Part 1.

a)

Steps:

The mininet network is set up using the command **sudo mn**

Observations:

TCP Throughput = 957 Kbps

TCP Bandwidth = 1 Mbps

b)

Steps:

The network is again set up using sudo mn command

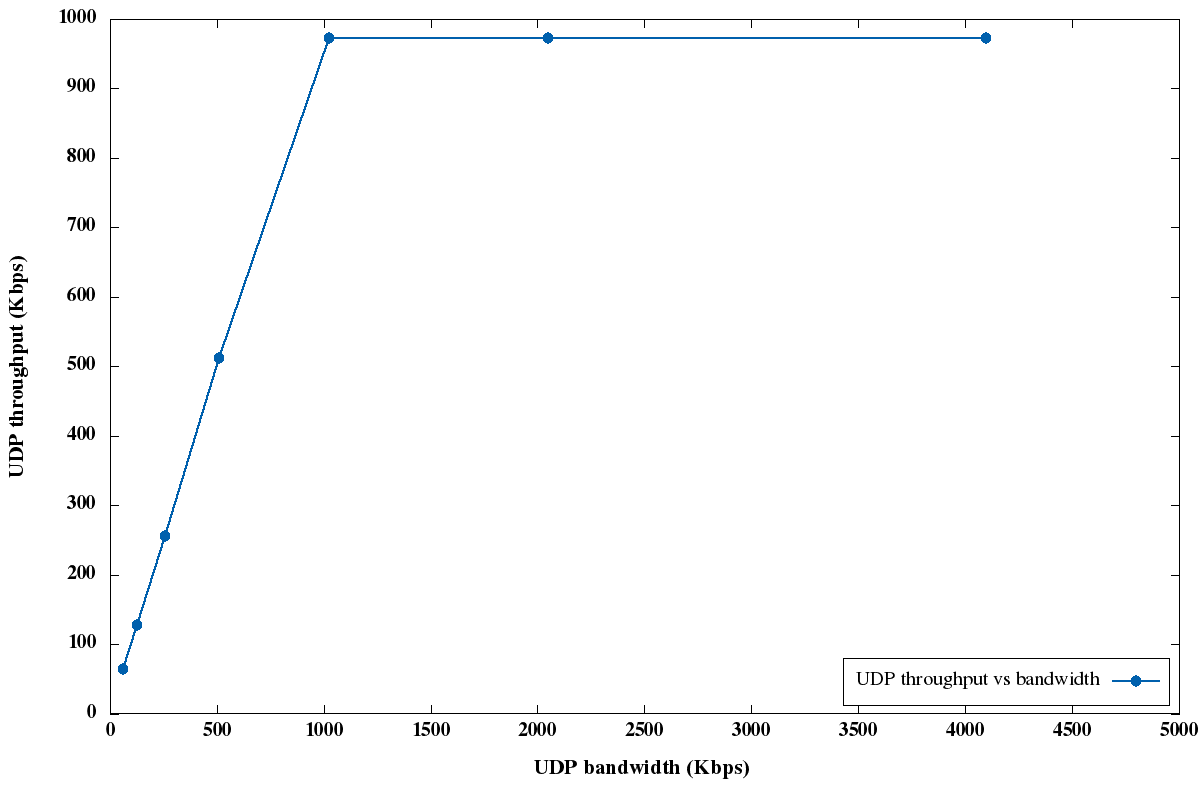
Opening xterm h2, we set up server in UDP mode by iperf -s -u

Openning xterm h1, we set up client and send packets to check throughput by using the command

Iperf -c -u 10.0.0.2

Observations :

The graph showing the nature of variation of throughout w.r.t. bandwidth is shown below,



