

SIMULATION OF LINK STATE ROUTING ALGORITHM

AIM:

To simulate and study the link state routing algorithm using simulation.

SOFTWARE REQUIRED:

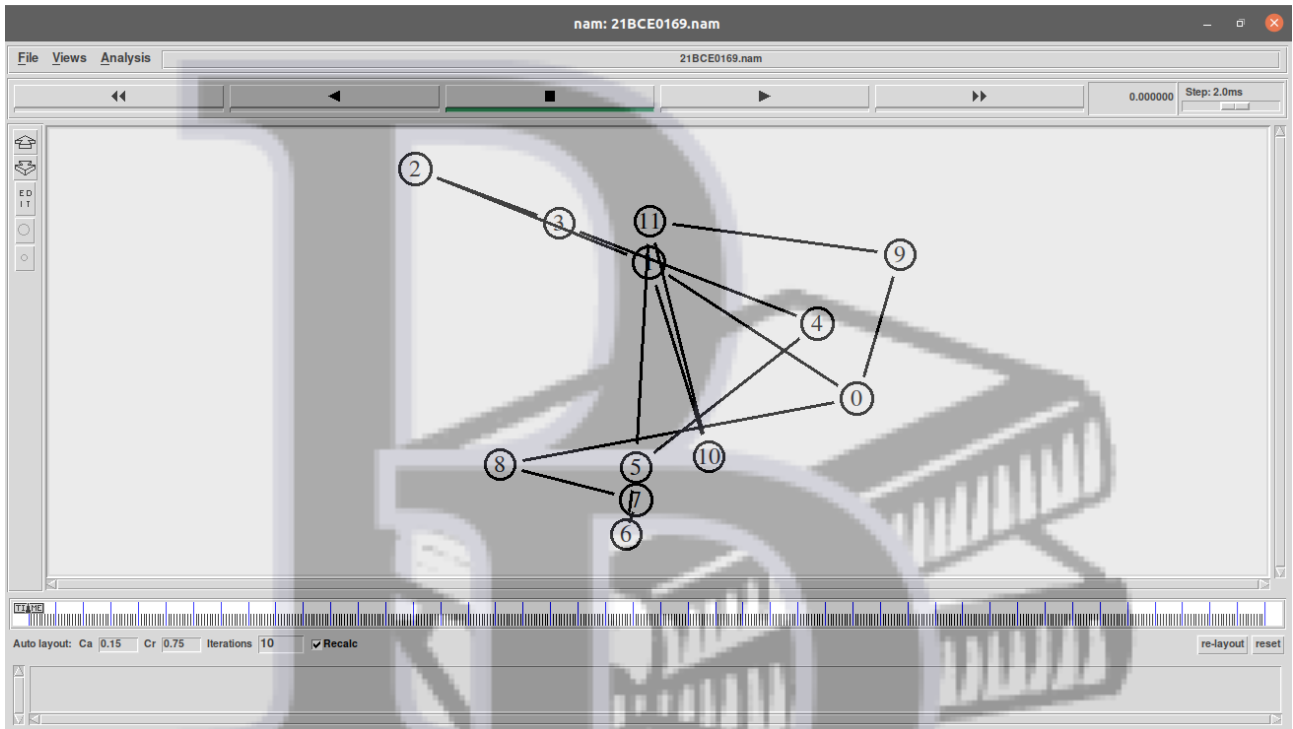
