## Application #3:

Create a topology of two nodes N0 and N1 connected by a link of bandwidth 1 Mbps and link delay 10 ms. Use a drop-tail queue at the link. Set the queue size according to bandwidth-delay product. Create a TCP agent (type of the agent specified below) and FTP traffic at N0 destined for N1. Create 5 CBR traffic agents of rate 300 Kbps each at N0 destined for N1. Make appropriate assumptions wherever necessary. The timing of the flows are as follows:

- FTP starts at 0 sec and continues till the end of simulation.

- CBR1 starts at 200 ms and continues till end.

- CBR2 starts at 400 ms and continues till end.

- CBR3 starts at 600 ms and stops at 1200 ms.

- CBR4 starts at 800 ms and stops at 1400 ms.

- CBR5 starts at 1000 ms and stops at 1600 ms.

- Simulation runs for 1800 ms.
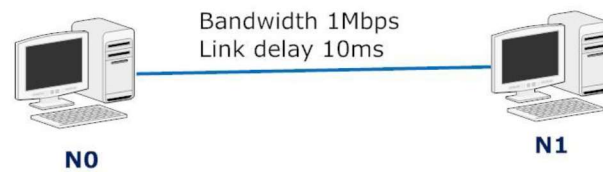
1. Plot graph(s) of TCP congestion window w.r.t. time for following 5 TCP congestion control algorithm implementations, and describe the TCP congestion control algorithms' behaviour.

    - Case 1: use TCP New Reno
    - Case 2: use TCP Hybla
    - Case 3: use TCP Westwood
    - Case 4: use TCP Scalable
    - Case 5: use TCP Vegas

2. Draw a graph showing cumulative TCP packets dropped w.r.t. time comparing above 5 TCP congestion control algorithm implementations.

3. Draw a graph showing cumulative bytes transferred w.r.t. time comparing above 5 TCP congestion control algorithm implementations.