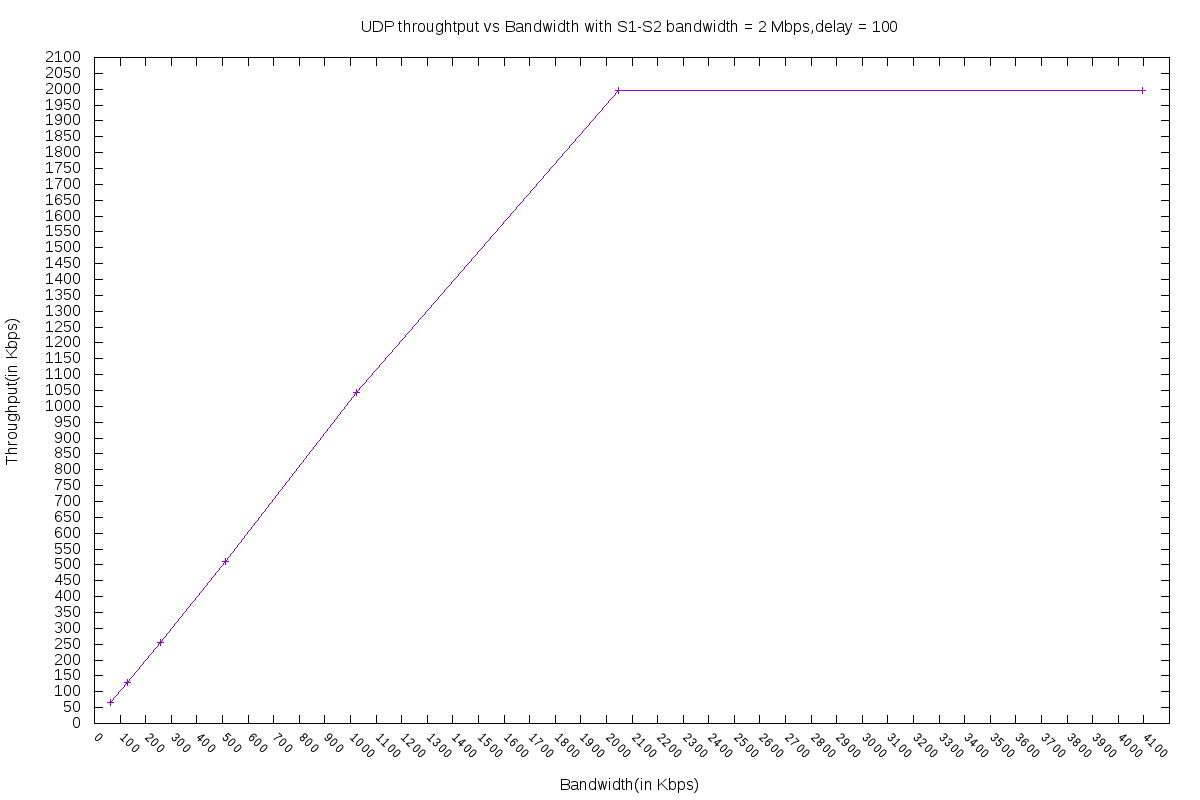
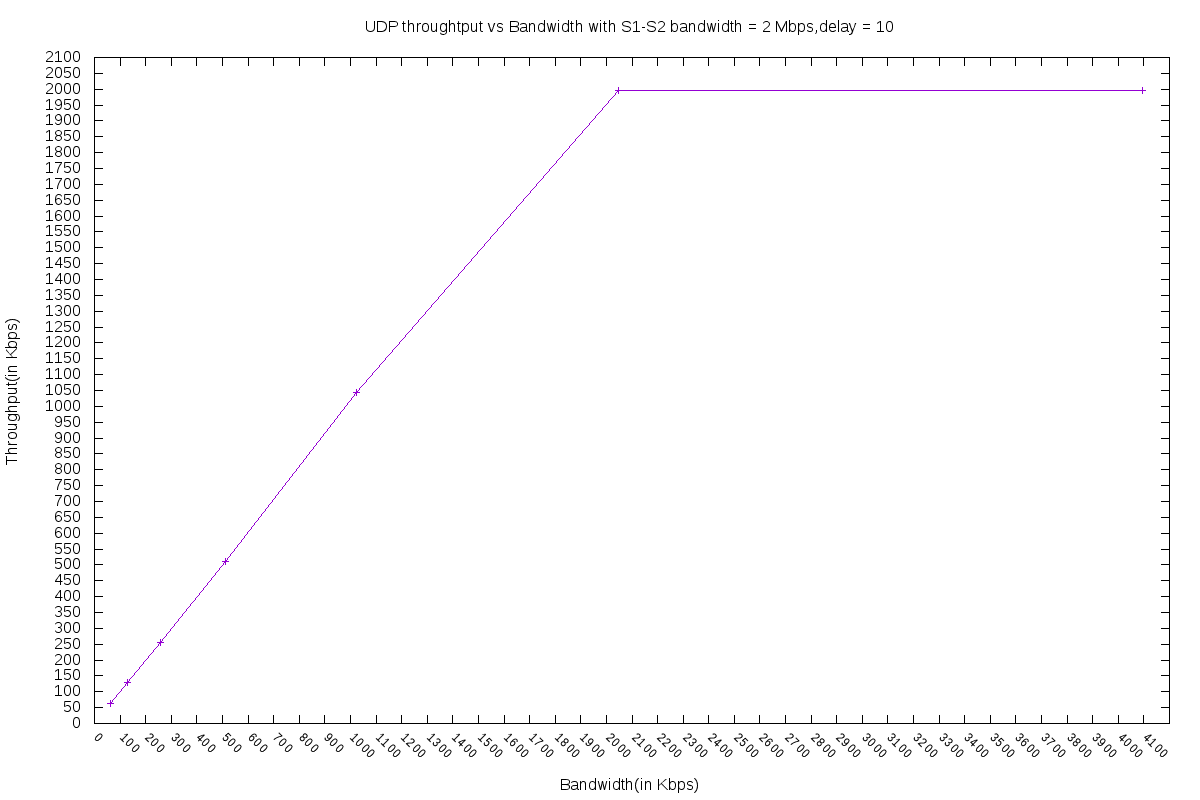
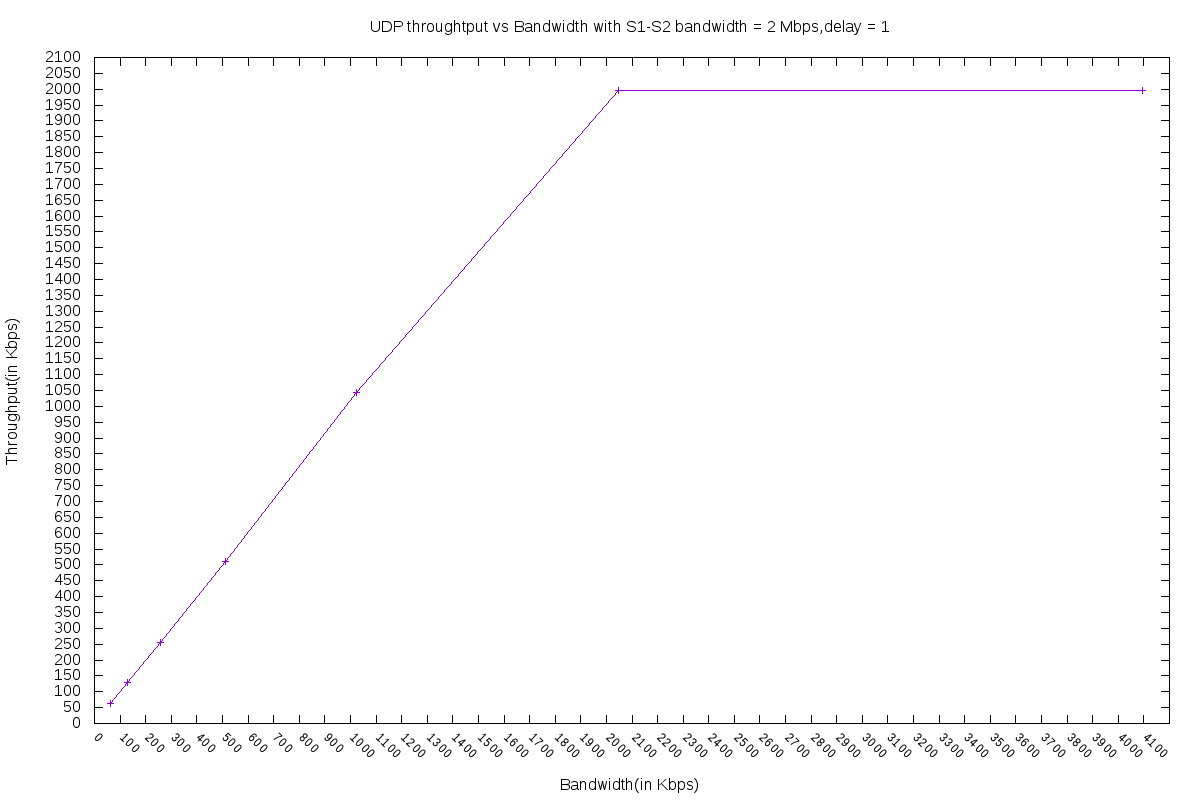
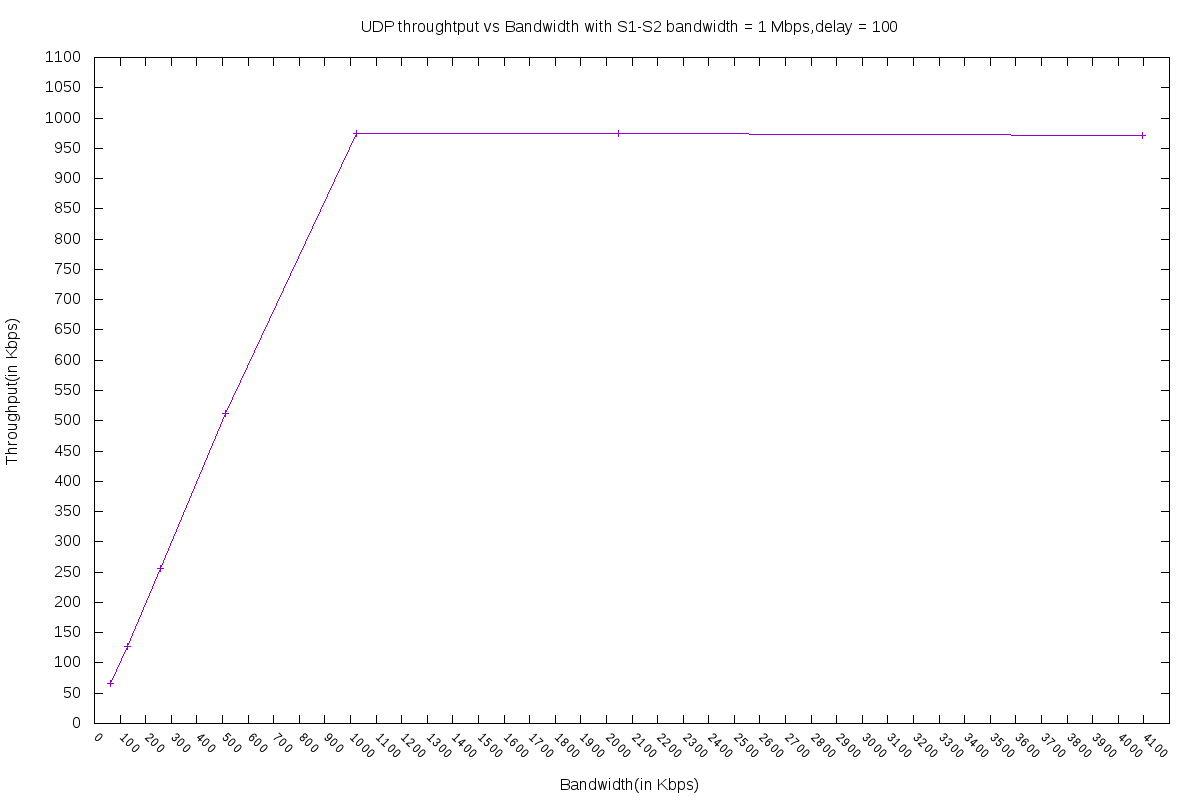
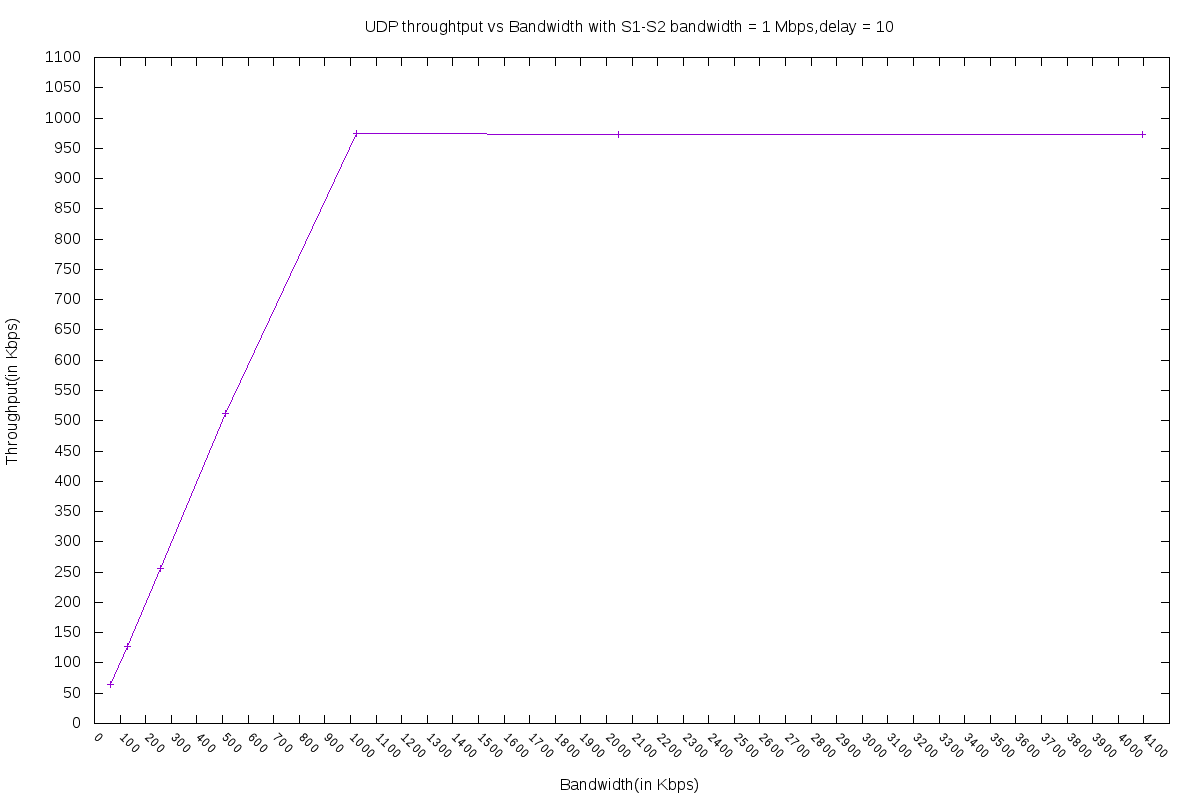
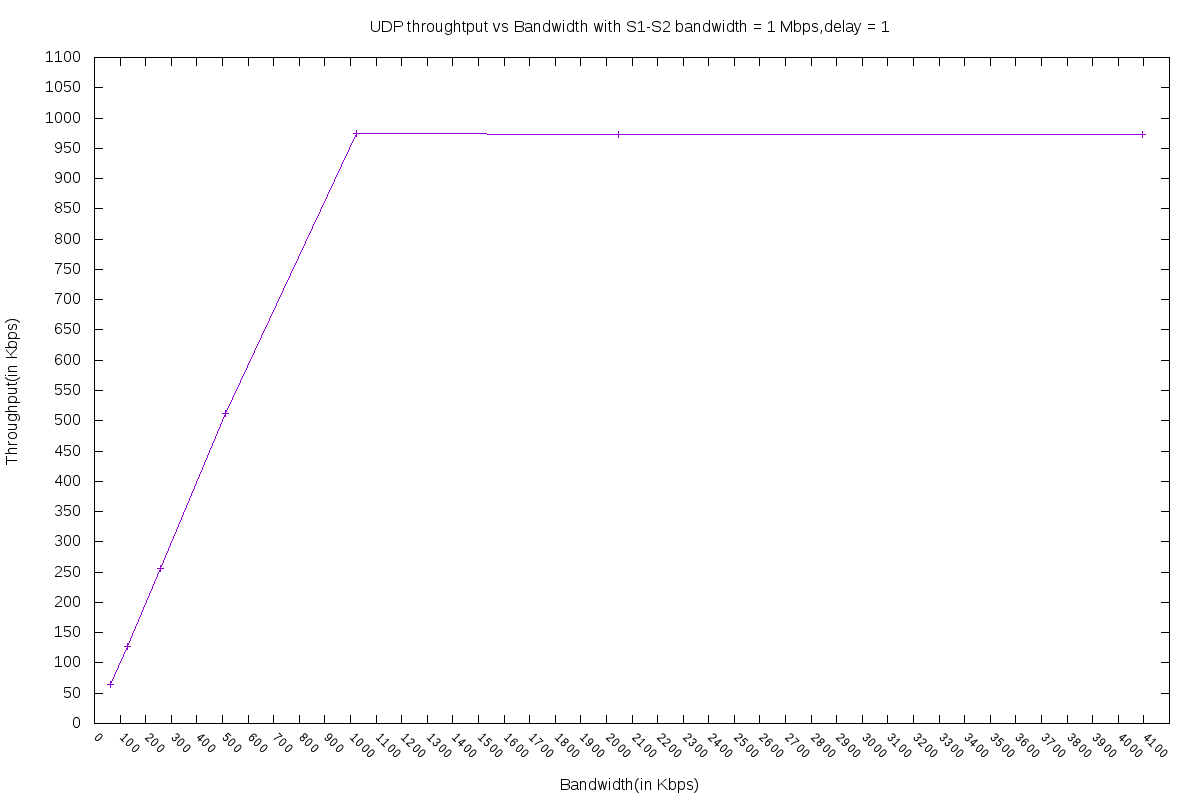
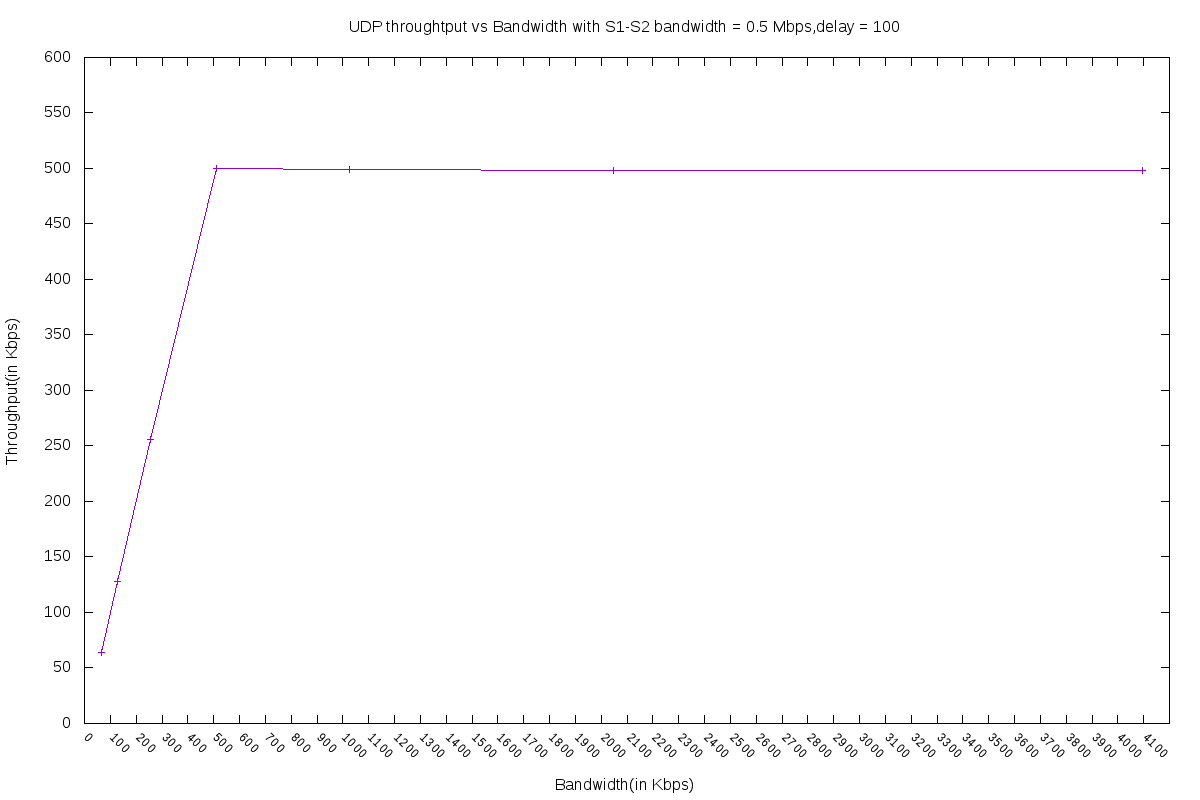
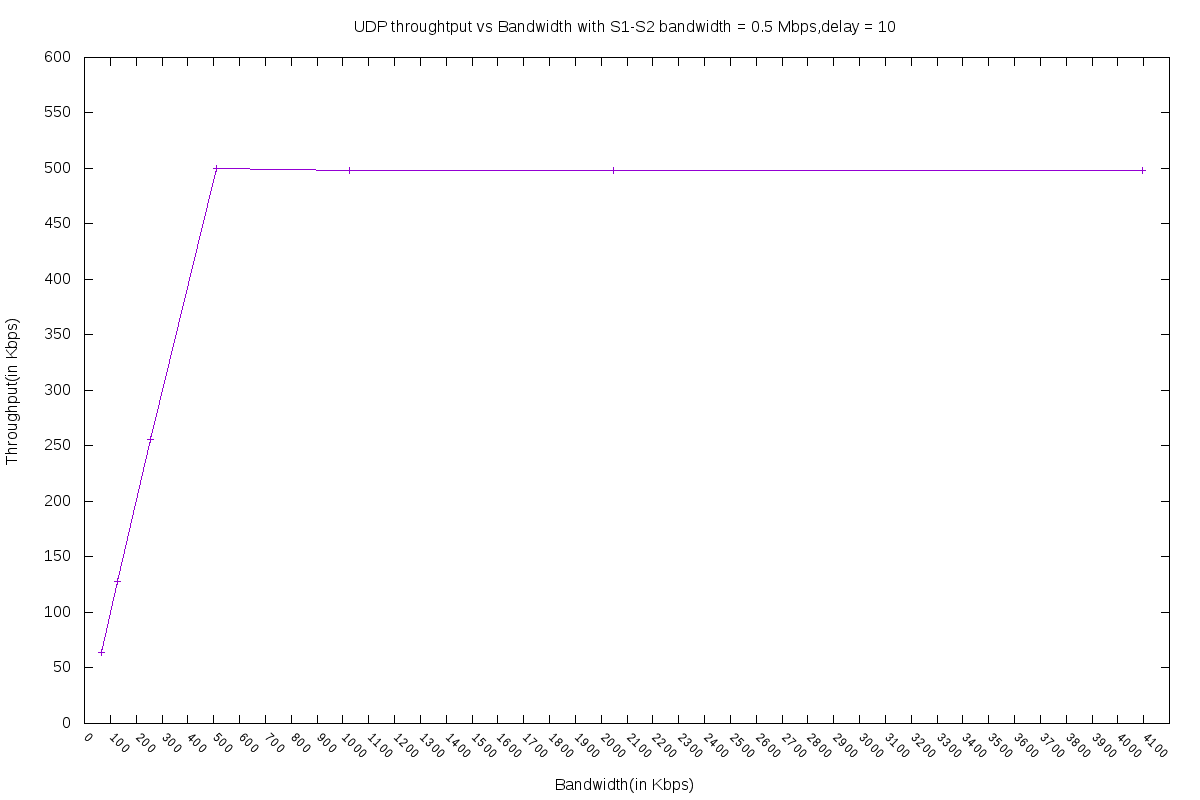
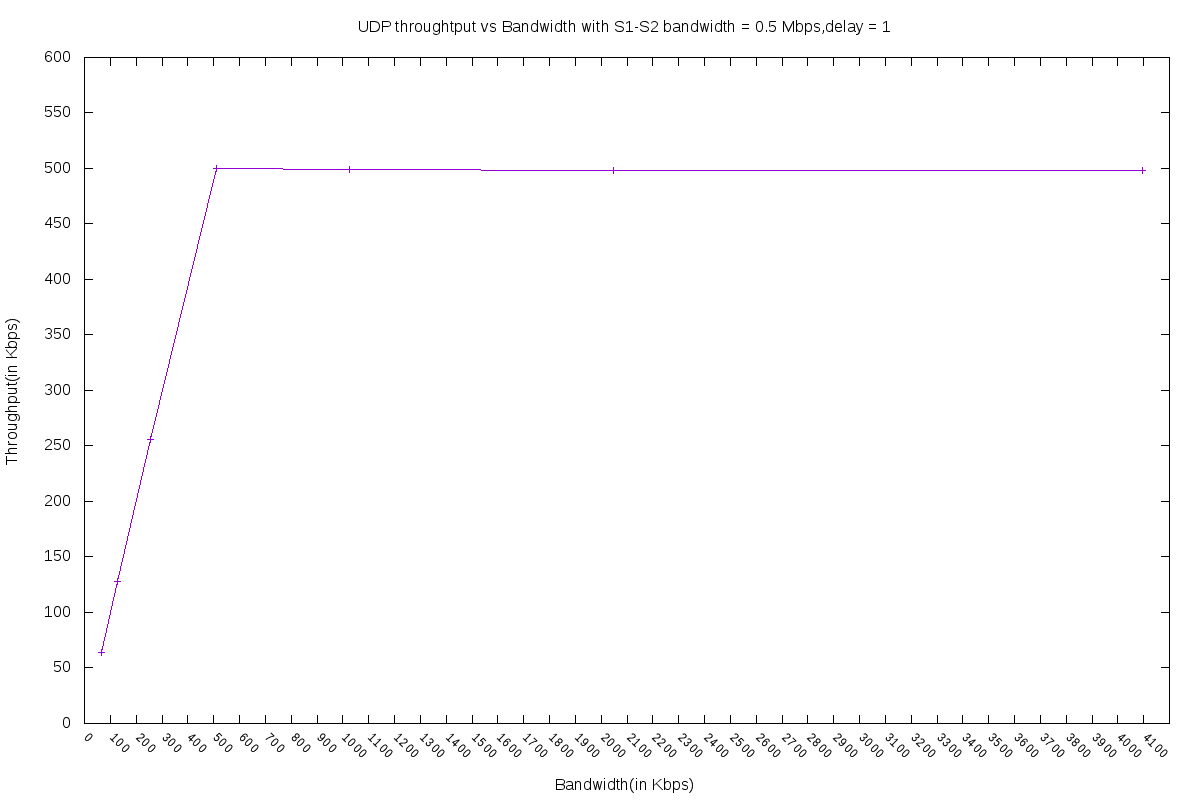
Justification :

