DV Routing TCL Script:

```
set ns [new Simulator]
set nr [open dv.tr w]
$ns trace-all $nr
set nf [open dv.nam w]

$ns namtrace-all $nf
proc finish { } { global ns nr nf
$ns flush-trace
close $nf
close $nr
exec nam dv.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 2.0 down $n(11) $n(5)
$ns rtmodel-at 2.0 down $n(7) $n(6)
$ns rtmodel-at 3.0 up $n(11) $n(5)
```

```
$ns rtmodel-at 3.0 up $n(7) $n(6)

$udp0 set fid_ 1
$udp1 set fid_ 2

$ns color 1 Red
$ns color 2 Green

$ns at 0.0 "$cbr0 start"
$ns at 1.0 "$cbr1 start"

$ns at 5.0 "finish"
$ns run
```

LS Routing TCL Script:

```
set ns [new Simulator]
set nr [open ls.tr w]
$ns trace-all $nr
set nf [open ls.nam w]

$ns namtrace-all $nf
proc finish { } { global ns nr nf
$ns flush-trace
close $nf
close $nr
exec nam ls.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 LS

$ns rtmodel-at 2.0 down $n(11) $n(5)
$ns rtmodel-at 2.0 down $n(7) $n(6)
$ns rtmodel-at 3.0 up $n(11) $n(5)
$ns rtmodel-at 3.0 up $n(7) $n(6)

$udp0 set fid_ 1
$udp1 set fid_ 2

$ns color 1 Red
$ns color 2 Green

$ns at 0.0 "$cbr0 start"
$ns at 1.0 "$cbr1 start"

$ns at 5.0 "finish"
$ns run
```

Performance evaluation AWK script:

```
BEGIN {
recvdSize = 0
txsize=0
drpSize=0
startTime = 0
stopTime = 0
thru=0
}
{
event = $1
time = $2
node_id = $3
pkt_size = $6
level = $5
# Store start time
if (level == "cbr" && (event == "+" || event == "s") )
{
if (time < startTime)
{
startTime = time
}
txsize++;
```

```
}
# Update total received packetsâ€TM size and store packets arrival time
if (level == "cbr" && event == "r" )
{
if (time > stopTime)
{
stopTime = time
}
recvdSize++
}
if (level == "cbr" && event == "d" )
{
drpSize++
}
}
END {
printf("Average Throughput[kbps] = %.2f\t\ts=%.2f\td=%.2f\tr=%.2fStartTime=%.2f\tStopTime=
%.2f\n",(recvdSize/(stopTime-startTime)),txsize,drpSize,recvdSize,startTime,stopTime)
}
```

Output:

```
uma@uma:~$ gawk -f pe.awk dv.tr
Average Throughput[kbps] = 1015.60
s=5639.00
d=498.00
r=5077.00StartTime=0.00
StopTime=5.00
uma@uma:~$ gawk -f pe.awk ls.tr
Average Throughput[kbps] = 1003.60
s=5597.00
d=516.00
r=5017.00StartTime=0.00
StopTime=5.00
```