NS-2

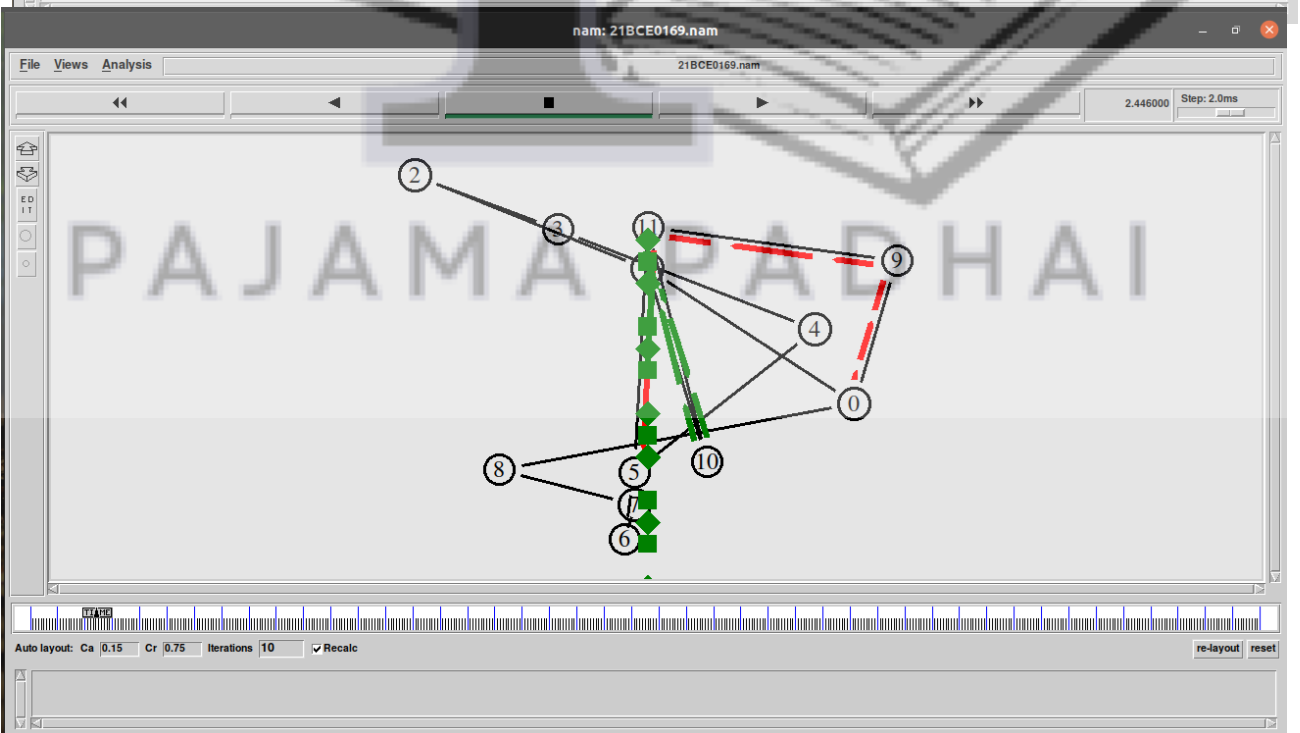
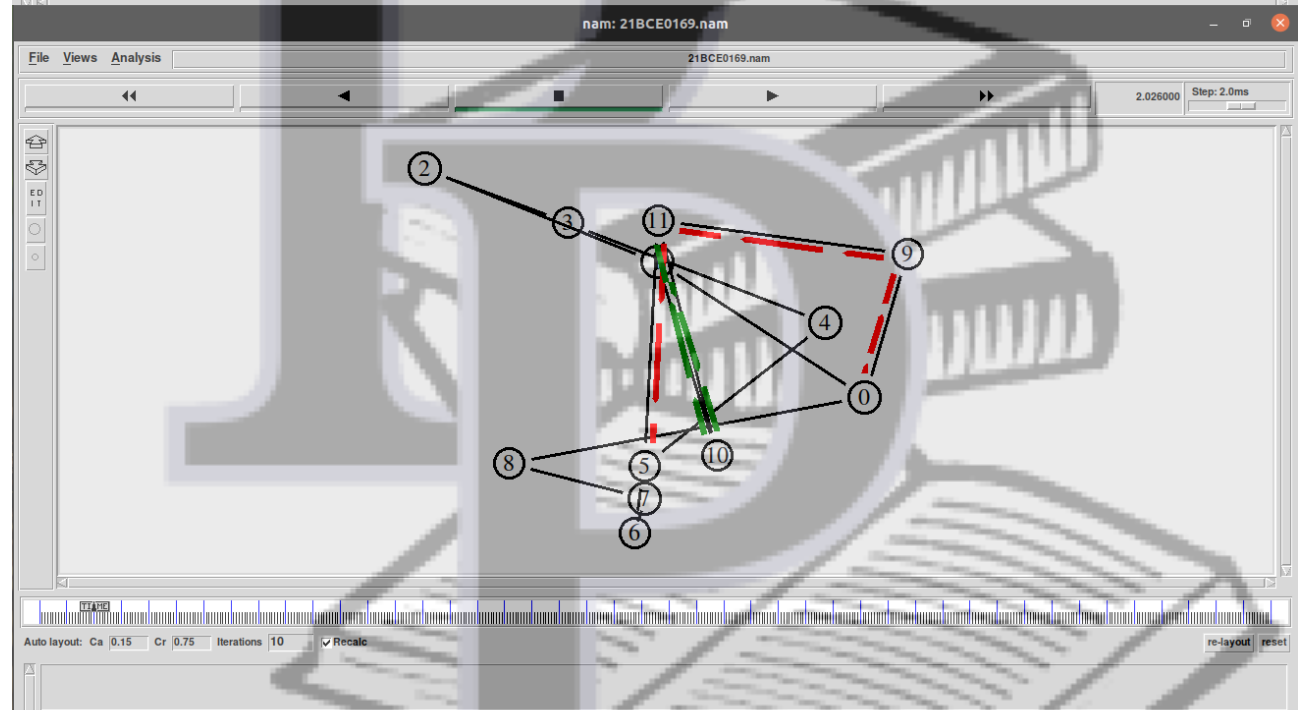
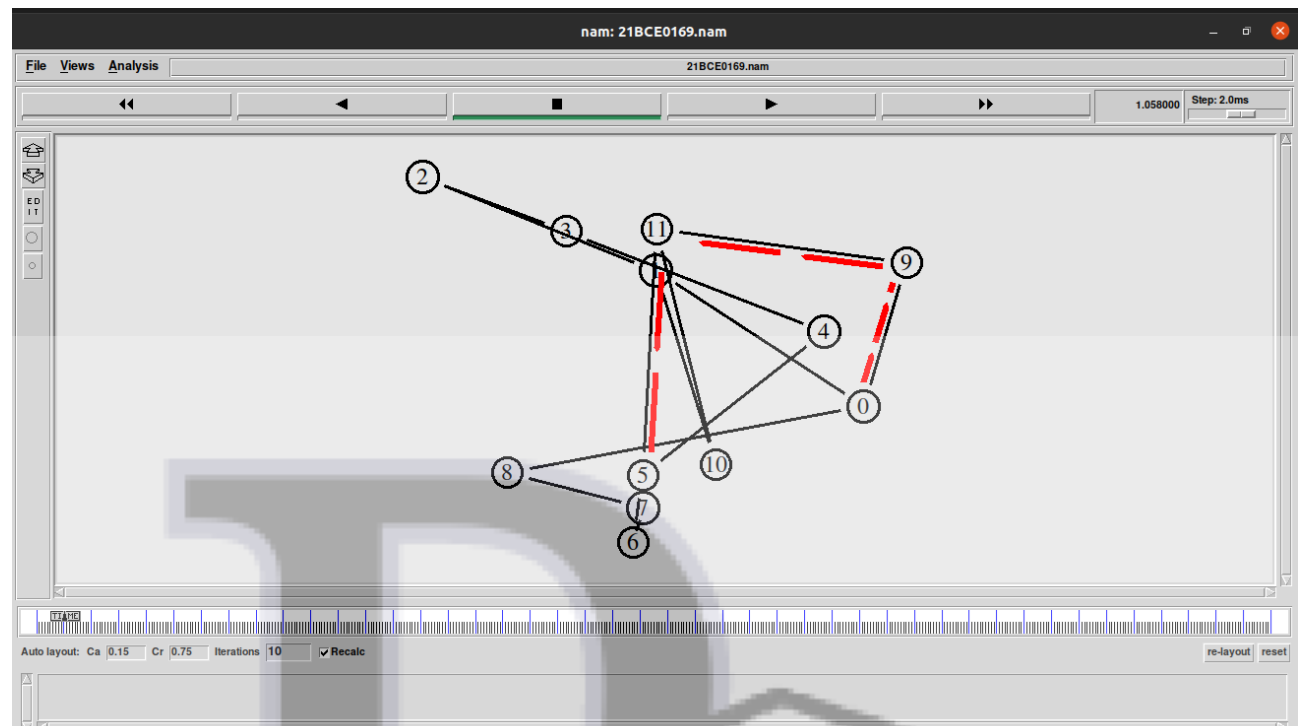
PROGRAM:

```
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 null1 [new Agent/Null]
    $ns attach-agent $n(5) $null1
    $ns connect $udp1 $null1
    $ns rtproto LS
    $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)
```

