Expt No.1: Stop and Wait Protocol

This experiment will bring out the correct choice of the packet sizes for transmission in noisy channels.

Open two sliding window (S/W) applications, each in one computer. Assign Node Id 1 as receiver and Node Id 0 as sender.

Conduct the experiment for 200 secs. Set the link rate to be 8kbps. Set the protocol to CSMA/CD.

Set the No. of Packets (Window size) to 1 in both nodes (because Stop and Wait protocol is a window size-1 algorithm).

Make sure the No. of Nodes is set to 2 and the Inter Packet delay (IPD) in both the nodes is set to 0. This makes sure no delay is introduced in the network other than the transmission delay.

Set the Tx/Rx Mode to be Promiscous mode and the direction as sender or Receiver accordingly.

Set BER to 0 and run the experiment. Find out the size of the transmitted packets and the acknowledgement packets received. Calculate the overhead involved in the transmitted packets for different packet sizes.

Choose packet sizes 10 ..100 bytes in multiples of 10. Now set BER to 10^{-3} and perform the experiment. Give timeout as 1000ms. Calculate the throughputs.

Perform the previous steps now for a BER of 10^{-4} for packet sizes (100..900) bytes in steps of 100 and calculate the throughputs. Packet sizes are chosen longer, as the BER is less. Give larger timeout as packets are longer(say, 2000ms).

Plot throughput vs packet size curves and find out the optimum packet size for the different BERs .

Expt No:2 Sliding Window Protocol (Go – Back N)

This experiment will bring out the necessity of increasing the transmitter and receiver window sizes and the correct choice of the window size in a delay network.

1. Set up the same configuration as for the previous experiment.
2. Set BER to 0 and fix the packet size at 100 bytes.
3. Set IPD at the sender constantly at 20 ms and the IPD at the receiver to vary between 40 to 190 ms (in steps of 50). This setting simulates various round-trip delays in the network.
4. Change the Window sizes from 1 to 5 in both the nodes together. Give large timeout, 10000ms, as this will make sure that there are very few re-transmissions. Now perform the experiment.
5. Plot the throughput vs Window Sizes for different IPDs and find out the optimum window size for different delays.