**Lab Program-4**

**Implement simple ESS and with transmitting nodes in wire-less LAN by simulation and determine the performance with respect to transmission of packets.**

set ns [new Simulator]

set tf [open lab4.tr w]

$ns trace-all $tf

set topo [new Topography]

$topo load\_flatgrid 1000 1000

set nf [open lab4.nam w]

$ns namtrace-all-wireless $nf 1000 1000

$ns node-config -adhocRouting DSDV \

-llType LL \

-macType Mac/802\_11 \

-ifqType Queue/DropTail \

-ifqLen 50 \

-phyType Phy/WirelessPhy \

-channelType Channel/WirelessChannel \

-propType Propagation/TwoRayGround \

-antType Antenna/OmniAntenna \

-topoInstance $topo \

-agentTrace ON \

-routerTrace ON

create-god 3

set n0 [$ns node]

set n1 [$ns node]

set n2 [$ns node]

$n0 label "tcp0"

$n1 label "sink1/tcp1"

$n2 label "sink2"

$n0 set X\_ 50

$n0 set Y\_ 50

$n0 set Z\_ 0

$n1 set X\_ 100

$n1 set Y\_ 100

$n1 set Z\_ 0

$n2 set X\_ 600

$n2 set Y\_ 600

$n2 set Z\_ 0

$ns at 0.1 "$n0 setdest 50 50 15"

$ns at 0.1 "$n1 setdest 100 100 25"

$ns at 0.1 "$n2 setdest 600 600 25"

set tcp0 [new Agent/TCP]

$ns attach-agent $n0 $tcp0

set ftp0 [new Application/FTP]

$ftp0 attach-agent $tcp0

set sink1 [new Agent/TCPSink]

$ns attach-agent $n1 $sink1

$ns connect $tcp0 $sink1

set tcp1 [new Agent/TCP]

$ns attach-agent $n1 $tcp1

set ftp1 [new Application/FTP]

$ftp1 attach-agent $tcp1

set sink2 [new Agent/TCPSink]

$ns attach-agent $n2 $sink2

$ns connect $tcp1 $sink2

$ns at 5 "$ftp0 start"

$ns at 5 "$ftp1 start"

$ns at 100 "$n1 setdest 550 550 15"

$ns at 190 "$n1 setdest 70 70 15"

proc finish { } {

global ns nf tf

$ns flush-trace

exec nam lab4.nam &

close $tf

exit 0

}

$ns at 250 "finish"

$ns run

**AWK file (Open a new editor using “gedit command” and write awk file and save with “.awk” extension)**

BEGIN

{

count1=0

count2=0

pack1=0

pack2=0

time1=0

time2=0

}

{

if($1=="r"&& $3=="\_1\_" && $4=="AGT")

{

count1++

pack1=pack1+$8

time1=$2

}

if($1=="r" && $3=="\_2\_" && $4=="AGT")

{

count2++

pack2=pack2+$8

time2=$2

}

}

END

{

printf("The Throughput from n0 to n1 : %f Mbps\n", ((count1\*pack1\*8)/(time1\*1000000)));

printf("The Throughput from n1 to n2: %f Mbps\n", ((count2\*pack2\*8)/(time2\*1000000)));

}

**Steps for execution:**

* Open gedit editor and type program. Program name should have the extension “.tcl ”

bnmit@bnmit-OptiPlex-3040:~$ gedit lab4.tcl

* Save the program by pressing “ESC key” first, followed by “Shift and :” keys simultaneously and type “wq” Lab Program-1and press Enter key.
* Open gedit editor and type awk program. Program name should have the extension “.awk ”

bnmit@bnmit-OptiPlex-3040:~$ gedit lab4.awk

* Save the program by pressing “ESC key” first, followed by “Shift and :” keys simultaneously and type “wq” and press Enter key.
* Run the simulation program

bnmit@bnmit-OptiPlex-3040:~$ ns lab4.tcl

Here “ns” indicates network simulator. We get the topology shown in the snapshot.

* Now press the play button in the simulation window and the simulation will begins.
* After simulation is completed run awk file to see the output ,

bnmit@bnmit-OptiPlex-3040:~$awk –f lab4.awk lab4.tr

* To see the trace file contents open the file as ,

bnmit@bnmit-OptiPlex-3040:~$ gedit lab4.tr