

Homework #4: TCP layer (due Apr. 23 M)

- ❑ Goal: TCP performance is critically limited in wireless networks simply because TCP has been designed for wired networks.

The most important fact is that TCP regards packet loss as congestion and takes some necessary actions mostly targeted to generate less traffic. However, in wireless networks, packet loss is often due to node mobility and the network is able to function normally as soon as a new route is established because there was no congestion from the beginning.

One recent paper showed that TCP performance can be greatly improved in wireless networks by reducing the congestion window. The goal of this homework is to investigate the TCP performance with different congestion windows size via ns-2 simulation.

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- ❑ Output: Simulation report including excel charts with explanation and discussion. Show throughput and congestion window size over time (average for all or for just one node??).
- ❑ Bonus1: It will be interesting to see the TCP performance versus hop count because TCP performance depends on the hop count between two end nodes.
- ❑ Bonus2: It is also interesting to reveal the instantaneous TCP performance since it is known that TCP performance fluctuates over time in a significant way.

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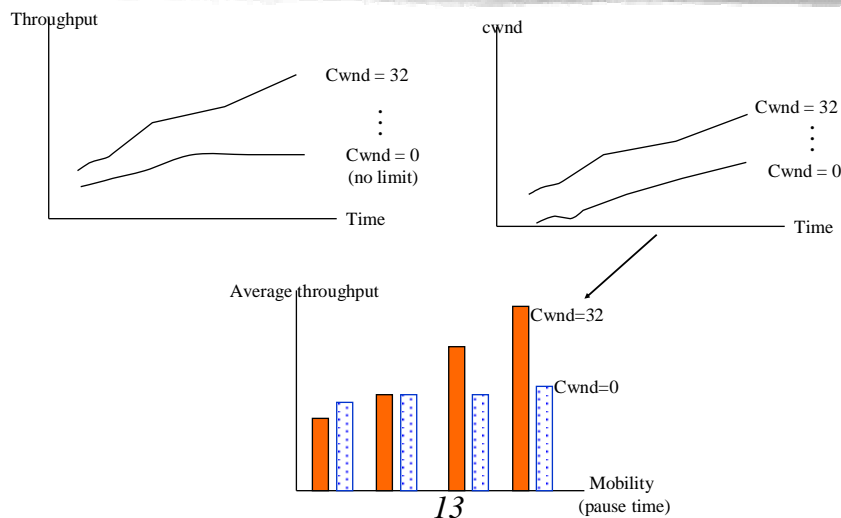
Scenario (fifty.tcl)

- ❑ Standard scenario
 - 50 nodes, 1500x300m network area, simulation time of 900 seconds
 - TwoRayGround, 802.11, AODV
 - 20 CBR sources, ten 256-byte packets/second
 - Maximum node speed 5m/s, pause time of 0~900 seconds
- ❑ Mobility generator: setdest
- ❑ Traffic generator: cbrgen (it is used to generate TCP traffic as well)

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