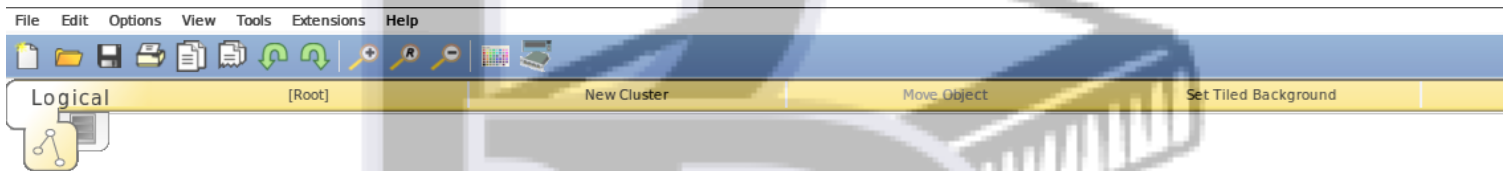
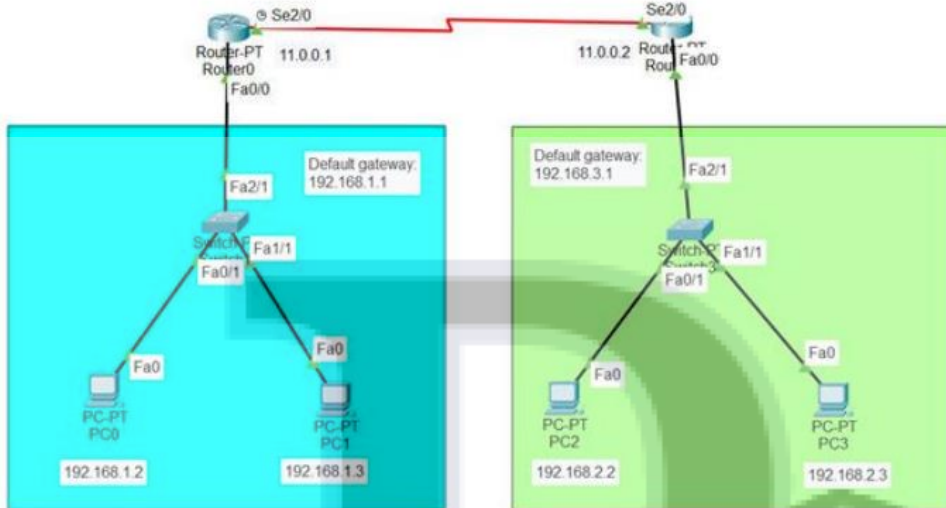
```
$sudp0 set fid_ 1
$sudp1 set fid_ 2
$ns color 1 Red
$ns color 2 Green
$ns at 1.0 "$cbr0 start"
$ns at 2.0 "$cbr1 start"
$ns at 45 "finish"
$ns run
```