The bandwidth of the connection is 1 Mbps. So, on sending less amount of data the thoughput is equal to the bandwidth of the UDP connection. But in case the UDP bandwidth is 1 Mbps or more, full amount of data is not being transferred due to limit of the link. Hence the value of the thoughput becomes less than the UDP bandwidth in these cases.

Part 2

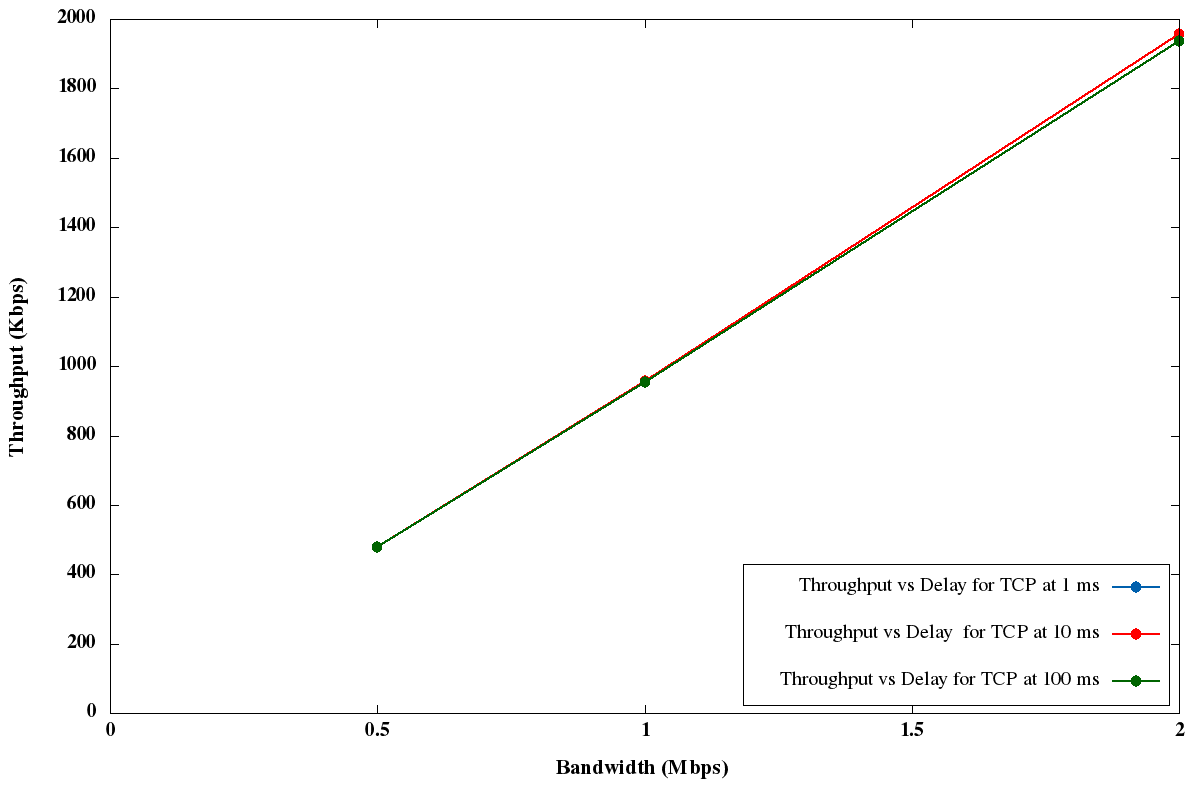
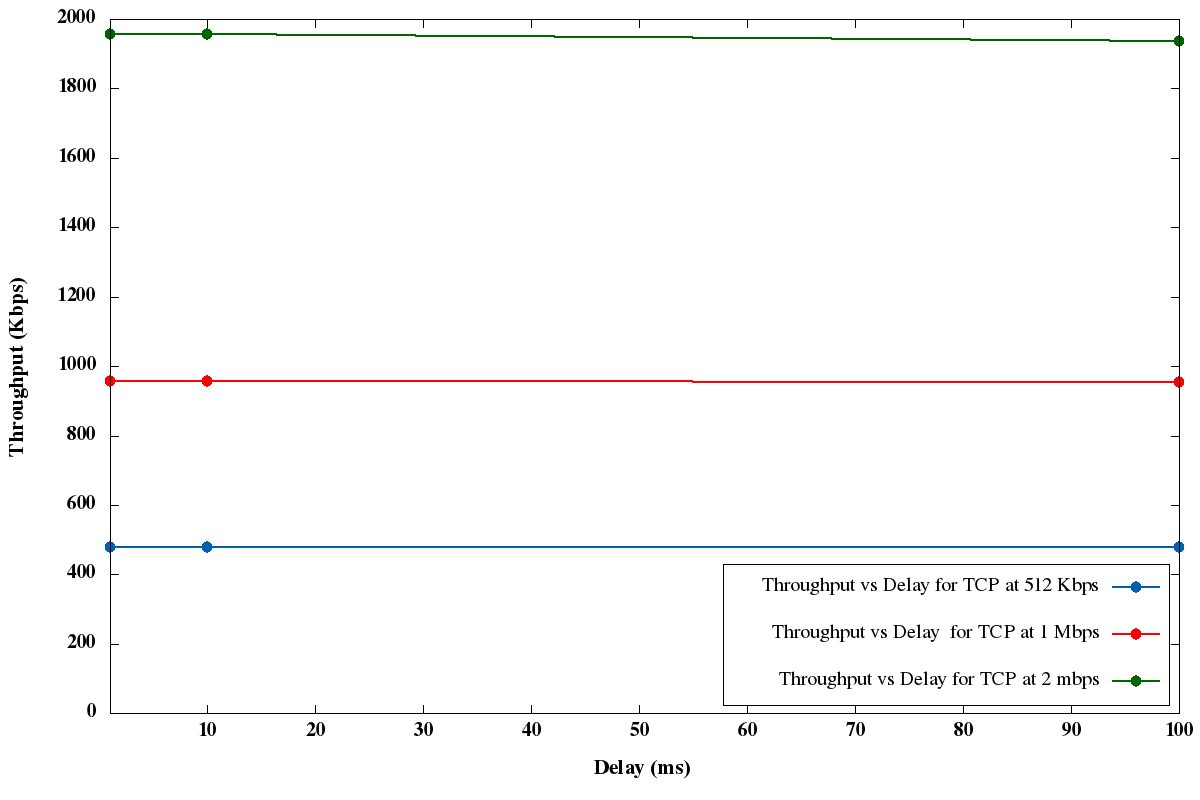
a)

