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CNT 4713 Homework 3

Go-Back-N Protocol

I have tested my program successfully on mininet with 0 and 10% packet loss. I used a 675 KB TEXT file to test my packet transfers using UDP. I took the following steps to set up my test environment.

For 10% packet loss I set up the following topology

- sudo mn --topo=single,2 --link=tc,bw=20,loss=10

I connected to the virtual machine using the ssh protocol

- ssh –X mininet@192.168.56.101

I transferred the files form my host machine to the mininet with the following command:

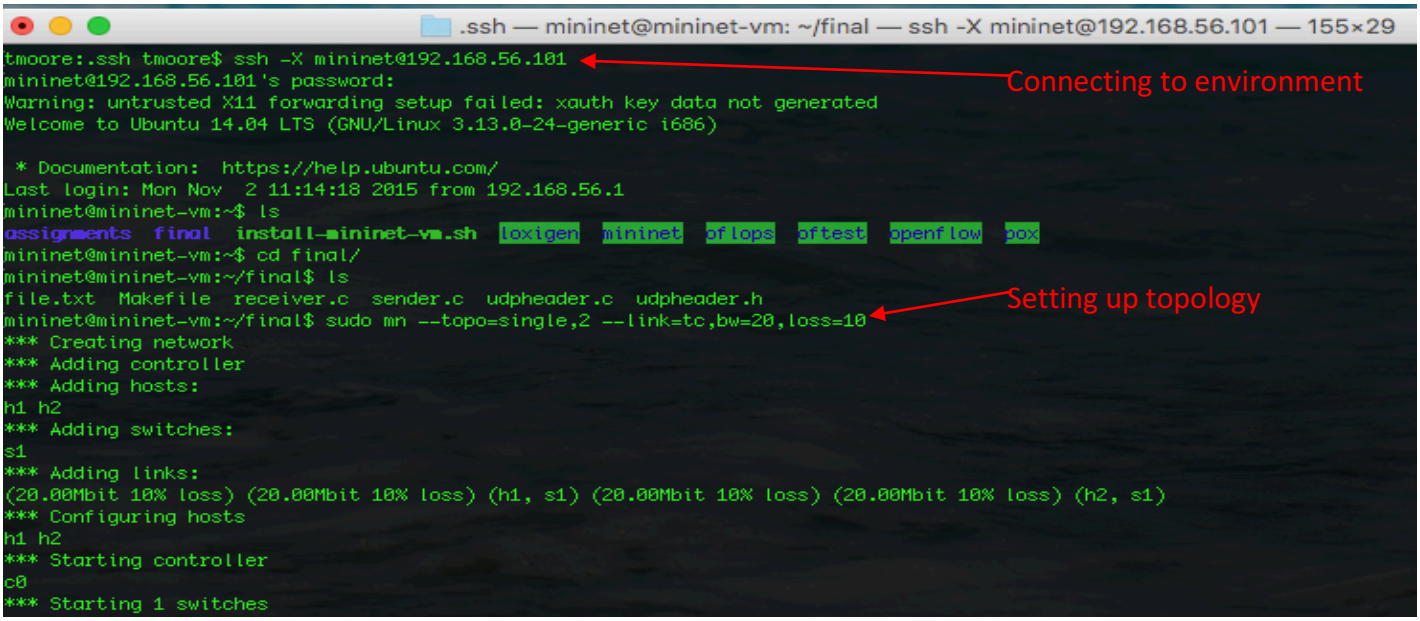
- scp -r homework3/ mininet@192.168.56.101:/home/mininet/assignments

With the command xterm h1 h2 i was able to access the notes in the virtual topology and run the programs in the host.

This allowed me to test my programs in each particular virtual node. By setting up a sender on x1 and the receiver in x2, I noticed a significant delay in transmission time when introducing packet loss to my algorithm. I noticed that since the window size is 100, and a probability of 10%, 10 packets being lost is a pretty high so the receiver could be stuck waiting on a packet indefinitely, because of the high probability of the same packet being lost. With no packet loss, all packets were sent smoothly with no lag in tramission, but when we introduced packet loss, you can see that the sender and receivers progress status updates may pause for a few seconds(because of retransmission) before continuing with status updates.

