window size, the sender could send unacked packets in pipeline. Once the sender gets duplicate ACKs, this means there’s a congestion problem. The sender will reduce the window size to one. Similar to three-way handshake, every time sender or receiver receives a packet, it will check the packet type, check checksum and the number of bytes it received.

1. gbn\_close

In gbn\_close, either sender or receiver, who wants to initiate a close signal, it will send a FIN packet. If it receives a FIN packet, the state will be FIN\_RCVD. If not, after receiving the FIN packet, the state will be FIN\_SENT. If the state is FIN\_RCVD, it will send out FINACK. After receiving the FINACK, the connection is closed.

1. Tricky part

We think one tricky part is to implement go back n protocol is how to implement the timeout handler. We register the timeout signal handler in the gbn\_init first. We set a flag to indicate if there’s a timeout situation. Once our timer expires, we run the signal handler, and we set the flag to 1. After we deal with the timeout situation, we reset the timer to 1.