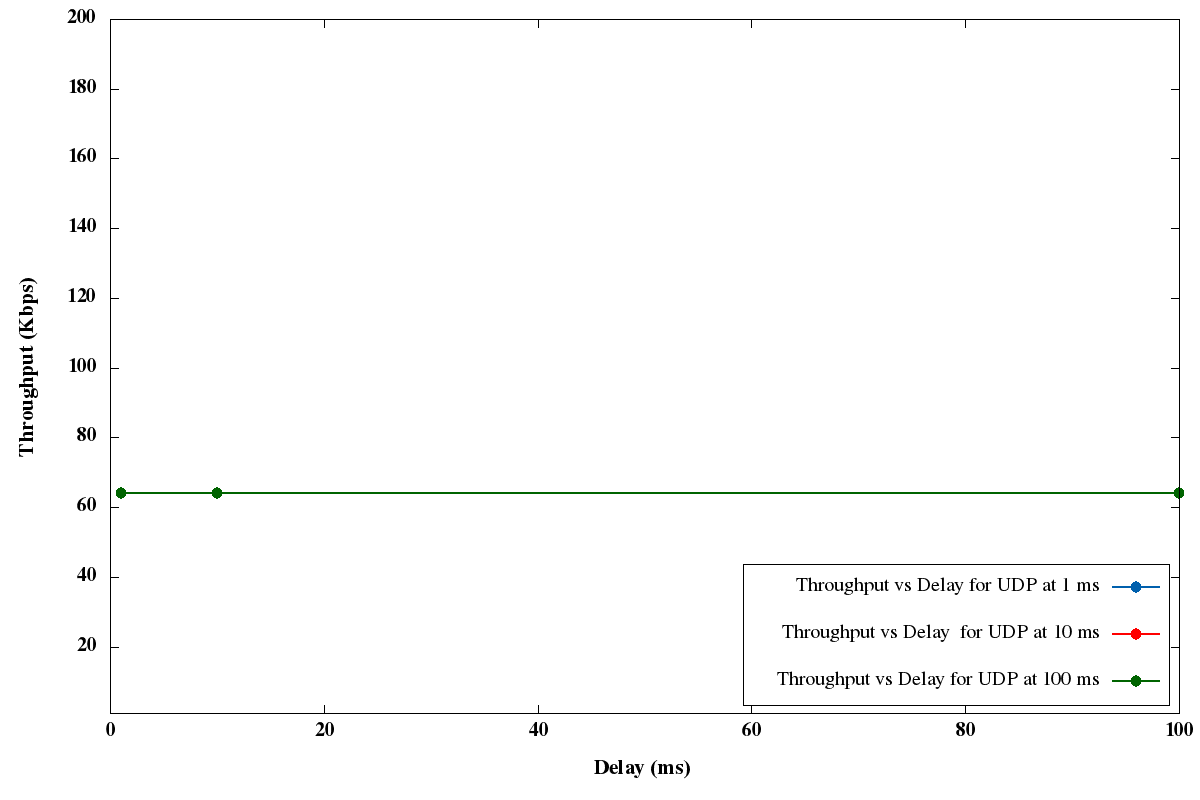
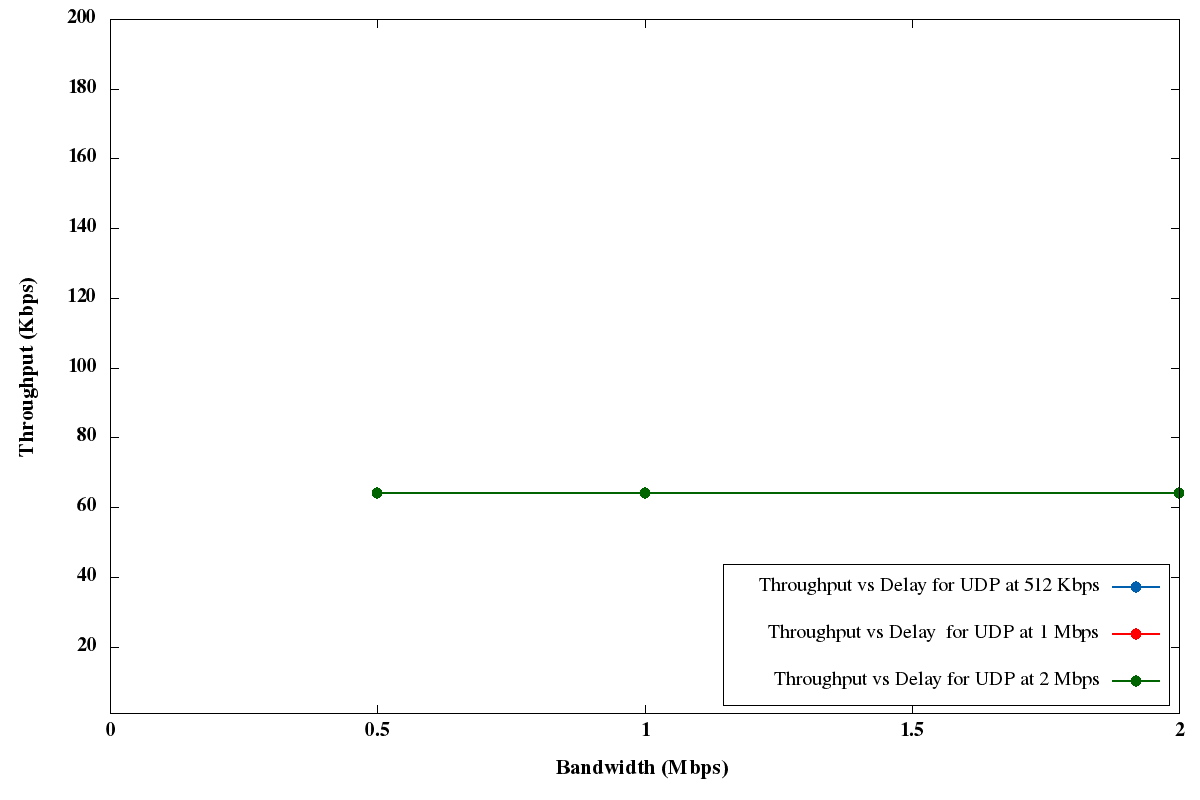
Steps:

Observations:

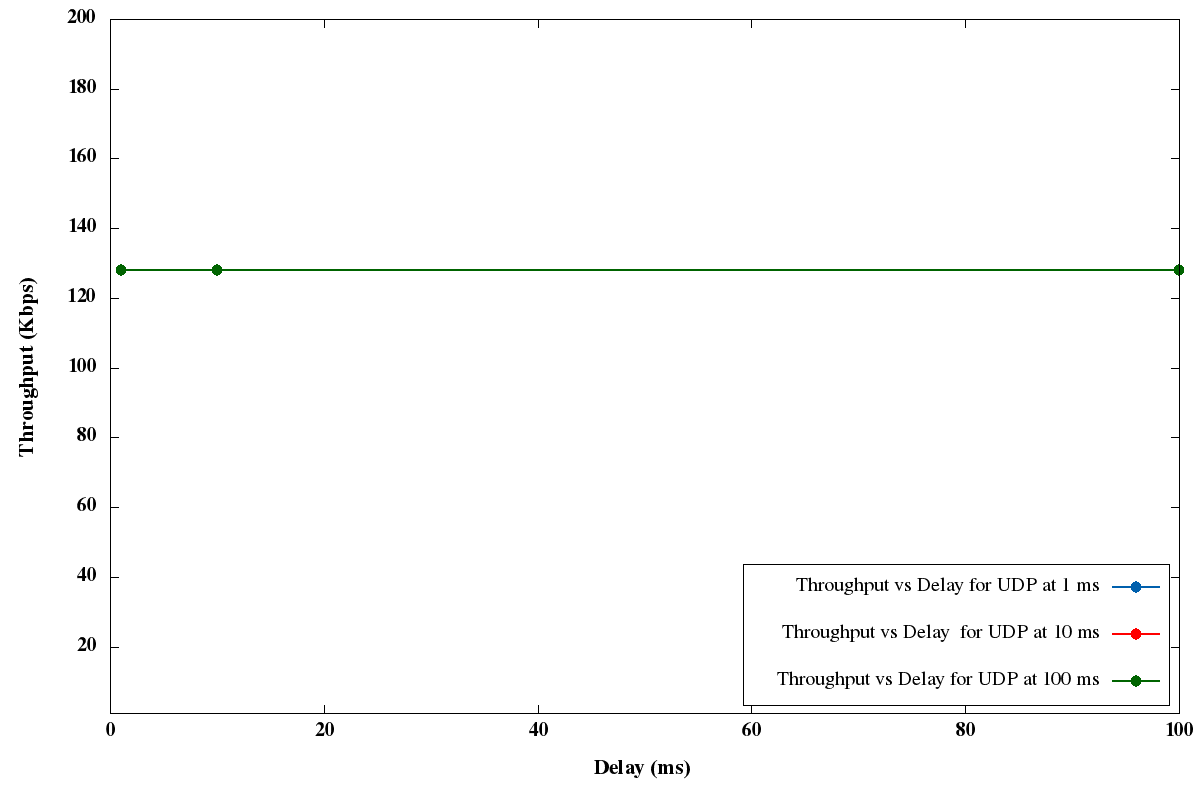
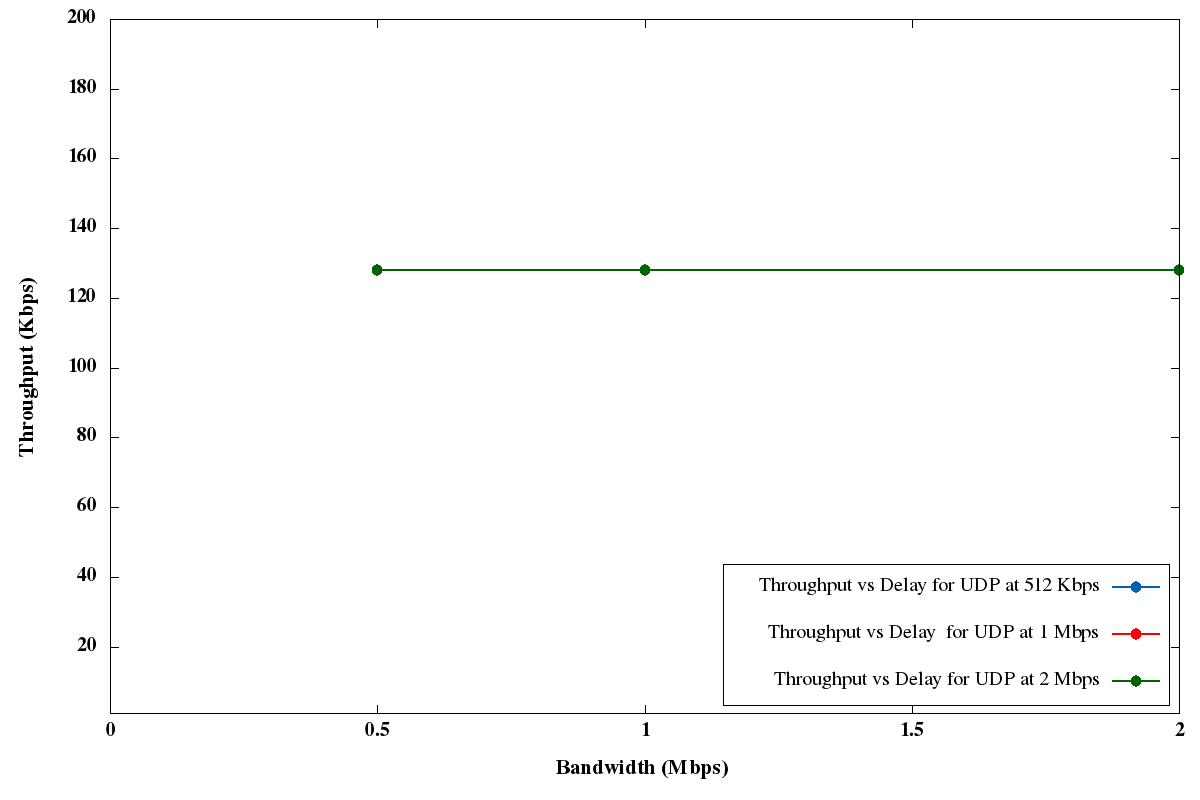
Some additional plots are :

