

CSE322 - NS3 Project Report

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Supervised By

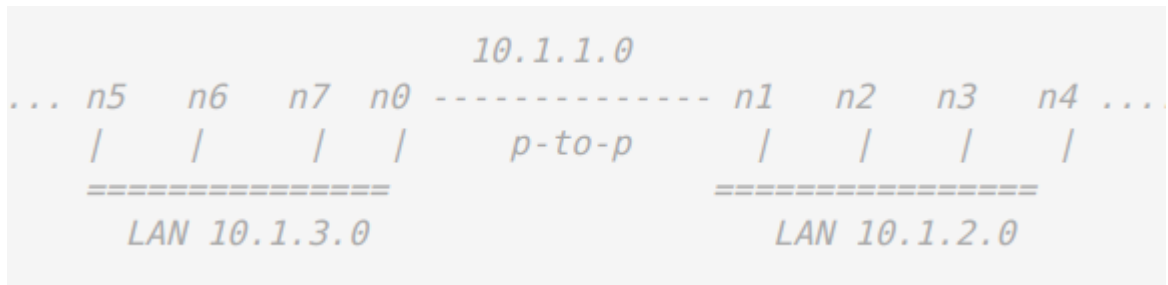
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Network Toplogy:

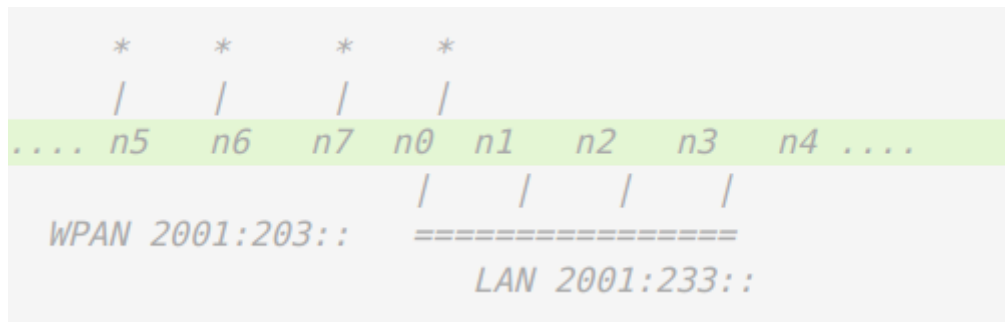
Task A1: (wired)



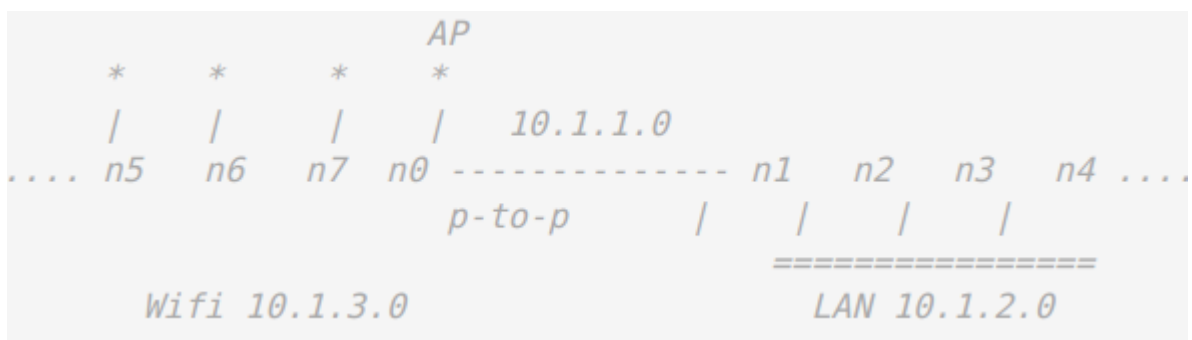
The first task of task A was to build a wired topology. For this, a dumb network was built.

