EXPERIMENT-18

Aim: To simulate and study the Distance Vector routing algorithm using simulation.

HARDWAREE / SOFTWARE REQUIREMENTS:

NS-2

THEORY:

Distance Vector Routing is one of the routing algorithms in a Wide Area Network for computing shortest path between source and destination. The Router is one main device used in a wide area network. The main task of the router is Routing. It forms the routing table and delivers the packets depending upon the routes in the table either directly or via an intermediate device. Each router initially has information about its all neighbors. Then this information will be shared among nodes.

ALGORITHM:

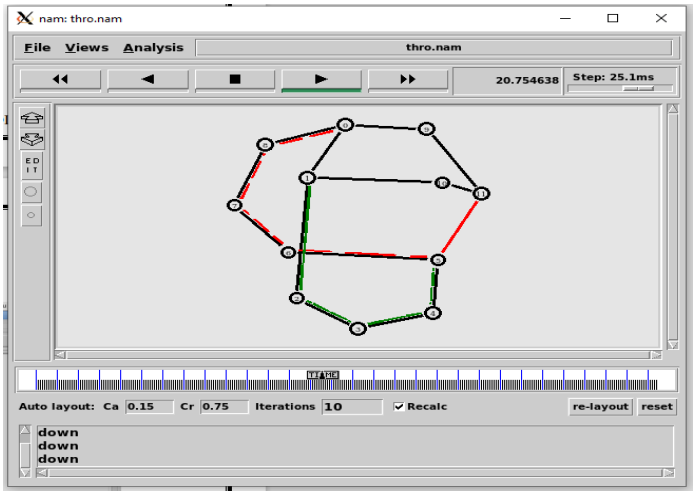
1. Create a simulator object
2. Define different colors for different data flows
3. Open a nam trace file and define finish procedure then close the trace file, and execute nam on trace file.
4. Create n number of nodes using for loop
5. Create duplex links between the nodes
6. Setup UDP Connection between n(0) and n(5)
7. Setup another UDP connection between n(1) and n(5)
8. Apply CBR Traffic over both UDP connections
9. Choose distance vector routing protocol to transmit data from sender to receiver.
10. Schedule events and run the program.

PROGRAM:

```
set ns [new Simulator]
set nr [open thro.tr w]
$ns trace-all $nr
set nf [open thro.nam w]
$ns namtrace-all $nf
proc finish { } {
global ns nr nf
$ns flush-trace
```

```
close $nf
close $nr
exec nam thro.nam &
exit 0
}
for { set i 0 } { $i < 12} { incr i 1 } {
set n($i) [$ns node]}
for {set i 0} {$i < 8} {incr i} {
$ns duplex-link $n($i) $n([expr $i+1]) 1Mb 10ms DropTail }
$ns duplex-link $n(0) $n(8) 1Mb 10ms DropTail
$ns duplex-link $n(1) $n(10) 1Mb 10ms DropTail
$ns duplex-link $n(0) $n(9) 1Mb 10ms DropTail
$ns duplex-link $n(9) $n(11) 1Mb 10ms DropTail
$ns duplex-link $n(10) $n(11) 1Mb 10ms DropTail
$ns duplex-link $n(11) $n(5) 1Mb 10ms DropTail
set udp0 [new Agent/UDP]
$ns attach-agent $n(0) $udp0
set cbr0 [new Application/Traffic/CBR]
$cbr0 set packetSize_ 500
$cbr0 set interval_ 0.005
$cbr0 attach-agent $udp0
set null0 [new Agent/Null]
$ns attach-agent $n(5) $null0
$ns connect $udp0 $null0
set udp1 [new Agent/UDP]
$ns attach-agent $n(1) $udp1
set cbr1 [new Application/Traffic/CBR]
$cbr1 set packetSize_ 500
$cbr1 set interval_ 0.005
$cbr1 attach-agent $udp1
set null0 [new Agent/Null]
$ns attach-agent $n(5) $null0
$ns connect $udp1 $null0
$ns rtproto DV
$ns rtmodel-at 10.0 down $n(11) $n(5)
$ns rtmodel-at 15.0 down $n(7) $n(6)
$ns rtmodel-at 30.0 up $n(11) $n(5)
$ns rtmodel-at 20.0 up $n(7) $n(6)
$udp0 set fid_ 1
$udp1 set fid_ 2
$ns color 1 Red
$ns color 2 Green
$ns at 1.0 "$cbr0 start"
$ns at 2.0 "$cbr1 start"
$ns at 45 "finish"
$ns run
```

OUTPUT:


nam: thro.nam
File Views Analysis
thro.nam
20.754638
Step: 25.1ms
Auto layout: Ca 0.15 Cr 0.75 Iterations 10 Recalc
re-layout
reset
down
down
down