Below is evidence of my tests:

Step 1: connecting to virtual environment and initializing test environment



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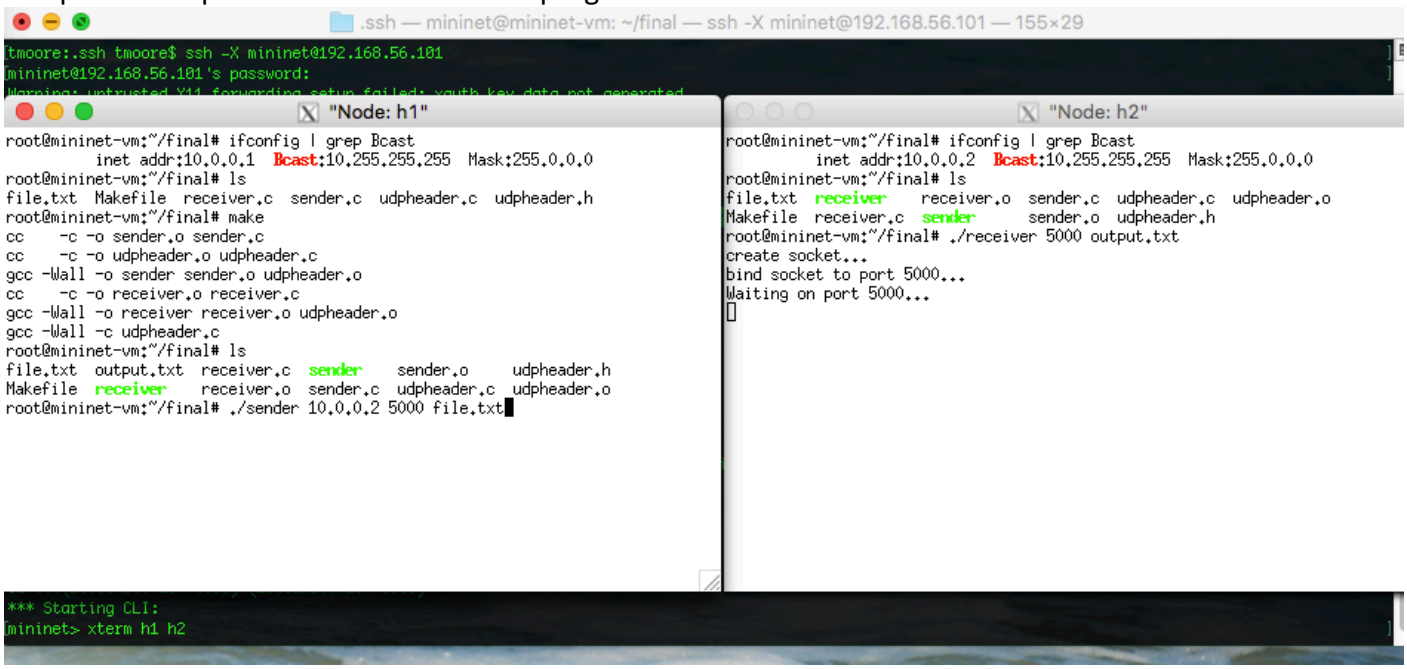
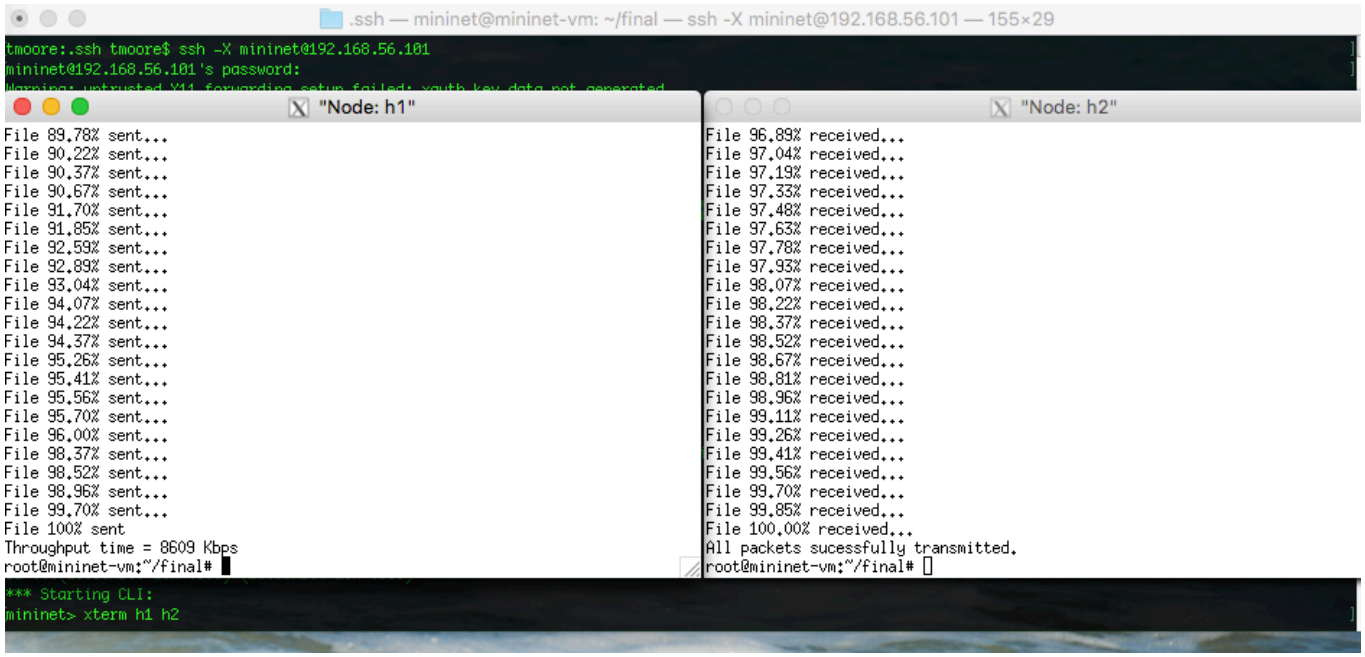
Step 2: Boot up host nodes and test the program



