Experiment 3: Simulating a Local Area Network

1. Setting up a local area network with ns2:
Consider the LAN with seven nodes to be an isolated one i.e. not connected to the Internet. Node # 0 in the LAN act as a UDP traffic source, and node # 6 is the destination node. Assume CBR traffic to be flowing between the nodes. The simulation lasts for 25 seconds. In Ethernet a packet is broadcasted in the shared medium, and only the destination node accepts the packet. Other nodes simply drop it. How many hops a packet should take to travel from node # 0 to node # 6? Verify this from the "Hop Count" plot.

2. Create the following scenario with two nodes and link in between.

- Sender agent: Agent/UDP
- Receiver agent: Agent/Null
- Connect agents
- Data source: Application/Traffic/CBR
- Run from 0.5 to 4.5 sec, finish at 5.0 sec

3. Create the following scenario and connect the appropriate agents
Start the FTP application at t = 0.5s
Start the CBR data source at t = 1s
Terminate both at t = 4.5 s
Visualize the bottle neck queue

4. In the following simulation scenario set the following parameters:

- Duplex link between nl and n2
- Simplex link between node no and n2
- Queue Size of link n2-n3 to 40
- CBR traffic packet size: 1000B, inter-arrival time: 8ms, start at time 1.0; TCP window size 8000, packet size 512B

Generate nam trace and show animation

5. Generate the following simulation scenario

Image will be shared later

6. Design Ring Topology of 10 nodes (n0 to n9) with nodes connected in ascending order and n9 connected to n0. Create and connect the nodes using for loop.