Networks Lab – UCS1511

PERFORMANCE EVALUATION OF TCP AND UDP

Write ns2 program to do Performance Evaluation of TCP and UDP sharing a bottleneck link

1. Create Simulator object
2. Define different colors for data flows (for NAM)
   $ns color 1 Blue
   $ns color 2 Red

3. Open the Trace files
4. Open the NAM trace file
5. Define a 'finish' procedure
6. Create six nodes
7. Create links between the nodes
   a. 0 → 2 2Mb 10 ms duplex link
   b. 1→2 2Mb 10 ms duplex link
   c. 2→3 0.3Mb 100ms simplex link
   d. 3 →2 0.3Mb 100ms simplex link (link 2→3 is a bottleneck)
   e. 3→4 0.5Mb 40ms duplex link
   f. 3→ 5 0.5Mb 40ms duplex link
8. Align it properly
9. Set Queue Size of link (n2-n3) to 10 (or) 5
10. Setup a TCP connection over 0 and 4 and its flow id, window size, packet size
    set tcp [new Agent/TCP/Newreno]
    $ns attach-agent $n0 $tcp
    set sink [new Agent/TCPSink/DelAck]
    $ns attach-agent $n4 $sink
    $ns connect $tcp $sink
    $tcp set fid_ 1
    $tcp set window_ 8000
    $tcp set packetSize_ 512

11. Setup a FTP over TCP connection
12. Setup a UDP connection over 1 and 5. Set the flow id
13. Setup a CBR over UDP connection with type, packet size, rate, random fields
    $cbr set type_ CBR
    $cbr set packet_size_ 1024
    $cbr set rate_ 0.01mb
    $cbr set random_ false
14. Start and stop the cbr and ftp accordingly
    $ns at 0.1 "$cbr start"
    $ns at 1.0 "$ftp start"
    $ns at 4.5 "$ftp stop"

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$ns at 5.0 "$cbr stop"
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15. Finish the simulation