THADOMAL SHAHANI TSEC ENGINEERING COLLEGE

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ROLL NO : 127
BATCH : S23

NETWORK LAB ASSIGNMENT NO.4

AIM: Network topology using UDP protocol.

User Datagram Protocol (UDP) is a Transport Layer protocol. UDP is a part of the Internet Protocol suite, referred to as UDP/IP suite. Unlike TCP, it is an unreliable and connectionless protocol. So, there is no need to establish a connection before data transfer. The UDP helps to establish low-latency and loss-tolerating connections over the network. The UDP enables process-to-process communication.

Advantages of UDP

Speed: UDP is faster than TCP because it does not have the overhead of establishing a connection and ensuring reliable data delivery.

Lower latency: Since there is no connection establishment, there is lower latency and faster response time.

Simplicity: UDP has a simpler protocol design than TCP

Broadcast support: UDP supports broadcasting to multiple recipients

Smaller packet size: UDP uses smaller packet sizes than TCP, which can reduce

Ring topology is a network architecture in which devices are connected in a ring structure and send information to each other based on their ring node's neighbouring node. As compared to the bus topology, a ring topology is highly efficient and can handle heavier loads. Because packets may only travel in one direction, most Ring

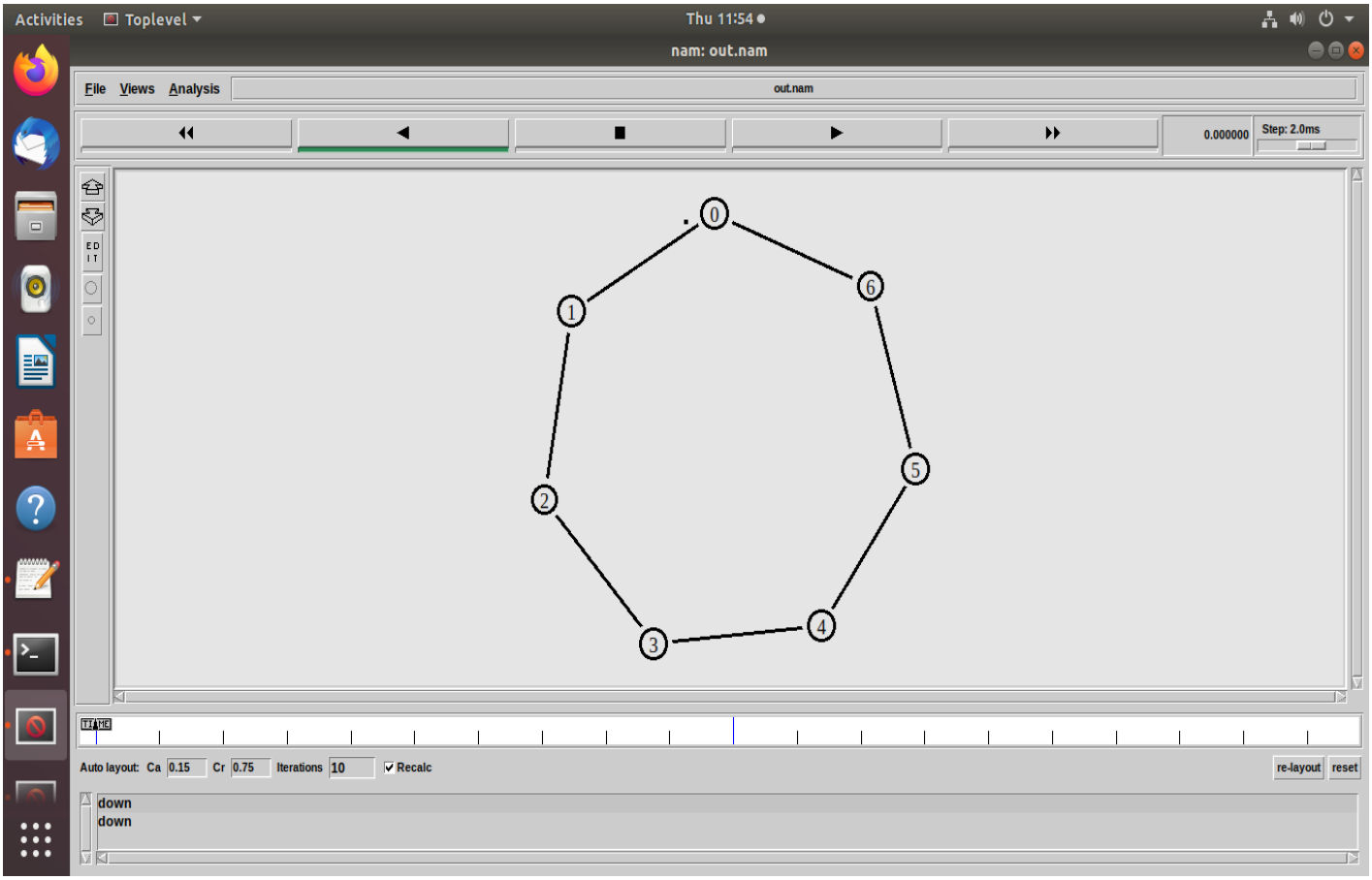
Topologies are referred to as one-way unidirectional ring networks. Generally, Bidirectional and Unidirectional are the two types of ring topology. On the basis of devices that are being linked together to form a network, several kinds of ring topology setups work differently.

CODE:

```
set ns [new Simulator]
$ns rtproto DV

set nf [open out.nam w]
$ns namtrace-all $nf

proc finish {} {
        global ns nf
        $ns flush-trace
        close $nf
        exec nam out.nam
        exit 0
        }

#Creating Nodes
for {set i 0} {$i<7} {incr i} {
set n($i) [$ns node]
}

#Creating Links
for {set i 0} {$i<7} {incr i} {
$ns duplex-link $n($i) $n([expr ($i+1)%7]) 512Kb 5ms DropTail
}
```

```
$ns duplex-link-op $n(0) $n(1) queuePos 1
$ns duplex-link-op $n(0) $n(6) queuePos 1

#Creating UDP agent and attching to node 0
set udp0 [new Agent/UDP]
$ns attach-agent $n(0) $udp0

$ns attach-agent $n(0) $udp0

#Creating Null agent and attaching to node 3
set null0 [new Agent/Null]
$ns attach-agent $n(3) $null0

$ns connect $udp0 $null0



#Creating a CBR agent and attaching it to udp0
set cbr0 [new Application/Traffic/CBR]
$cbr0 set packetSize_ 1024
$cbr0 set interval_ 0.01
$cbr0 attach-agent $udp0

$ns rtmodel-at 0.4 down $n(2) $n(3)
$ns rtmodel-at 1.0 up $n(2) $n(3)

$ns at 0.01 "$cbr0 start"
$ns at 1.5 "$cbr0 stop"

$ns at 2.0 "finish"
$ns run
```

OUTPUT :


Activities
Toplevel
Thu 11:54
nam: out.nam
File
Views
Analysis
out.nam
0.000000
Step: 2.0ms
0
1
2
3
4
5
6
Auto layout:
Ca
0.15
Cr
0.75
Iterations
10
Recalc
re-layout
reset
down
down