For TCP

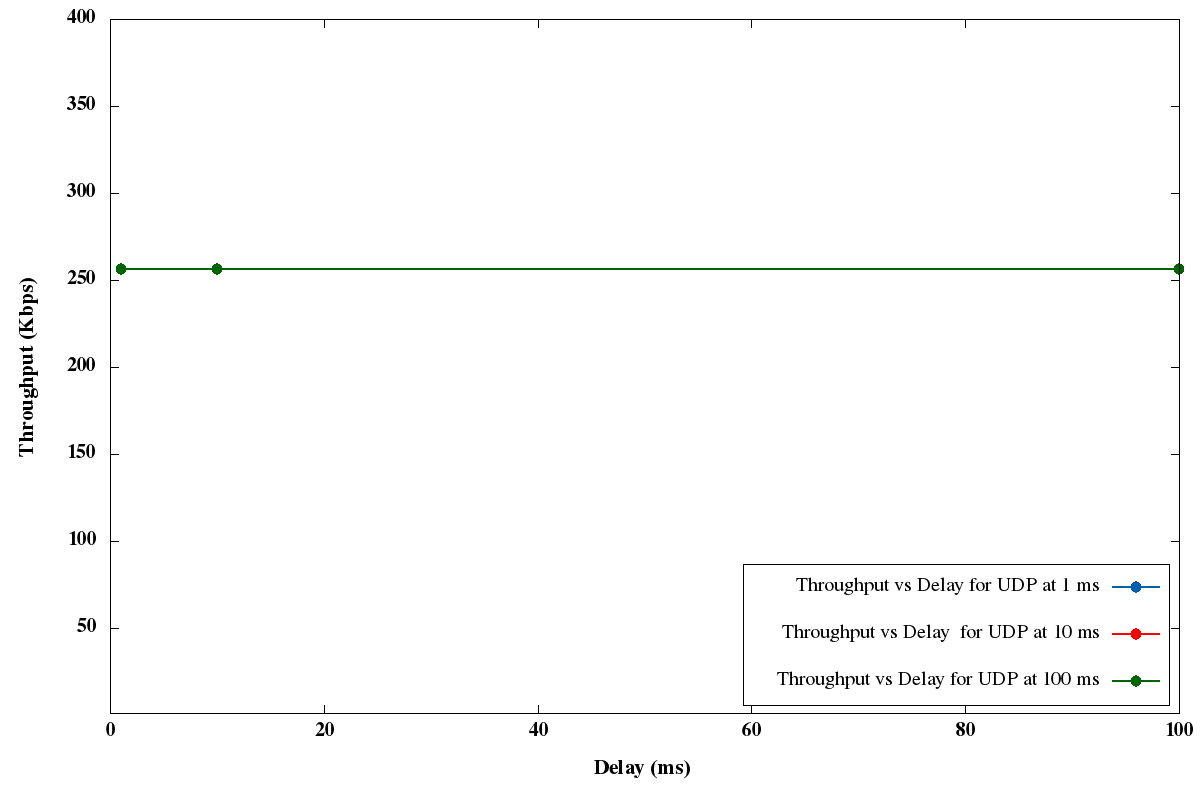
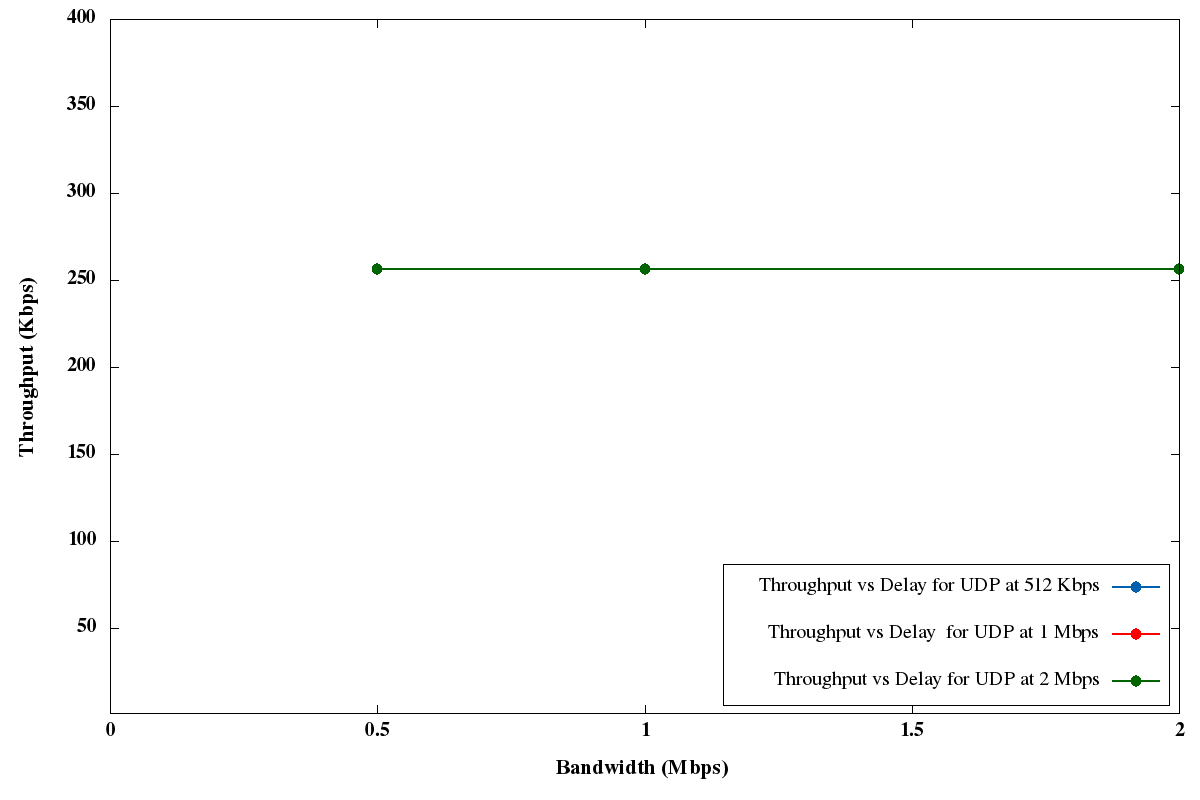


For UDP bandwidth = 64 Kbps

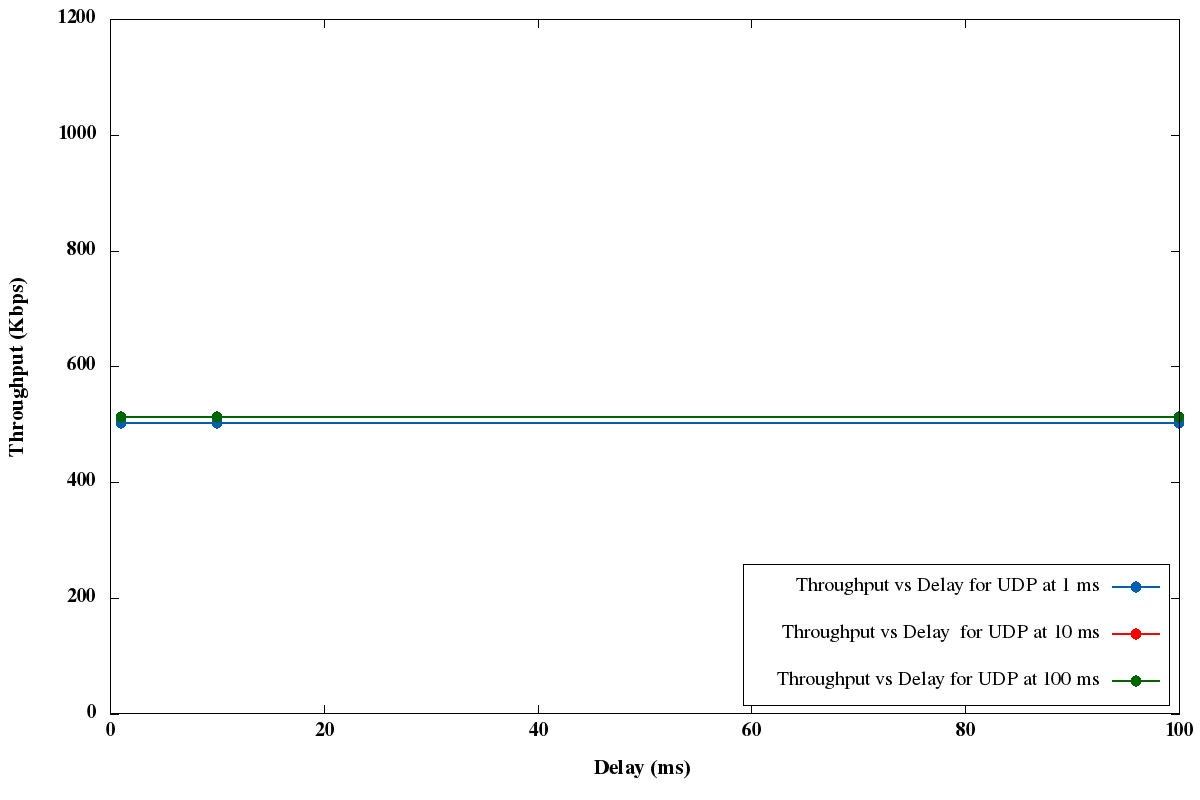
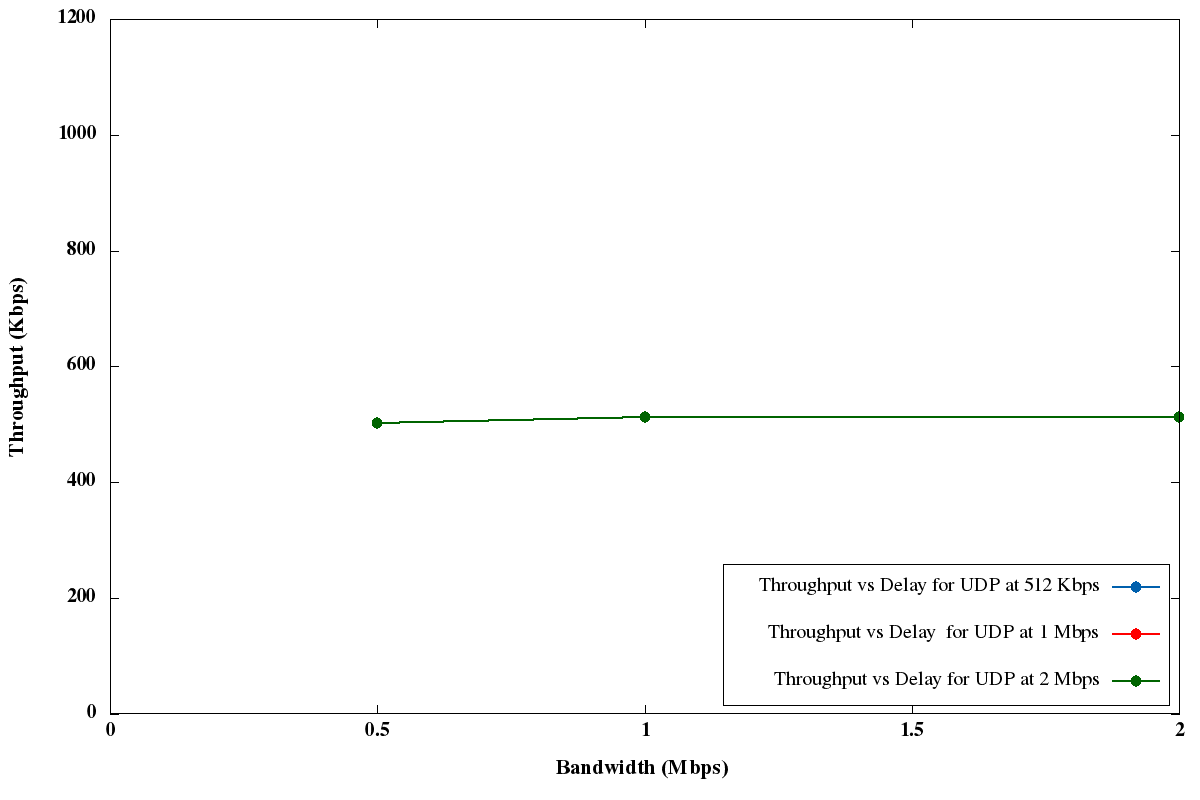
For UDP bandwidth = 128 Kbps



