Assignment - 9

Title: TCP connection in NS2

Problem Statement:
Study of any network simulation tools - to create a network with 3 nodes and establish:
TCP connection between node 0 and 1 such that node 0 will send TCP packet to node 2 via node 1.

Objectives:
- To study of network simulation tools - NS2.
- To study of connection protocols such as TCP.

Outcomes:
Students will be able to implement TCP connection on network simulation tools such as NS2.

Requirements:
NS2, computer

Theory:
Simulation is the process of learning by doing. Whenever there is something new in the world, we try to analyse it

first by examining it and in the process get to learn a lot of things. This entire course is called as Simulation.

Network simulation is one of the types of simulation, which is used to simulate the networks such as in MANET's, VANET's, etc. It provides simulation for routing and multicast protocols for both wired and wireless networks. NS is licensed for use under version 2 of GNU and is popularly known as NS2. It is an object oriented, discrete event driven simulator written in C++ and Otcl / tcl.

NS2 can be used to implement network protocols such as TCP and UDP traffic source, behaviour such as FTP, Telnet, Web, CBR, VBR, router queue management mechanism such as Drop Tail, RED and CBQ, routing algorithm and many more. In NS2, C++ is used for detailed protocol implemention and Octl is used for the setup. The compiled C++ objects are made available to Octl interpreter and in this way, the ready made C++ objects can be

controlled from the OTcl level.

To install NS2, we use the following command:

```
sudo apt-get install ns2
```

We also need to install Nam (Network Animator). It is an animation tool to graphically represent the network and packet traces.

```
sudo apt-get install nam
```

Conclusion:

Thus, we have successfully installed and configured NS2 and implemented TCP on it.