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DEPARTMENT OF INFORMATION SCIENCE & ENGINEERING

Report on P3

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Semester/Section	5B
Course Code	18CSL57
Course Name	Computer Network Laboratory
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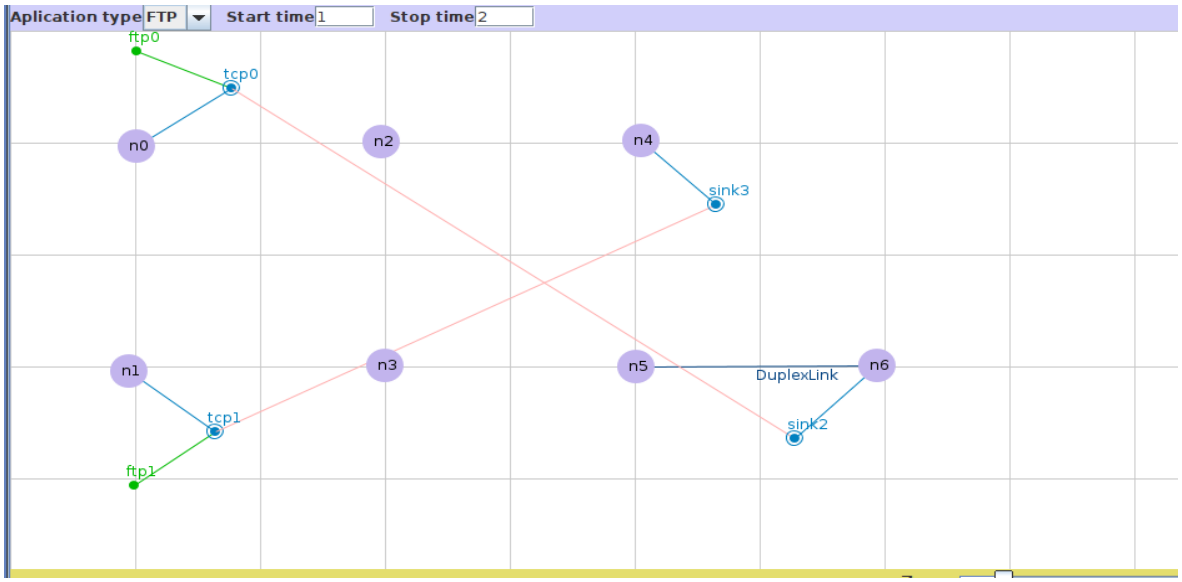
Title	P3
Date	31-12-2020

Signature of a Student **Signature of a Faculty**

Aim:

Implement an Ethernet LAN using n nodes and set multiple traffic nodes and plot congestion window for different source / destination.

Topology:



Source code:

```
# This script is created by NSG2 beta1
# <http://wushoupong.googlepages.com/nsg>

#===================================
#     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 p3.tr w]
$ns trace-all $tracefile

#Open the NAM trace file
set namfile [open p3.nam w]
$ns namtrace-all $namfile

#===================================
#        Nodes Definition
#===================================
#Create 7 nodes
set n0 [$ns node]
set n1 [$ns node]
set n2 [$ns node]
set n3 [$ns node]
set n4 [$ns node]
set n5 [$ns node]
set n6 [$ns node]

#===================================
#        Links Definition
#===================================
#Createlinks between nodes

#Add following line to create LAN
$ns make-lan "$n0 $n1 $n2 $n3 $n4 $n5" 100Mb 100ms LL
Queue/DropTail Mac/802_3

$ns duplex-link $n5 $n6 100.0Mb 10ms DropTail
$ns queue-limit $n5 $n6 50

#Give node position (for NAM)
$ns duplex-link-op $n5 $n6 orient right

#===================================
```