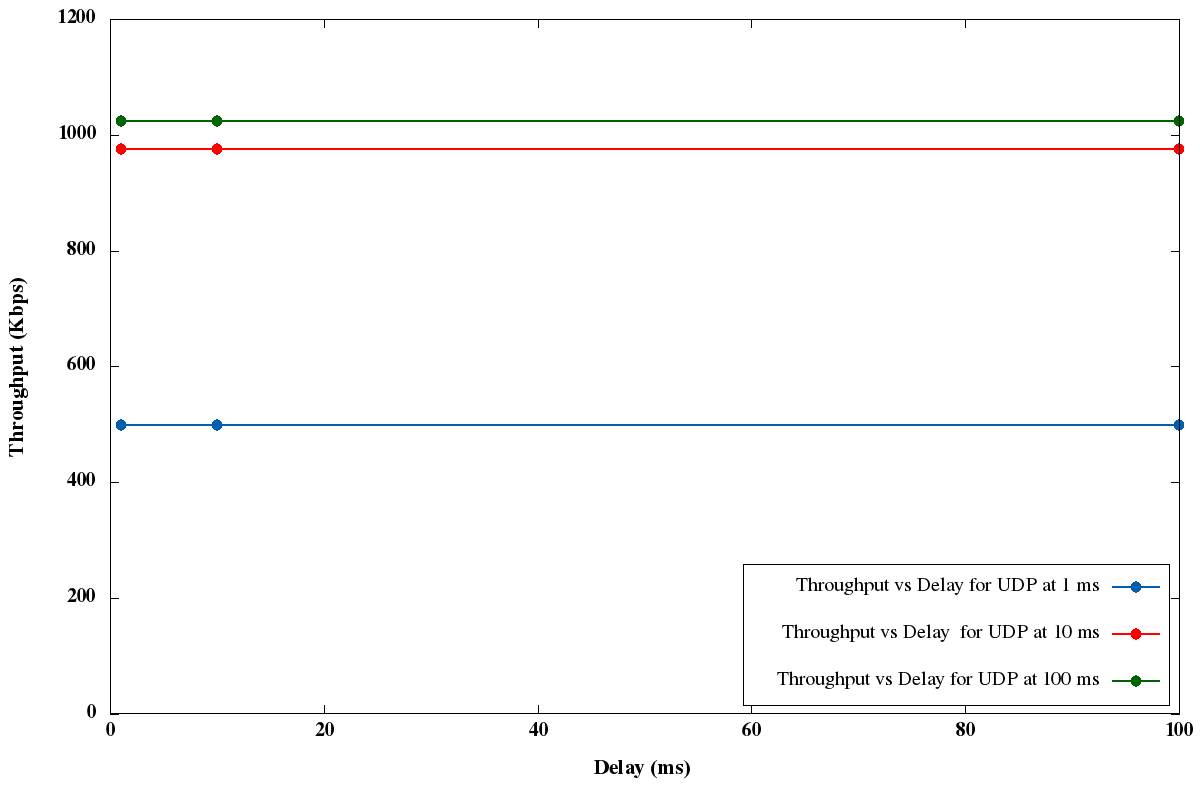
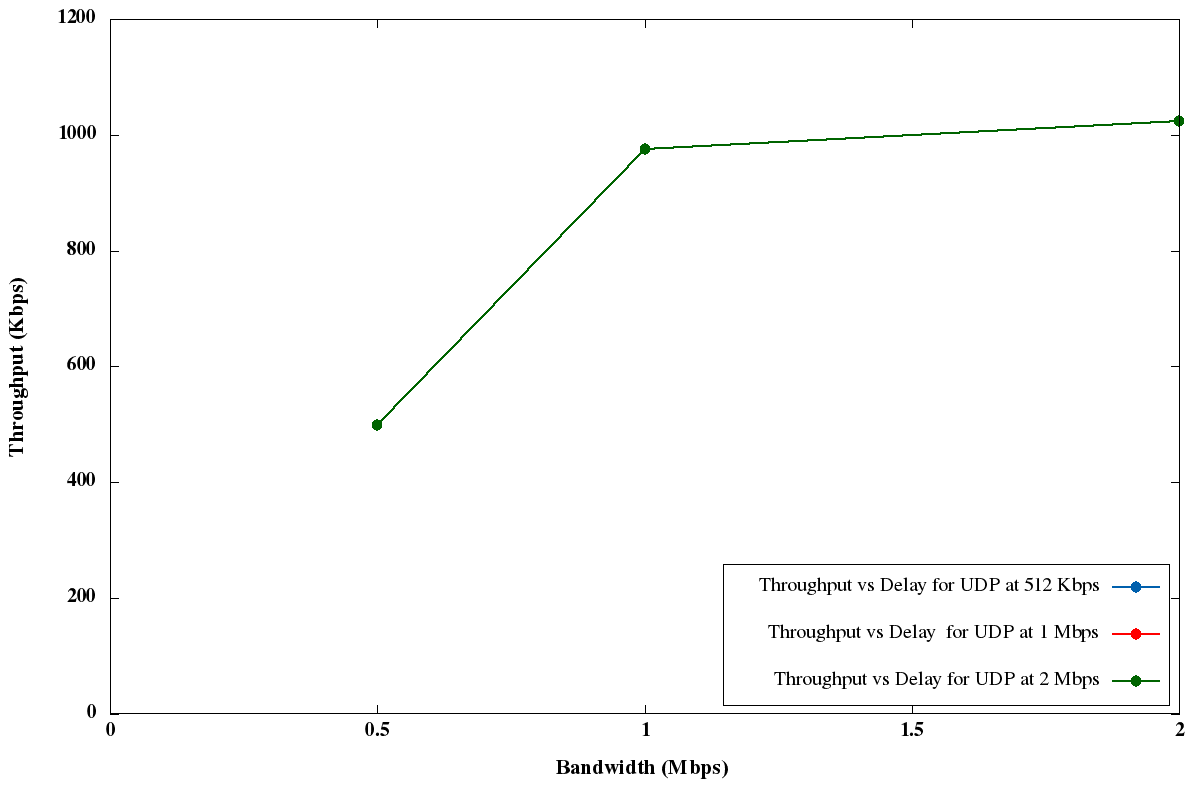
For UDP bandwidth = 256 Kbps



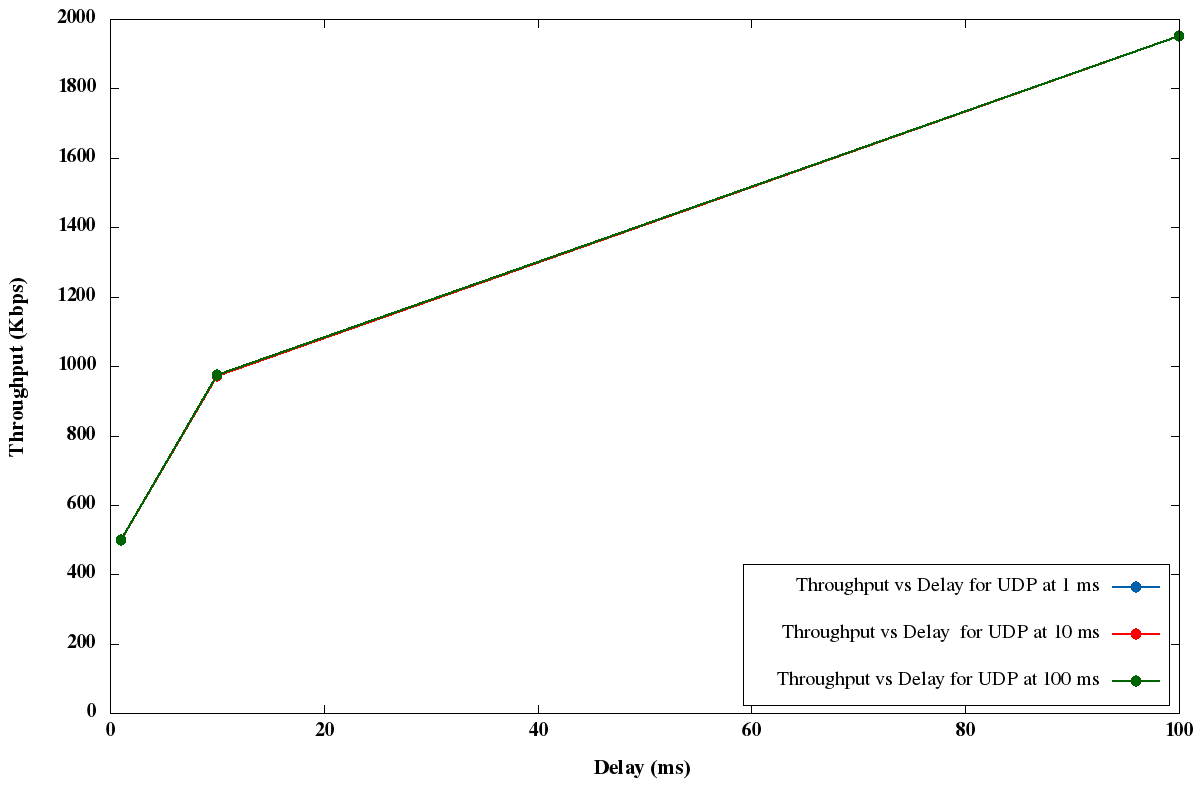
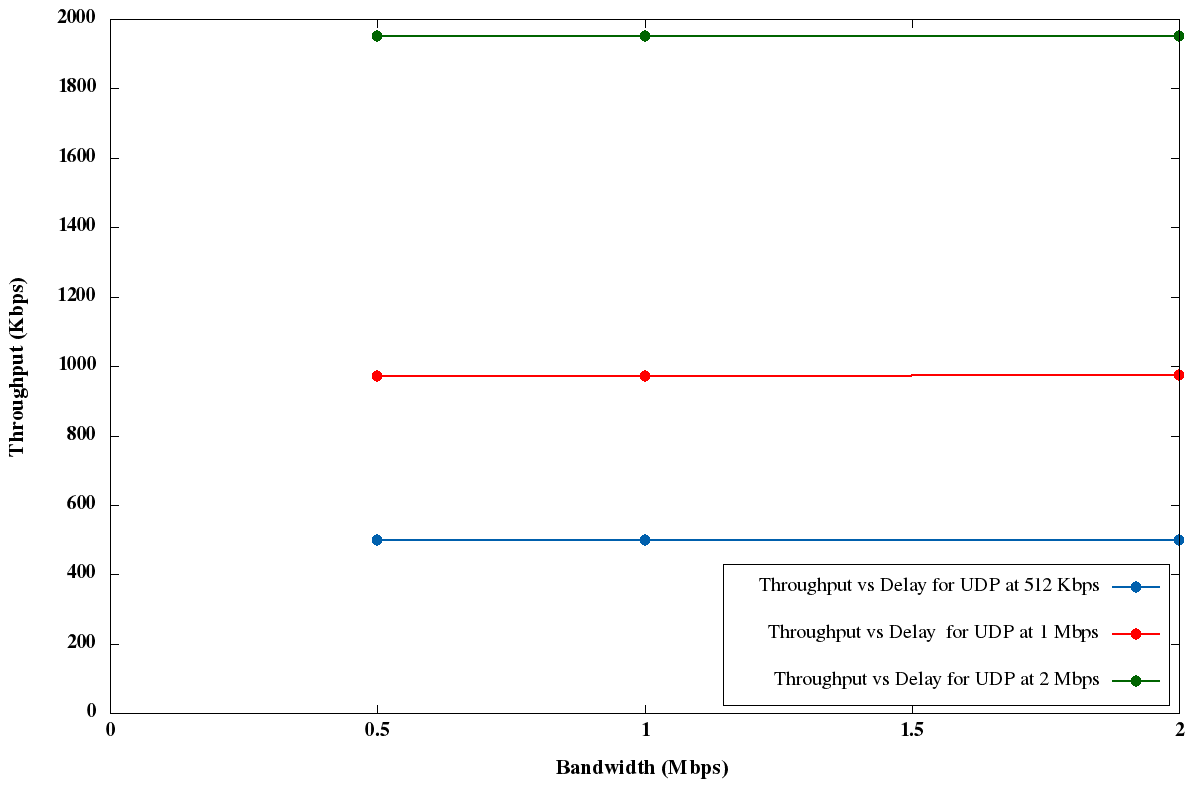
For UDP bandwidth = 512 Kbps