As default parameters packets per second is 100, number of nodes is 100, number of flow is 8

Task A2: (wireless low rate)



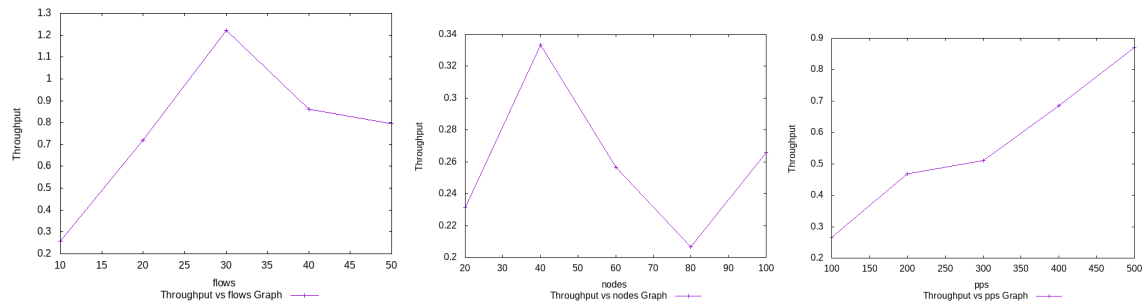
Task B:



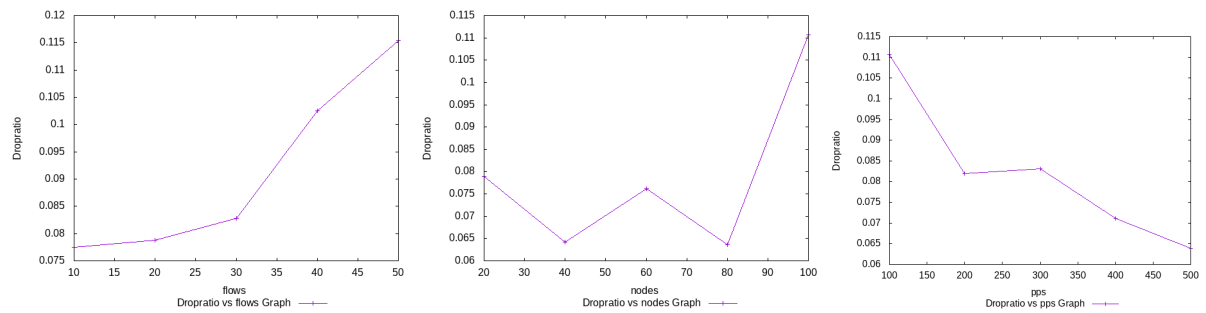
Parameters Under Variation:

Task A (Wired)

