

## Assignment B1

Page No.:		
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### Problem statement

study of network simulation tools - to create a network with three nodes and establish a TCP connection between node 0 and node 1 such that node 0 will send TCP packet to node 2 via node 1.

### Theory:

Generally speaking, network simulators try to model real world nets. The principal idea is that if a system can be modeled, then features of the model can be changed and the corresponding results can be analyzed. As the process of model modification is relatively cheap than the complete real implementation, a wide variety of scenarios can be analysed at low cost.

A network simulator is a software that predicts the behavior of a computer network. Since communication nets have become too complex for traditional analytical methods to provide an accurate understanding of system behavior

### Types of network simulators.

1. Commercial & Open Source Simulators
2. Simple vs Complex

## TCP connection establishment & termination.

### Three-Way Handshake.

1. The server must be prepared to accept an incoming connection. This is normally done by calling socket, bind and listen is called a passive open.
2. Client issues an active open by calling connect. TCP sends a SYN seg.
3. Server must acknowledge the client's SYN and the server must also send its own SYN containing the initial sequence no. for the data that the server will send on the connection.
4. Client must acknowledge server's SYN.

Minimum number of packets req. for this exchange is three hence it is called TCP's three way handshake.

### CONCLUSION:-

We study about TCP/IP handshake protocol & learn to establish node connections.