

Assignment - B1

Title:- study of network simulation

objective:- To learn & understand network simulation NS2.

Problem Statement:-

study of any network simulation tools to create a network with three nodes & establish a TCP connection between node 0 & node 1 such that node 0 will send TCP packet to node via node 1.

Theory:-

- Network Simulator:-

- A network simulator is a software that predicts the behaviour of computer network.

- In simulator, the computer network is modeled with devices, links, applications etc. & the performance is analysed.

Types of network simulator:-

Commercial & open source simulator :-

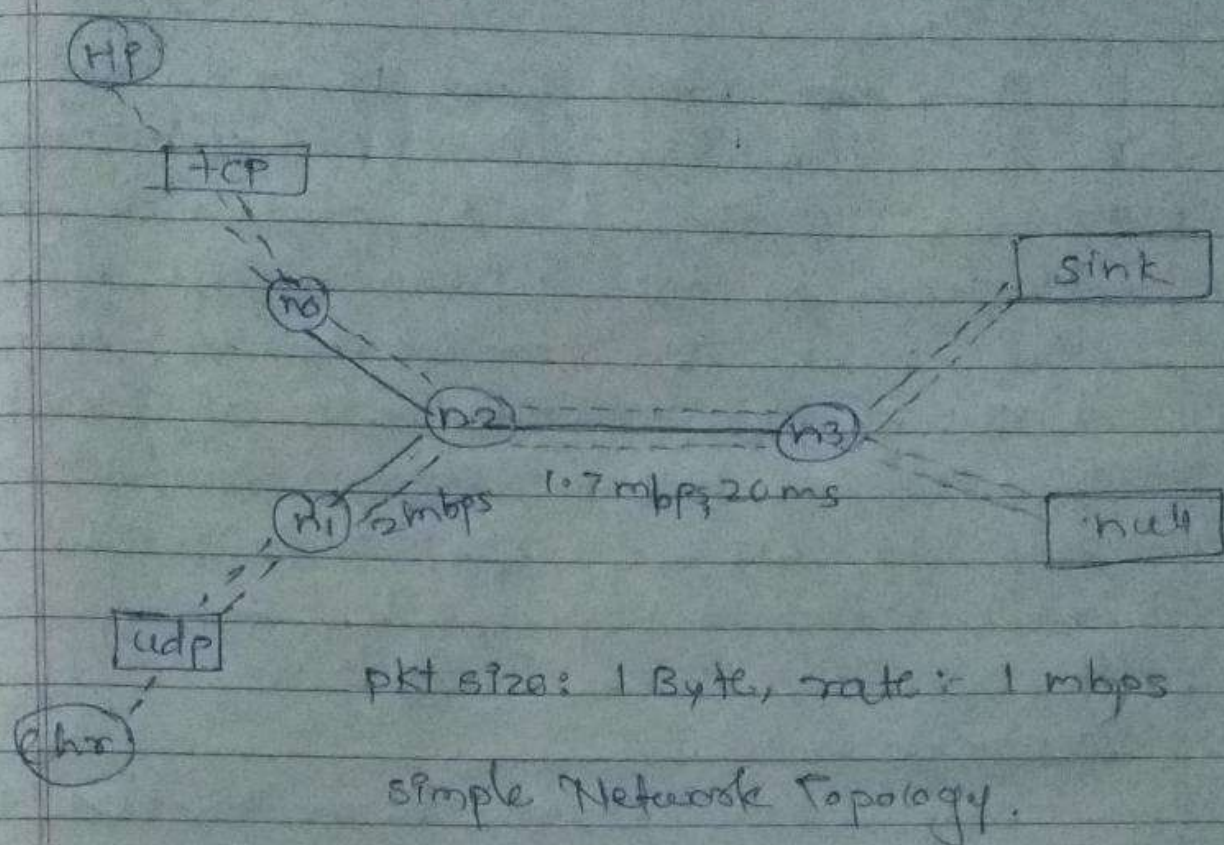
Commercial : OPNET, QualNet.

Open Source : NS2, NS3, OMNeT++,
ssfNet, J-sim

2. Simple Vs Complex :-

- Simple network simulator enable users to represents a network topology, specifying the nodes on network, the links between those nodes & traffic between the nodes.
- Complex allows the user to specify everything about the protocols used to process traffic.

★ In this assignment a file ends with 'tel' Ps on ATCL script that creates the simple network configuration & runs the simulation scenario.



The Network shown in figure consists of 4 nodes (n_0, n_1, n_2, n_3) as shown in above fig. The duplex links between n_0 & n_2 , n_1 & n_2 have 2mbps of bandwidth & 10mbps ms of delay. The duplex link between n_2 & n_3 has 1.7 mbps of bandwidth & 20 ms delay.

Each node uses a drop tail queue of which the max size is 10. A "Rcp" agent is attached to n_0 & a connection is established to TCP "Sink" agent attached to n_3 . As default the max size of packet that a "TCP" agent can generate is 1kByte. A tcp "Sink" agent generates & sends Ack packets to sender (tcp agent) & frees received packets.

A "udp" agent that is attached to n1 is connected to a 'null' agent attached to n2. A 'null' & 'chr' traffic generator are attached to 'top' & 'udp' agent resp. & the 'chr' is configured to generate 1 KB packets at the rate of 1 mbps. The chr is set to start at 0.1 sec & stop at 4.5 sec & ftp is set to start at 1.0 sec & stop at 4.0 sec.

Conclusion :-

We learnt & understood the concept of network simulation ns-2.