# Computer Networks

Lab Report on GBN protocol

Soham Tripathy (CS20B073)

04-03-2023

# CS3205 - LAB 4 Report

## Observations

The receiver was run on Ubuntu system, whose IP was '192.168.0.103', and the sender was run on a Kali VM. I used the port number 8080 for the socket.

The following experiments were conducted and their records are stored in the respective server logs. This can be found in the record-script folder.

- PACKET_LENGTH = 128
  - RANDOM_DROP_RATE = 1e-4
  - RANDOM_DROP_RATE = 1e-8
- PACKET_LENGTH = 1024
  - RANDOM_DROP_RATE = 1e-4
  - RANDOM_DROP_RATE = 1e-8

This table is for Packet Drop Rate = 1e-4

| Packet Length | 128 | 1024 |
|---|---|---|
| Packet Gen Rate | 10 | 10 |
| Retrans. Ratio | 1.015 | 1.01 |
| Avg RTT (ms) | 0.244 | 0.250 |

This table is for Packet Dropo Rate = 1e-8

| Packet Length | 128 | 1024 |
|---|---|---|
| Packet Gen Rate | 10 | 10 |
| Retrans. Ratio | 1.0075 | 1.005 |
| Avg RTT (ms) | 0.250 | 0.265 |

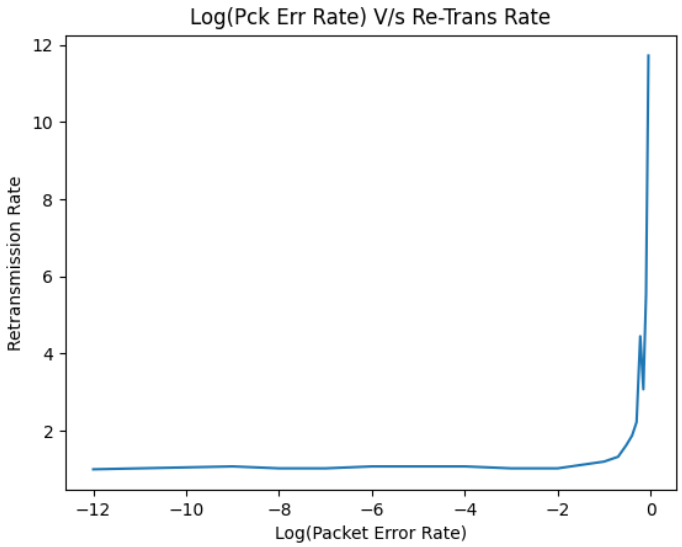
It is observed that for more packets of higher length the RTT is slightly higher. This is because they take more time while process-

ing and transmission, but they are still small enough to be negligible.

The Re-transmission Rate for the lower probability is lower when compared to other. This indicates that there is direct relation of Packer drop rate and Re-transmission rate.

I wrote a python code to measuere this relationship. In this version I removed the exit condition of 5 maximum retransmission and let the code transmits packets till it reaches the receiver.

This following graph is observed.




It is observed that the Re-transmission Rate remains almost constant or slightly increases upto a certain value and then starts to exponentially increase.

This is the main reason why GBN is not preferred in conditions where there can be higher bit error rate. This also depends on the which layer we are in.