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Course Code: CSE303

Course Name: Computer Networks Laboratory (CNL)

CNL Manual

Ex.10. Simulation and analysis of Ethernet LAN IEEE 802.3

Aim:

To simulate and analysis of Ethernet LAN IEEE 802.3 using NS2 simulator.

Procedure:

Step 1: Create a simulator object

Step 2: Open a nam trace file and define finish procedure then close the trace file, and execute nam on trace file.

Step 3: Create 7 number of nodes

Step 4: Create duplex links between the nodes and connect all nodes with same capacity

Step 5: Define mode configuration assign MAC as CSMA/CD

Step 6: Create bus like topology

Step 7: Set and attach, FTP agent at node A and TCP agent at node C

Step 8: Set E node as sink for both the traffic

Step 9: Start transmission at 0.1 in node-0

Step 10: Start transmission at 0.4 in node-5

Step 10: Schedule events and run the program

Sample Code:

```
set ns [new Simulator]


#open the NAM trace file
```

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

#open the trace file
set nd [open  prog.tr  w]
$ns trace-all $nd

#define a finish procedure
proc finish {} {
global ns nf nd
$ns flush-trace
close $nf
close $nd
exec nam prog.nam &
exit 0
}

#create 6 nodes
set n0 [$ns node]
set n1 [$ns node]
set n2 [$ns node]
set n3 [$ns node]
set n4 [$ns node]
set n5 [$ns node]
set n6 [$ns node]

#create link between the nodes
$ns make-lan "$n0 $n1 $n2 $n3 $n4 $n5 $n6" 0.2Mb 40ms LL Queue/DropTail Mac/802_3

#setup a tcp connection
```

```
set tcp [new Agent/TCP]
$ns attach-agent $n0 $tcp
set sink [new Agent/TCPSink]
$ns attach-agent $n5 $sink
$ns connect $tcp $sink

#setup a FTP over a tcp connection
set ftp [new Application/FTP]
$ftp attach-agent $tcp

$ns at 1.0 "$ftp start"
$ns at 5.0 "$ftp stop"
$ns at 5.5 "finish"
$ns run
```

Result:

By fixing bandwidth and vary the delay, find throughput at various range and plot.