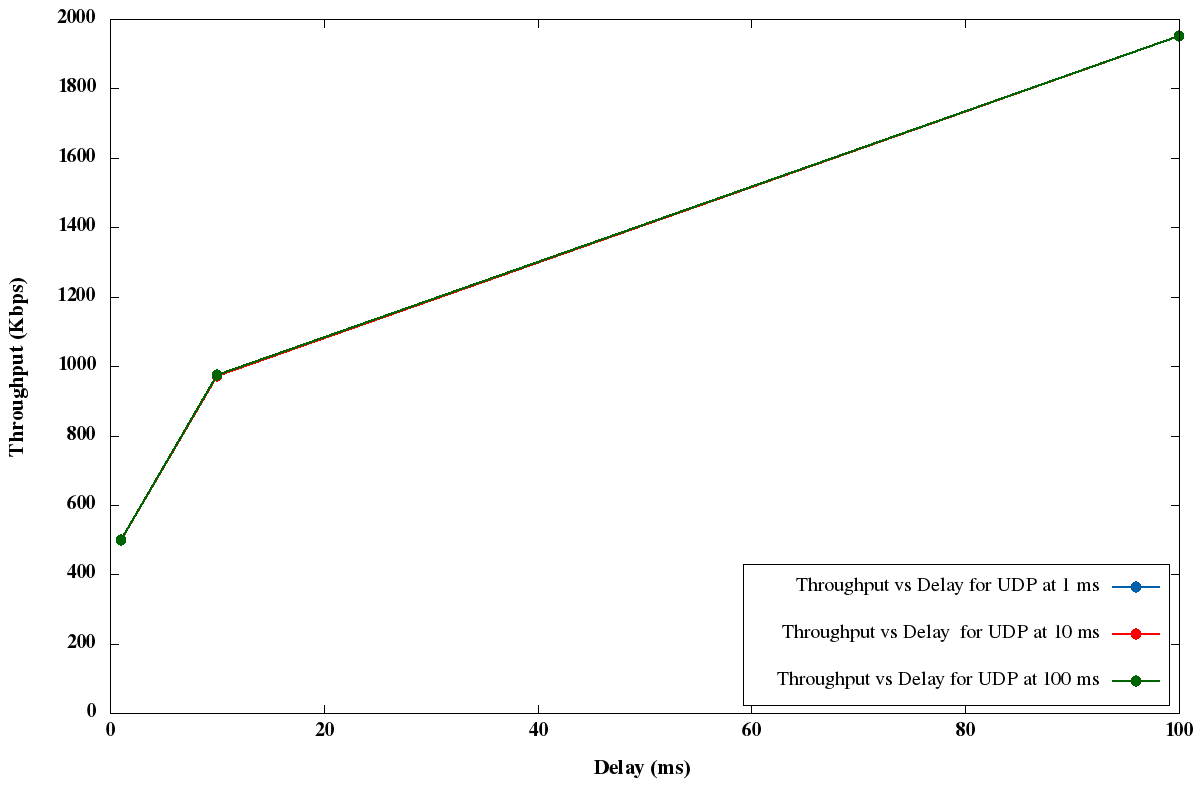
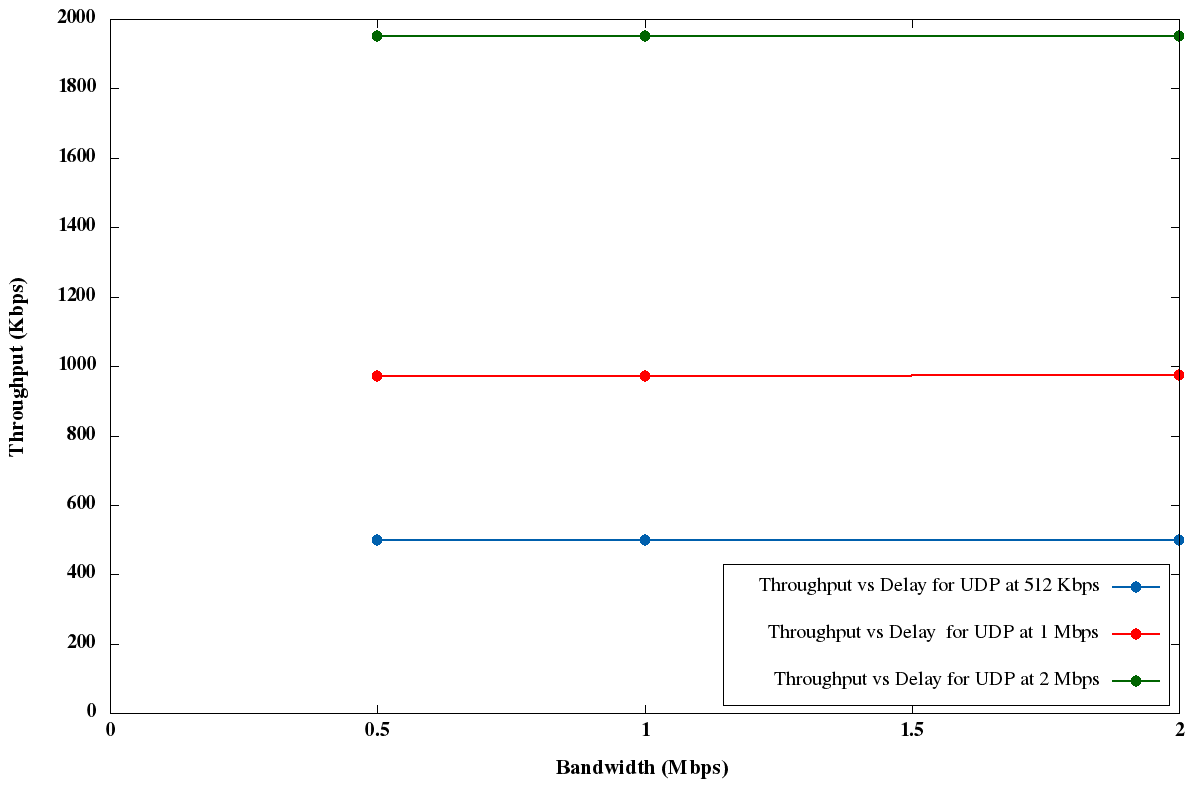
For UDP bandwidth = 1024 Kbps



