Assignment-3

Aim: Implementation of specific network topology with respect to TCP.

Theory:

- set ns [new Simulator]:

→ Creates a new simulator, and assigns it to variable ns

- $ns color 1 blue

→ This command is used to set color of the packets for a flow specified by the flow id ($1) (1).

- set nf [open out.nam w]

→ Opening out.nam file in write mode and assign it to variable nf.

- ~~$ns nam-trace~~

- $ns namtrace-all $nf.

→ The member function tells the simulator to record simulation traces in NAM input format.

Similarly we will also open trace file.

```
- proc finish {} {
    global ns nf np
    $ns flush-trace
    close $nf
    exec nam out.nam &
    exit 0.
}
```

→ Make ns nf np global

flush-trace command flushes the trace buffer and typicalled called before simulation run ends.

Close the Nam trace file, and executed nam on the trace file within the program then exit the finish procedure.

• Set n0 [$ns node]
→ The member function node creates a node. A node in NS is compound object made of address and port classifiers.

• $ns duplex-link $n0 $n1 2Mb 10ms Droptail
→ It creates two simplex links of specified bandwidth and delay, and connects the two specified nodes.
Here, n_0, n_1 are the nodes, 2Mb is bandwidth, 10ms is delay and Droptail is queue type.
So, we are basically creating the links between the nodes by using the above command.

• $ns queue-limit $n0 $n1 5
→ This line sets the queue limit of the two simplex links that connect node 1 and node 2 to the number specified.

$ns duplex-link-op $n0 $n1 queuePos 0.5
→ This line is used to position the nodes for nam-display.

Set tcp [new Agent/TCP]
→ This line shows how to create Tcp agent

$ns attach-agent $n0 $tcp
→ The attach-agent member function attaches an agent

object created to a node object.

set sink [new Agent/TCPSink]
→ This line shows how to create TCPSink agents.

$ns connect $tcp $sink.
→ After two agents that will communicate with each-other are created, the next thing is to establish a logical network connection between them.

set ftp [new Application/FTP]
→ Create an FTP ~~sore~~ source "application".

$ftp attach-agent $tcp
→ Setsup a FTP over TCP connection.

$ns at 0.1 "$ftp start"
→ This member function of a simulator object makes the scheduler to schedule the execution of the specified string at given simulation time.

$ns at 5.0 "finish"
→ Calls the finish procedure after 5 seconds of simulation time.

$ns run.
→ Above command is used to run the simulation.