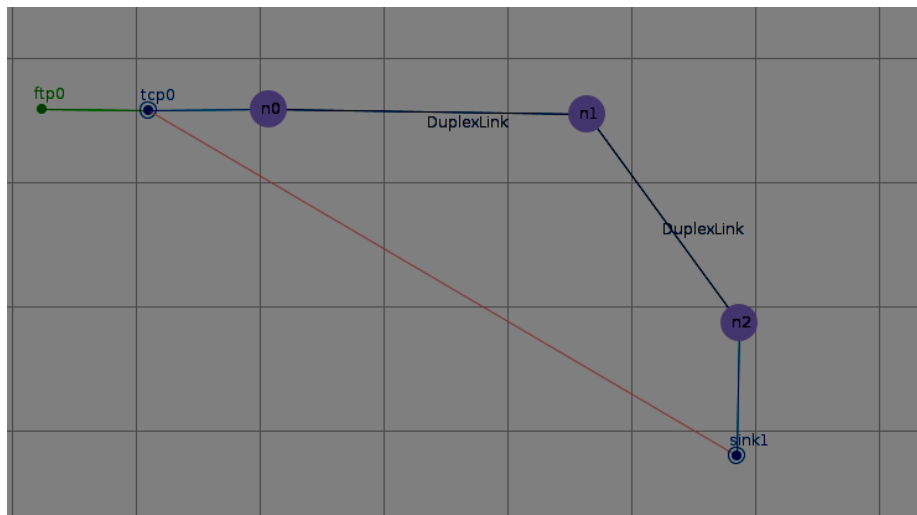**Aim:1.To implement a three nodes point–to– point network with duplex links between them. Set the queue size and vary the bandwidth and find the number of packets dropped.**

Topology:

p1.tcl

```
#===================================
#     Simulation parameters setup
#===================================
set val(stop)   10.0 ; # time of simulation end

#===================================
#     Initialization
#===================================
#Create a ns simulator
set ns [new Simulator]

#Open the NS trace file
set tracefile [open p1.tr w]
$ns trace-all $tracefile

#Open the NAM trace file
set namfile [open p1.nam w]
$ns namtrace-all $namfile

#===================================
#     Nodes Definition
#===================================
#Create 3 nodes
set n0 [$ns node]
set n1 [$ns node]
```

set n2 [$ns node]

```
#===================================
#        Links Definition
#===================================
#Createlinks between nodes
$ns duplex-link $n0 $n1 100.0Mb 10ms DropTail
$ns queue-limit $n0 $n1 50
$ns duplex-link $n1 $n2 1.0Mb 10ms DropTail
$ns queue-limit $n1 $n2 2

#Give node position (for NAM)
$ns duplex-link-op $n0 $n1 orient right
$ns duplex-link-op $n1 $n2 orient right-down


#===================================
#        Agents Definition
#===================================
#Setup a TCP connection
set tcp0 [new Agent/TCP]
$ns attach-agent $n0 $tcp0
set sink1 [new Agent/TCPSink]
$ns attach-agent $n2 $sink1
$ns connect $tcp0 $sink1
$tcp0 set packetSize_ 1500



#===================================
#        Applications Definition
#===================================
#Setup a FTP Application over TCP connection
set ftp0 [new Application/FTP]
$ftp0 attach-agent $tcp0
$ns at 1.0 "$ftp0 start"
$ns at 9.0 "$ftp0 stop"



#===================================
#        Termination
#===================================
#Define a 'finish' procedure
proc finish {} {
    global ns tracefile namfile
    $ns flush-trace
    close $tracefile
    close $namfile
    exec nam p1.nam &
    exit 0
}
$ns at $val(stop) "$ns nam-end-wireless $val(stop)"
```

```
$ns at $val(stop) "finish"
$ns at $val(stop) "puts \"done\" ; $ns halt"
$ns run
```

p1.awk
```
BEGIN {
count = 0;
total=0;
}
{
event = $1;
if(event == "d")
{
count++;
}
}
END {
printf("No of packets dropped : %d\n",count);
}
```

pcktdroprecv.awk
```
BEGIN{
count=0;
a=0;
b=0;
}
{
if($1=="d")
{
count++;
}
if($1=="r" &&$3=="1"&&$4=="2"&&$5=="tcp"&&$6=="1540")
{
a++;
}
if($1=="r" &&$3=="0"&&$4=="1"&&$5=="tcp"&&$6=="1540")
{
b++;
}
}
END{
printf("No of Dropped packet is %d\n", count);
printf("No. of packets recieved: 1-->2 %d\n", a);
printf("No. of packets recieved: 0-->1 %d\n", b);
}
```

Results: