Lab 1 Report

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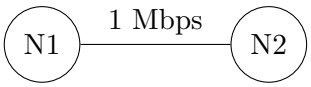
1 Two Nodes

In this first section we explored a simple network consisting of two nodes and one bidirectional link. We simulated the following scenarios:

1. Set the bandwidth of the links to 1 Mbps, with a propagation delay of 1 second. Send one packet with 1000 bytes from n1 to n2 at time 0.
2. Set the bandwidth of the links to 100 bps, with a propagation delay of 10 ms. Send one packet witih 1000 bytes from n1 to n2 at time 0.
3. Set the bandwidth of the links to 1 Mbps, with a propagation delay of 10 ms. Send three packets from n1 to n2 at time 0 seconds, then one packet at time 2 seconds. All packets should have 1000 bytes.

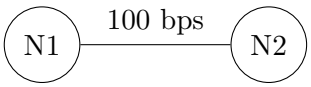
After running the simulations we will show our network configuration, the output of the simulation and the calculations we used to verify that the output was correct.

The results of running the simulator for each of the scenarios are below:

1. 

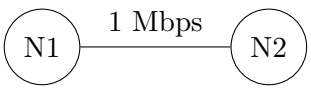
   The output of the simulation was:

```
1    Created:0   ID:1  Received:  0.009000000000000001
```

2. 

   The output of the simulation was:

```
1       Created:0   ID:1  Received:  80.01
```

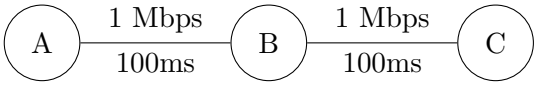
3. 

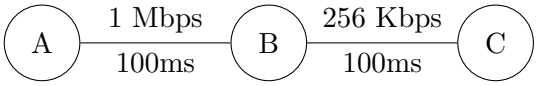
   The output of the simulation was:

```
1   Created:0   ID:1   Received:0.018000000000000002
2   Created:0   ID:2   Received:0.026000000000000002
3   Created:0   ID:3   Received:0.034
4   Created:2.0   ID:4   Received:0.017999999999999794
```

2 Three Nodes

In this section we will use the simulator to setup a network consisting of three nodes and two links. We will test two fast links and one fast link with a slow link. For each scenario we will show our network configuration, the last 5 lines of the simulation ouput and the calculations we used to verify the output. The results are as follows.

1. 

2. 

3 Queueing Theory

This is the graph of our queue theory output.

4 Summary