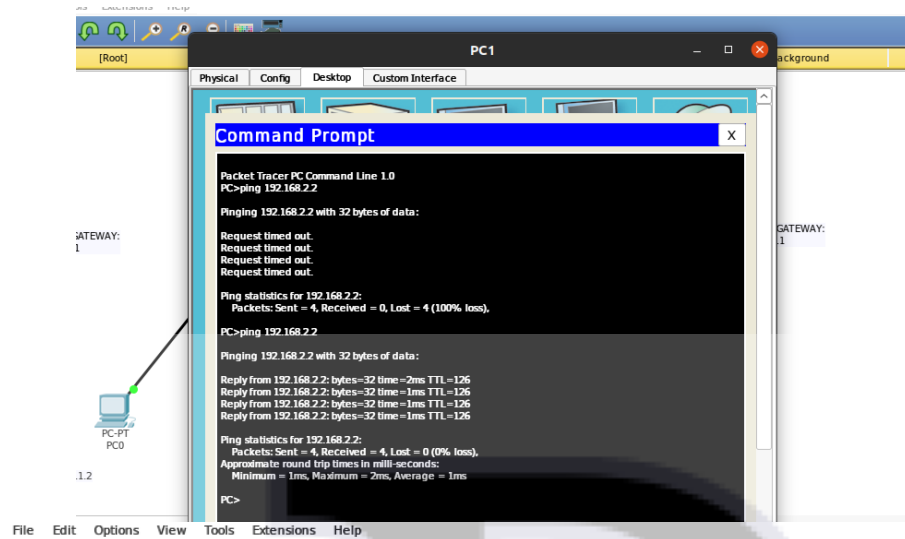


Implementation of Static Routing

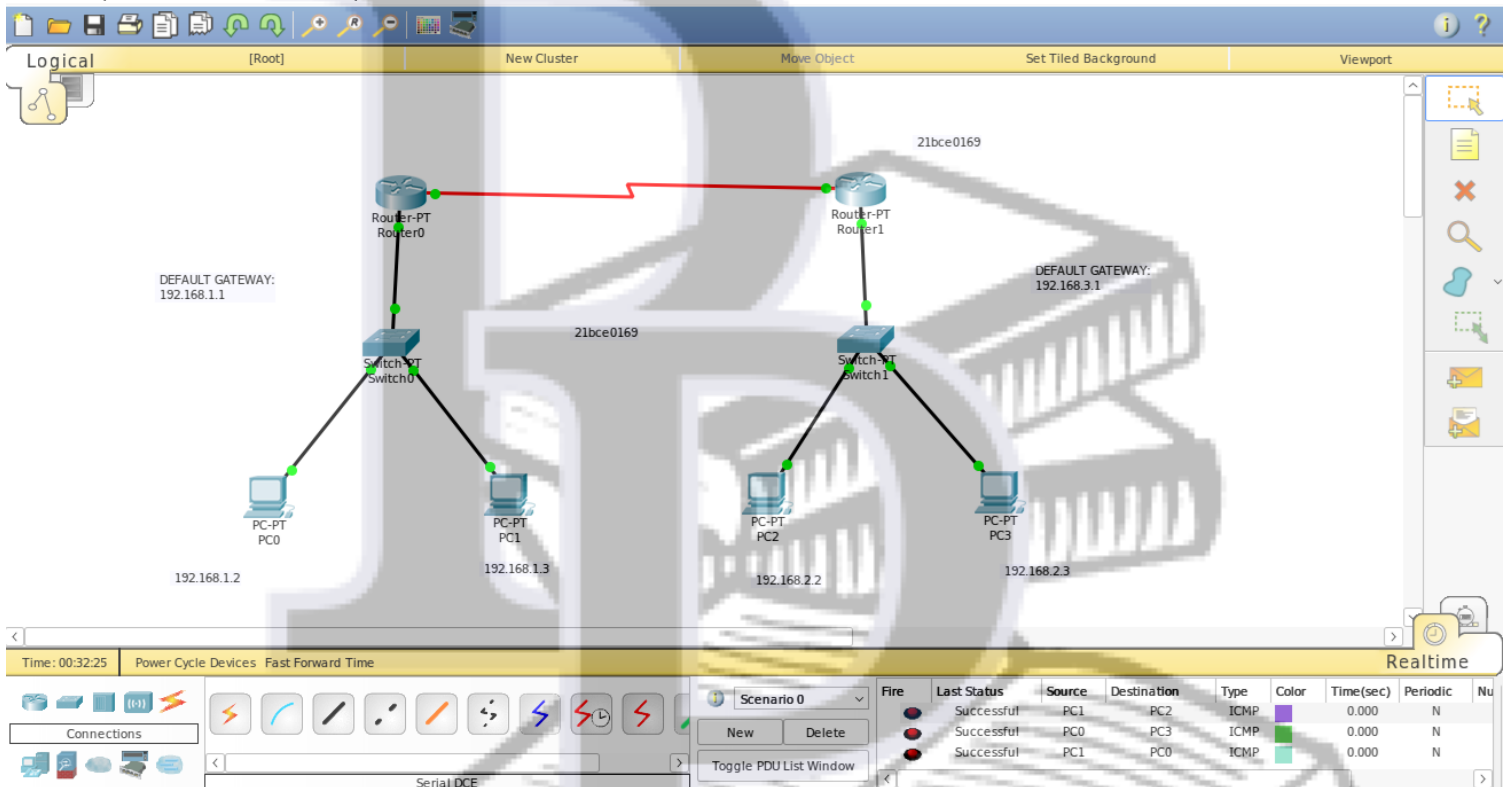
Given Network Topology:



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Successful in real time :



Simulation:

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File
Edit
Options
View
Tools
Extensions
Help

Logical

[Root]

New Cluster

Move Object

Set Tiled Background

Viewport

Simulation Panel

Event List

Vis.	Time(sec)	Last Device	At Device	Type	Info
	0.009	Router1	Router0	ICMP	
	0.009	Router0	Switch0	ICMP	
	0.010	Router0	Switch0	ICMP	
	0.010	Switch0	PC1	ICMP	
	0.011	Switch0	PC0	ICMP	
	0.522	--	Switch1	STP	
	0.523	Switch1	PC2	STP	
	0.523	Switch1	PC3	STP	
	0.523	Switch1	Router1	STP	

Reset Simulation
☒ Constant Delay
Captured to: 0.523 s

Play Controls

Back

Auto Capture / Play

Capture / Forward

Event List Filters - Visible Events

ACL Filter, ARP, BGP, CDP, DHCP, DHCPv6, DNS, DTP, EIGRP, EIGRPv6, FTP, H.323, HSRP, HSRPv6, HTTP, HTTPS, ICMP, ICMPv6, IPsec, ISAKMP, LACP, NDP, NETFLOW, NTP, OSPF, OSPFv6, PAgP, POP3, RADIUS, RIP, RIPng, RTP, SCCP, SMTP, SNMP, SSH, STP, SYSLOG, TACACS, TCP, TFTP, Telnet, UDP, VTP

Edit Filters

Show All/None

Time: 00:33:13.315
Power Cycle Devices
PLAY CONTROLS:

Back

Auto Capture / Play

Capture / Forward

Scenario 0

New

Delete

Toggle PDU List Window

Fire

Last Status	Source	Destination	Type	Color	Time(sec)	Periodic	Nu
Successful	PC1	PC2	ICMP		0.000	N	
Successful	PC0	PC3	ICMP		0.000	N	
Successful	PC1	PC0	ICMP		0.000	N	

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