

Assignment 31.

- Title : study of network simulation.
- objectives : 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 & 1 such that node 0 will send TCP packet to node 2 via node 1.
- Theory :
 network simulator :
 - A network simulator is a software that provides the behaviour of computer network.
 - In simulator, the computer ^{network} ~~network~~ is modelled with devices, links, applications, etc & the performance is analyzed.

Types of network simulator :

1. commercial & open source simulators :

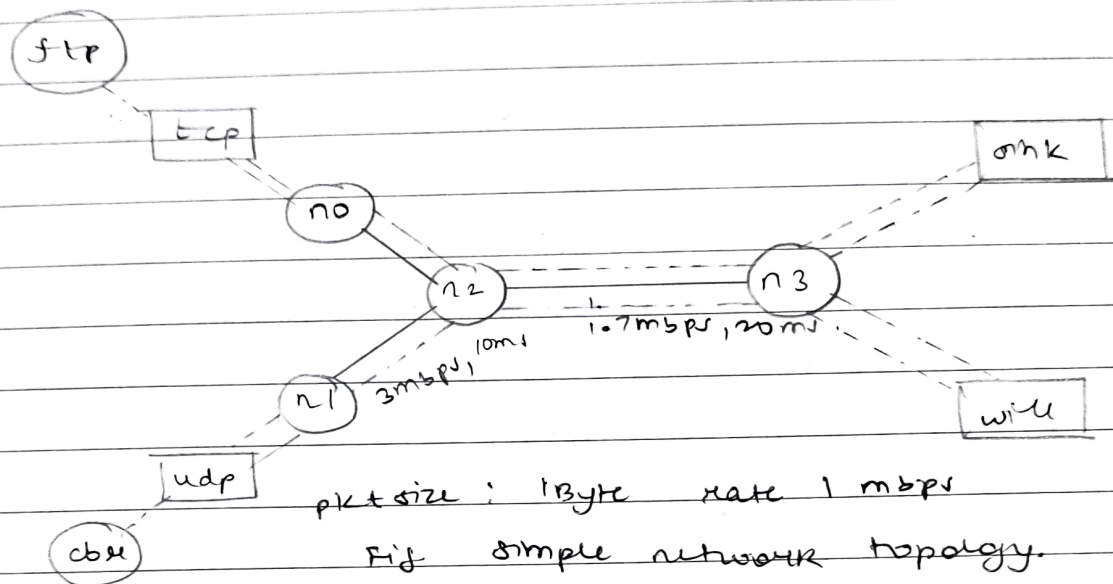
commercial : OPNET, GLUEKIT.

open source : NS2, NS3, OMNETPP, SSFNET

2. Simple vs complex

- Simple network simulators enable users to represent a network topology by specifying the nodes on network, the links between those nodes & traffic betn the nodes.
- complex allow the user to ^{specify} ~~enquiry~~ everything about the protocols used to process traffic.
- In this assignment a file ends with 'tel' is an OTCL script that create the simple network configuration & runs the

simulation scenario.



The network shown in fig consists of 4 nodes. The duplex links between $n0$ & $n2$, $n1$ & $n2$ have 2mbps of bandwidth & 10ms of delay. The ~~duplex~~ link between $n2$ & $n3$ has 1.7 mbps of bandwidth & 20ms delay.

Each node uses a droptail queue of which the max size is 10. A 'tcp' agent is attached to $n0$ & a connection is established to tcp "mkr" and attached to $n0$ as default.

A 'udp' agent that is attached to $n1$ is connected to a 'null' agent attached to $n3$. A 'null' is 'cbr' traffic generator. One attached to 'tcp' & 'udp' agent respectively & the ~~rate~~ 'cbr' is configured to generate 1k byte packets at the rate of 1mbps. The cbr is set to that at 0.1 sec & stop at 4.5 sec.

conclusion:

we learned and understood the concept of network simulation very successfully.