For UDP bandwidth = 2048 Kbps



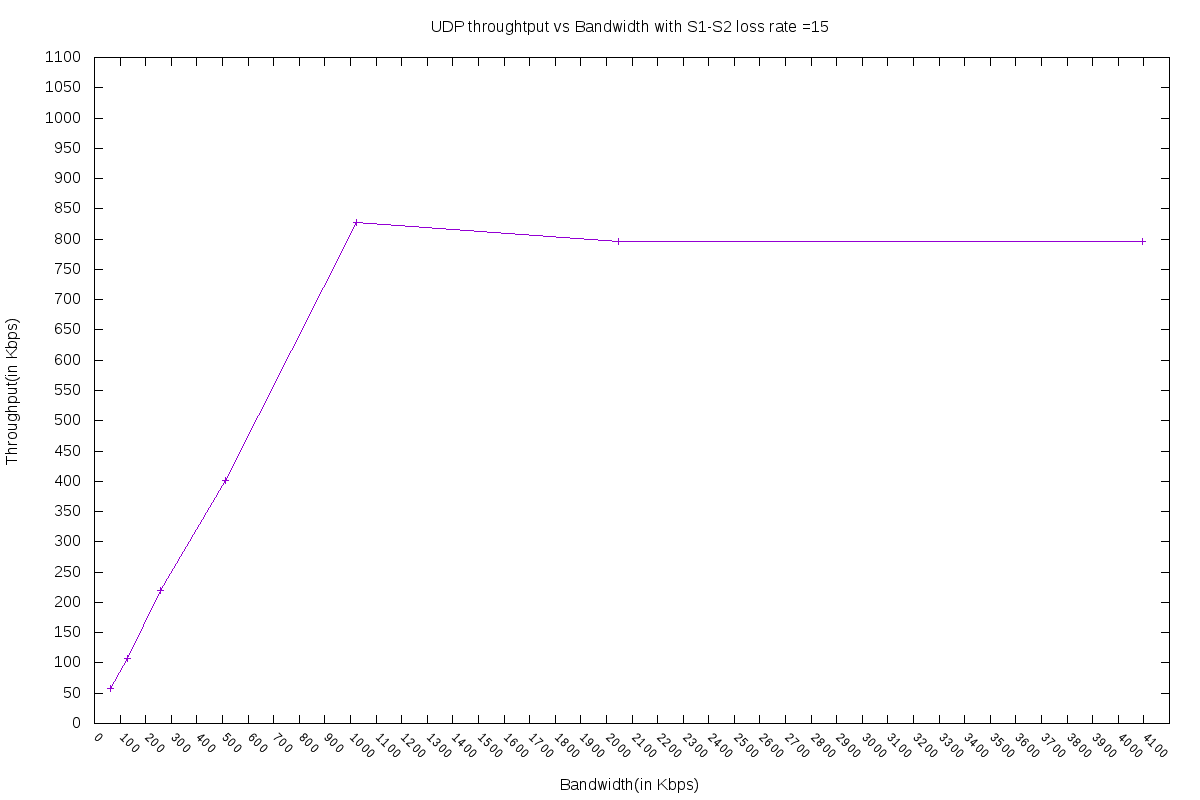
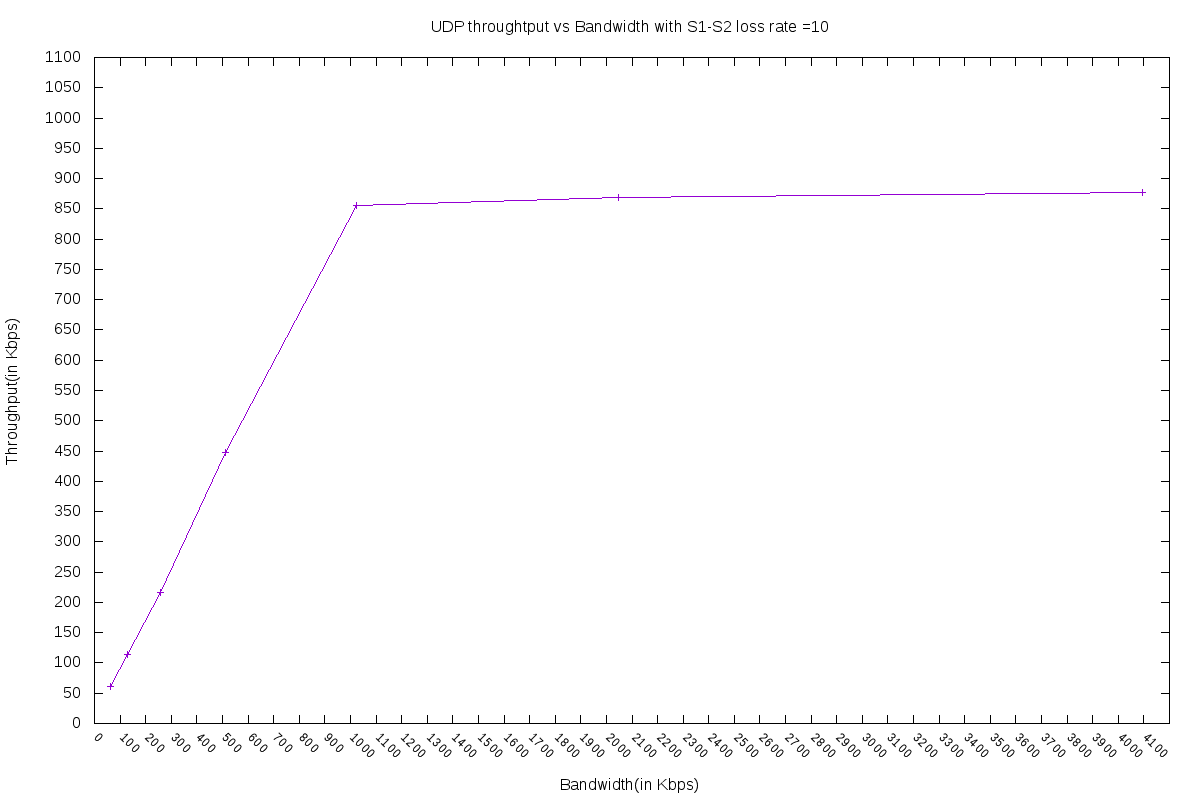
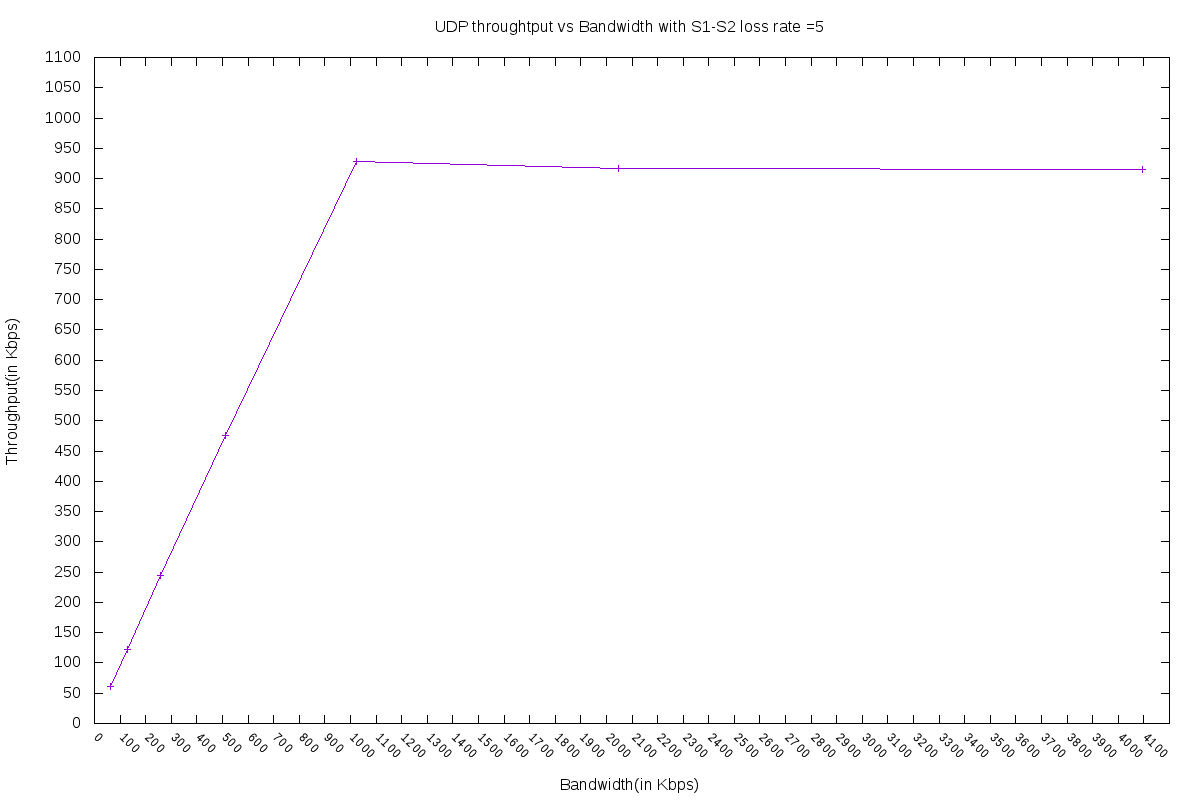
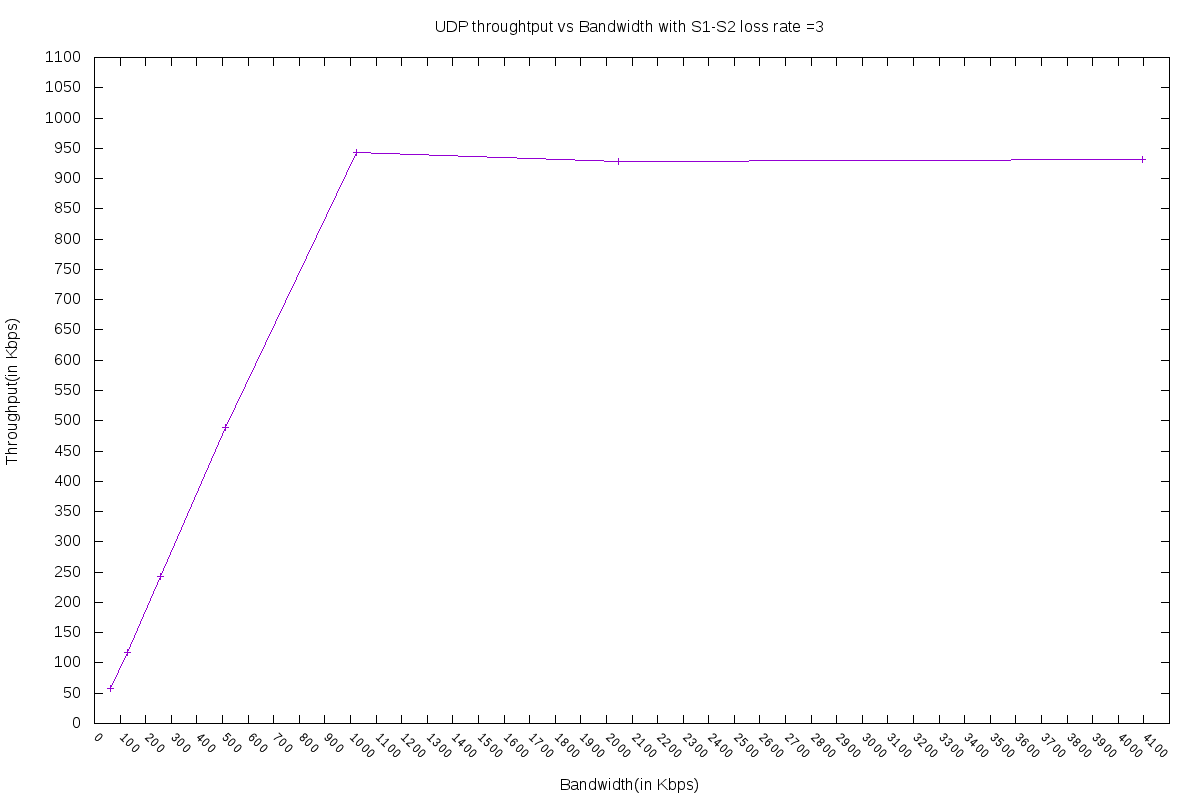
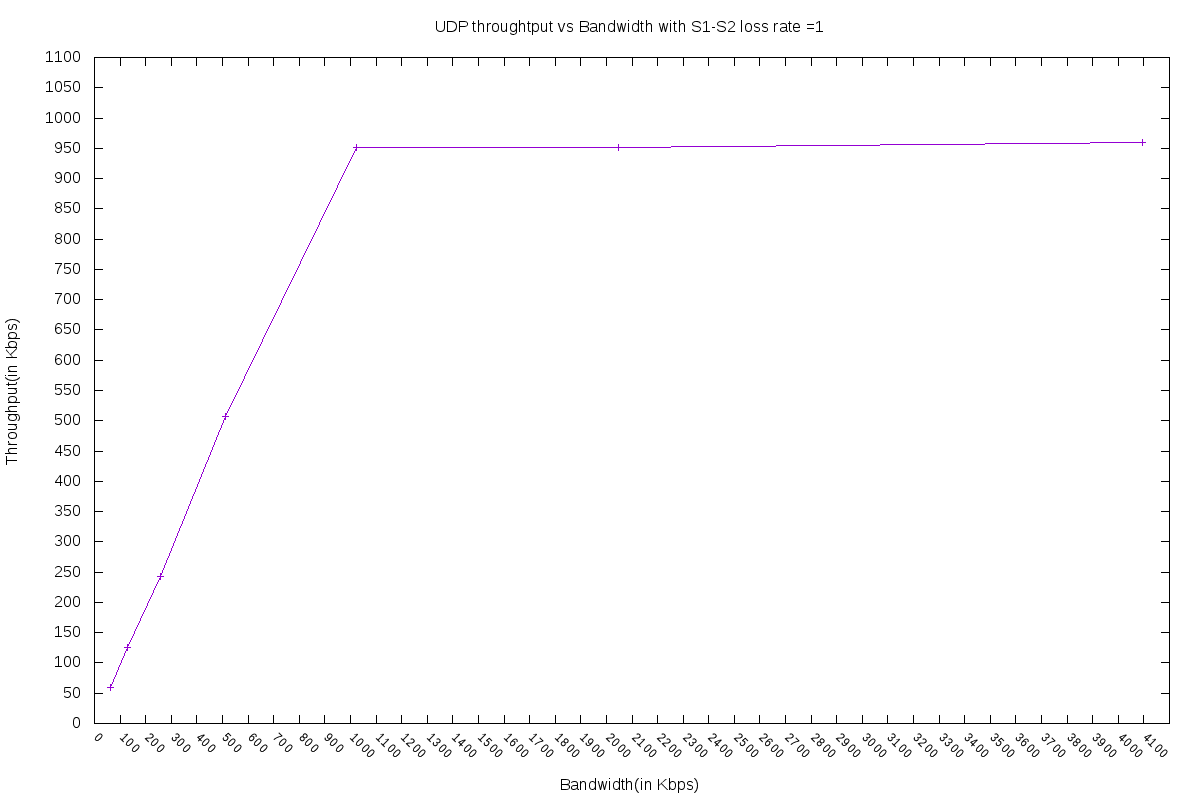
For UDP bandwidth = 4096 Kbps



Justification:

Part 3:

Steps:

Observation:

Other graphs :