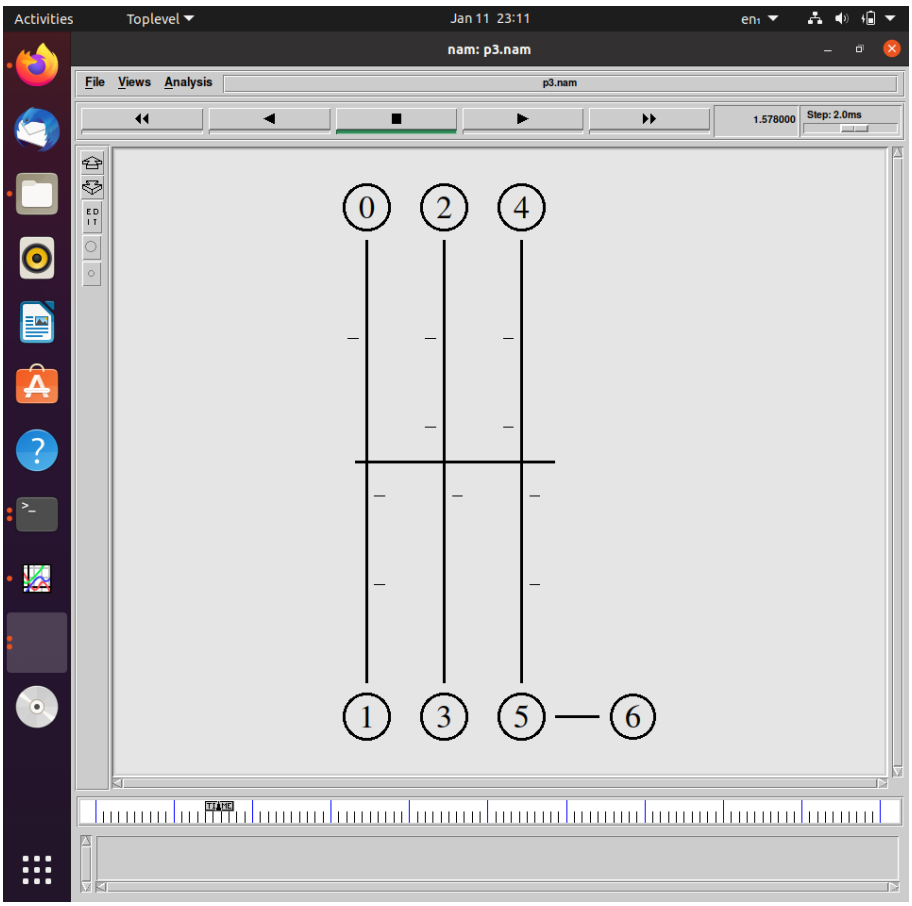
```
#        Agents Definition
#==================================
#Setup a TCP connection
set tcp0 [new Agent/TCP]
$ns attach-agent $n0 $tcp0
set sink1 [new Agent/TCPSink]
$ns attach-agent $n6 $sink1
$ns connect $tcp0 $sink1
$tcp0 set packetSize_ 1500

#Setup a TCP connection
set tcp2 [new Agent/TCP]
$ns attach-agent $n3 $tcp2
set sink3 [new Agent/TCPSink]
$ns attach-agent $n4 $sink3
$ns connect $tcp2 $sink3
$tcp2 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"
$ns at 2.0 "$ftp0 stop"

#Setup a FTP Application over TCP connection
set ftp1 [new Application/FTP]
$ftp1 attach-agent $tcp2
$ns at 1.0 "$ftp1 start"
$ns at 2.0 "$ftp1 stop"

#Add below code
```

```
set file1 [open file1.tr w]
$tcp0 attach $file1
set file2 [open file2.tr w]
$tcp2 attach $file2

$tcp0 trace cwnd_
$tcp2 trace cwnd_
#till here

#===================================
#        Termination
#===================================
#Define a 'finish' procedure
proc finish {} {
    global ns tracefile namfile
    $ns flush-trace
    close $tracefile
    close $namfile
    exec nam p3.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


#execute following commands one by one in command line to
generate graph

#awk -f p3.awk file1.tr >a1
#awk -f p3.awk file2.tr >a2
#xgraph a1 a2
```

AWK file:
(Open a new editor using “gedit command” and write awk file and save with “.awk” extension)
cwnd:- means congestion window

```
BEGIN {
}
{
if($6=="cwnd_")
printf("%f\t%f\t\n",$1,$7);
}
END {
}
```

Output:



```
raghavendrakm@raghavendrakm-VirtualBox:~/Downloads/cns/p3$ cat a2
0.000000        1.000000
1.400030        2.000000
1.800170        3.000000
1.800300        4.000000
2.200310        5.000000
2.200430        6.000000
2.200560        7.000000
2.200680        8.000000
3.050680        1.000000
raghavendrakm@raghavendrakm-VirtualBox:~/Downloads/cns/p3$
```

```
raghavendrakm@raghavendrakm-VirtualBox:~/Downloads/cns/p3$ cat a1
0.000000        1.000000
1.420030        2.000000
1.840290        3.000000
1.840420        4.000000
2.260560        5.000000
2.260680        6.000000
2.260810        7.000000
2.260930        8.000000
3.160930        1.000000
raghavendrakm@raghavendrakm-VirtualBox:~/Downloads/cns/p3$
```