NS-3 Assignments

Computer Networks, B.Tech (CSE), Spring session 2023

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Submission deadline: 31/03/2023

Note: You must submit a report with simulation results, trace files (snapshots), necessary graph plots and source code (.cc files) to blackboard. **Copying, in any form, will be considered a serious offence and will attract negative marks.**

Assignment 1

a) Create a simple topology of two nodes (Node1, Node2) separated by a point-to-point link.

b) Setup a UdpClient on one Node1 and a UdpServer on Node2. Let it be of a fixed data rate Rate1.

c) Start the client application, and measure end to end throughput whilst varying the latency of the link.

d) Now add another client application to Node1 and a server instance to Node2. What do you need to configure to ensure that there is no conflict?

e) Repeat step c with the extra client and server application instances. Show screenshots of pcap traces which indicate that delivery is made to the appropriate server instance.

Assignment 2

a) Setup a 2-nodes wireless ad hoc network. Place the nodes at a fixed distance in a 3d scenario.

b) Install all the relevant network stacks, up to and including UDP.

c) Setup a CBR transmission between the nodes, one acting as a server and one as a client.

d) Setup counters and outputs for packets sent and received.

e) Schedule the simulation to run for enough time to obtain statistically relevant results (suggestion: analyse some test results and reduce the simulation time accordingly).

f) Repeat the simulation varying the distance between the nodes from a minimum of 1 meter to the point where the nodes can't transmit/receive anymore.