You can see on h1 (the left) the program was compiled and sender is ready to execute. On h2 (the right) I executed the receiver.

Step 3: Run program and compare received files .



The receiver pauses for a specific amount of time to handle any sender retransmissions.

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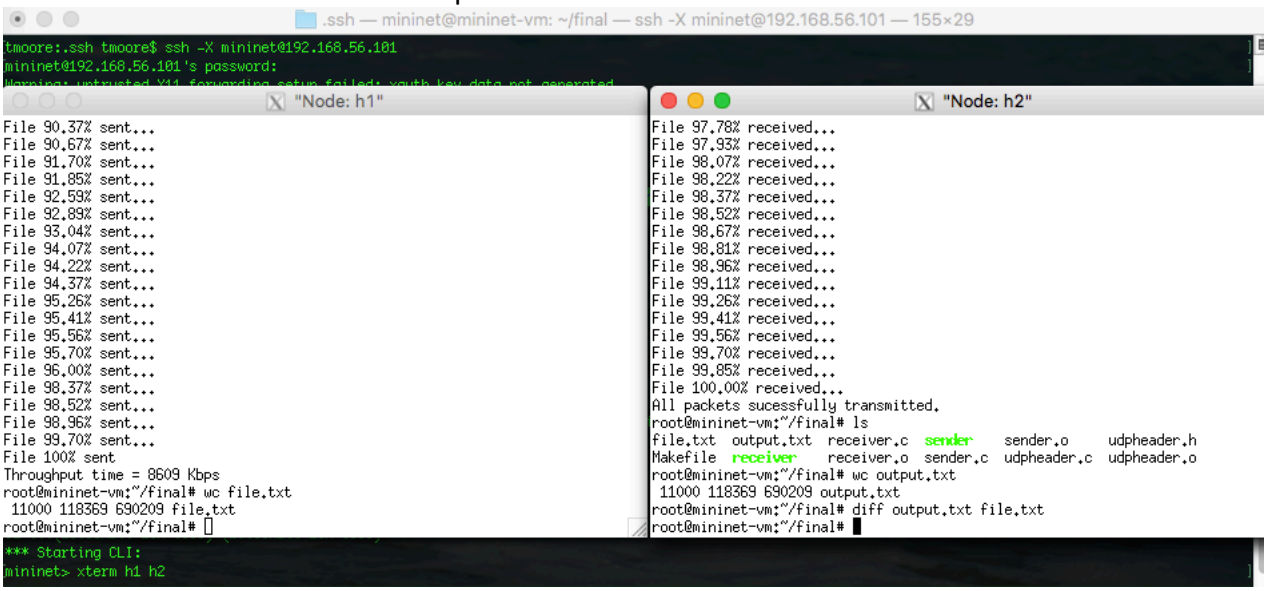
The last screenshot shows file comparison and transmission success:



****NOTE TO INSTRUCTOR****

File type not specified in instructions- program transfers TEXT FILE ONLY. To send other file types we must change implementation to use memcpy when copying file contents instead of strcpy.