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| CODE |

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\*File : p5.tcl

\*Description : Simulate an Ethernet LAN using n nodes and set multiple traffic nodes and plot congestion window for different source / destination.

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\*Tools : NS2, nam, XGraph, awk

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#set up a new instance of Simulator

set ns [new Simulator]

#Open the trace file and animation file

set f [open 5.tr w]

set nf [open 5.nam w]

$ns trace-all $f

$ns namtrace-all $nf

#Define the finish Procedure

proc finish {} {

global ns f nf outFile1 outFile2

$ns flush-trace

close $f

close $nf

exec nam 5.nam &

exec xgraph Congestion1.xg -geometry 400x400 &

exec xgraph Congestion2.xg -geometry 400x400 &

exit 0

}

$ns color 1 red

$ns color 2 green

#set up the 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]

set n7 [$ns node]

#Label the nodes

$n0 label "TCP FTP Source"

$n3 label "Sink Destination"

$n5 label "TCP Telnet Source"

$n7 label "Sink Destination"

#Create the LAN topology

$ns make-lan "$n0 $n1 $n2 $n3 $n4 $n5 $n6 $n7" 10Mb 30ms LL Queue/DropTail Mac/802\_3

#Set up the TCP Agents

set tcp1 [new Agent/TCP]

$ns attach-agent $n0 $tcp1

set ftp1 [new Application/FTP]

$ftp1 attach-agent $tcp1

set sink1 [new Agent/TCPSink]

$ns attach-agent $n3 $sink1

$ns connect $tcp1 $sink1

$tcp1 set class\_ 1

#Set up the telnet

set tcp2 [new Agent/TCP]

$ns attach-agent $n5 $tcp2

set telnet1 [new Application/FTP]

$telnet1 attach-agent $tcp2

set sink2 [new Agent/TCPSink]

$ns attach-agent $n7 $sink2

$ns connect $tcp2 $sink2

$telnet1 set type\_ $sink2

$tcp2 set class\_ 2

set outFile1 [open Congestion1.xg w]

set outFile2 [open Congestion2.xg w]

puts $outFile1 "TitleText: Congestion Window Plot for TCP1"

puts $outFile1 "XUnitText: SimulationTime(Secs)"

puts $outFile1 "YUnitText: CongestionWindowSize"

puts $outFile2 "TitleText: Congestion Window Plot for TCP2"

puts $outFile2 "XUnitText: SimulationTime(Secs)"

puts $outFile2 "YUnitText: CongestionWindowSize"

#define findWindowSize

proc findWindowSize {tcpSource outFile} {

global ns

set now [$ns now]

set cWindSize [$tcpSource set cwnd\_]

puts $outFile "$now $cWindSize"

$ns at [expr $now + 0.1] "findWindowSize $tcpSource $outFile"

}

#schedule the events

$ns at 0.0 "findWindowSize $tcp1 $outFile1"

$ns at 0.1 "findWindowSize $tcp2 $outFile2"

$ns at 0.3 "$ftp1 start"

$ns at 0.5 "$telnet1 start"

$ns at 50.0 "$ftp1 stop"

$ns at 50.0 "$telnet1 stop"

$ns at 50.0 "finish"

$ns run

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| **OUTPUT** |





