[2CEIT503: COMPUTER NETWORKS]

Practical: 8

AIM- Define a topology with four nodes in which one node act that forwards the data that two nodes are sending to the fourth node. Also find a way to distinguish the data flows from the two nodes other, and learn how a queue can be monitored to see how full it is and how many packets are being discarded.

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Practical-8

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#Create a simulator object
set ns [new Simulator]

#Define different colors for data flows
$ns color 1 Blue
$ns color 2 Red

#Open the nam trace file set
nf [open out.nam w]
$ns namtrace-all $nf

#Define a 'finish' procedure
proc finish {} {        global
ns nf       $ns flush-trace
          #Close the trace file
      close $nf
          #Execute nam on the trace file
exec nam out.nam &
      exit 0
}

#Create four nodes
set n0 [$ns node] set
n1 [$ns node] set n2
[$ns node] set n3
[$ns node]

#Create links between the nodes
$ns duplex-link $n0 $n2 1Mb 10ms DropTail
$ns duplex-link $n1 $n2 1Mb 10ms DropTail
$ns duplex-link $n3 $n2 1Mb 10ms SFQ

$ns duplex-link-op $n0 $n2 orient right-down $ns
duplex-link-op $n1 $n2 orient right-up
$ns duplex-link-op $n2 $n3 orient right

#Monitor the queue for the link between node 2 and node 3
$ns duplex-link-op $n2 $n3 queuePos 0.5

#Create a UDP agent and attach it to node n0 set
udp0 [new Agent/UDP]
$udp0 set class_ 1
```

```
$ns attach-agent $n0 $udp0
```

```
# Create a CBR traffic source and attach it to udp0 set
cbr0 [new Application/Traffic/CBR]
$cbr0 set packetSize_ 500
$cbr0 set interval_ 0.005
$cbr0 attach-agent $udp0

#Create a UDP agent and attach it to node n1
set udp1 [new Agent/UDP] $udp1
set class_ 2
$ns attach-agent $n1 $udp1

# Create a CBR traffic source and attach it to udp1 set
cbr1 [new Application/Traffic/CBR]
$cbr1 set packetSize_ 500
$cbr1 set interval_ 0.005
$cbr1 attach-agent $udp1

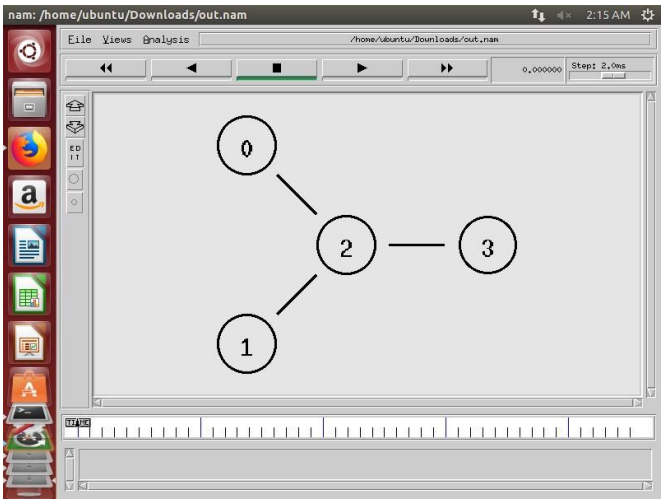
#Create a Null agent (a traffic sink) and attach it to node n3
set null0 [new Agent/Null] $ns attach-agent $n3 $null0

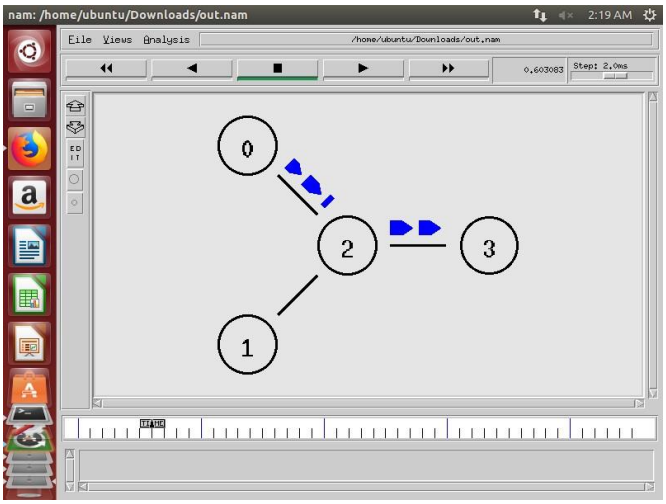
#Connect the traffic sources with the traffic sink
$ns connect $udp0 $null0
$ns connect $udp1 $null0

#Schedule events for the CBR agents
$ns at 0.5 "$cbr0 start"
$ns at 1.0 "$cbr1 start"
$ns at 4.0 "$cbr1 stop"
$ns at 4.5 "$cbr0 stop"
#Call the finish procedure after 5 seconds of simulation time
$ns at 5.0 "finish"

#Run the simulation
$ns run
```

Output:


nam: /home/ubuntu/Downloads/out.nam
File Views Analysis
0
1
2
3


nam: /home/ubuntu/Downloads/out.nam
File Views Analysis
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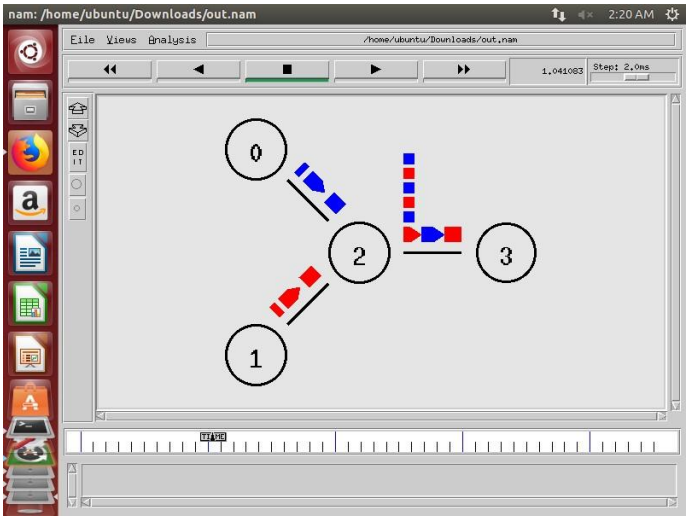
nam: /home/ubuntu/Downloads/out.nam
File Views Analysis
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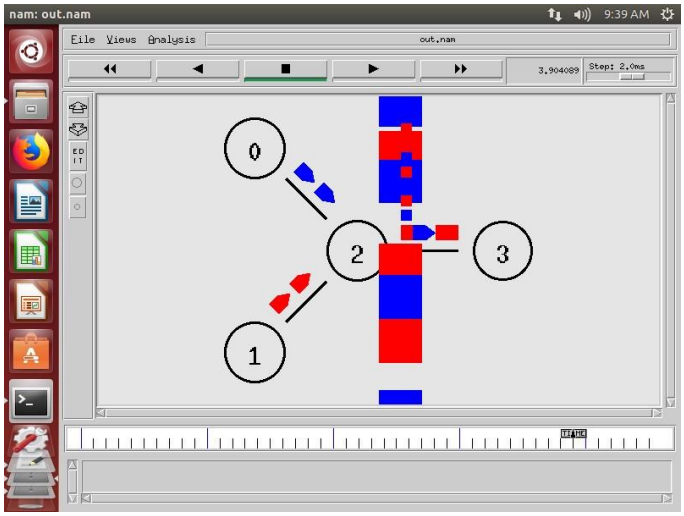
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