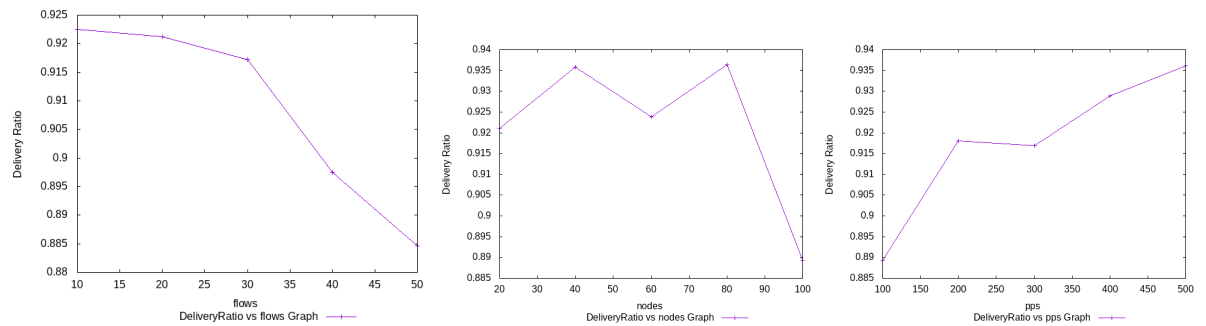
Throughput



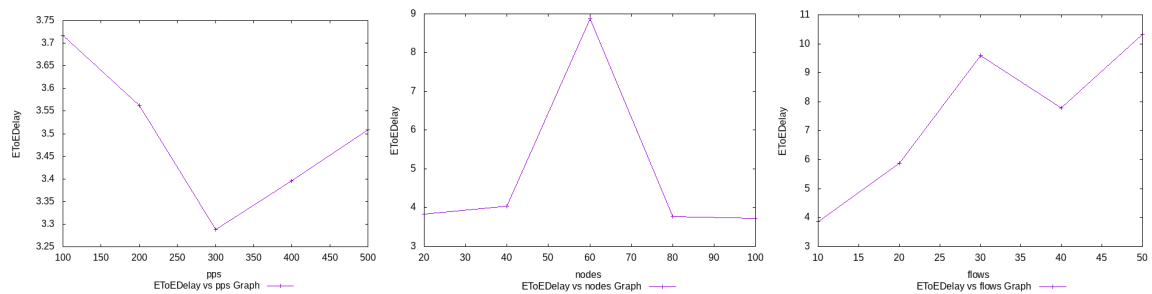
DropRatio:



Delivery Ratio:

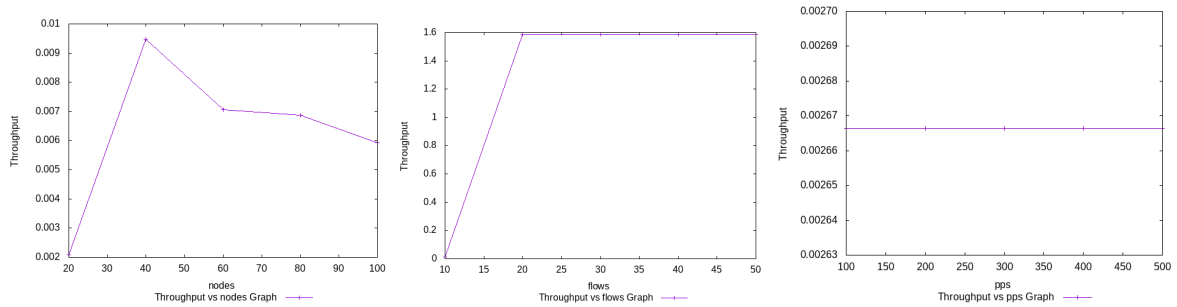


End To End Delay:

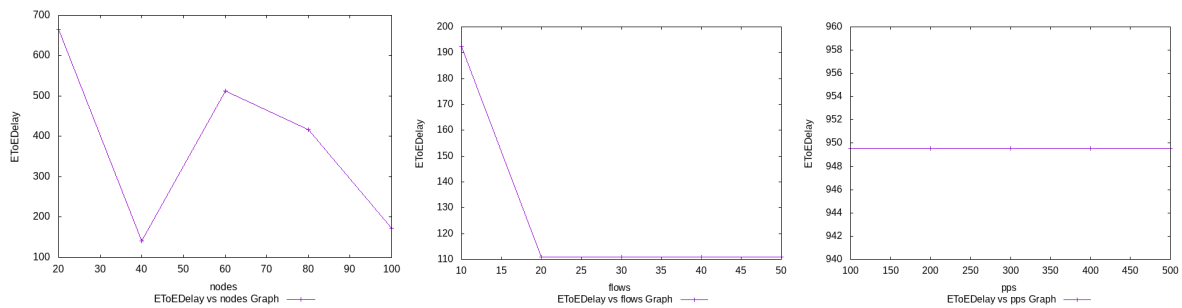


Task A (Low Rate Wpan)

Throughput:



End To End Delay:



Number of nodes, packets per seconds, number of flows are varied

Overview of Proposed Algorithm:

the CLPC protocol consists of three core components,

Congestion State Estimation (CSE)

Random Loss Discrimination (RLD)

Congestion Control Function (CCF),

By CSE aggressive factor N is updated and by RLD decision of Random loss or congestion-induced is determined. CCF adopts a piecewise function to increase the congestion window of CLPC when a new ACK is received.

The $cwnd$ increases very aggressively when the

bottleneck link has residual bandwidth.

Otherwise, the increasing of $cwnd$ is

conservative (less than one per RTT).

When a packet loss occurs, CCF use a trade-off method (an aggressive decrease for the congestion loss and a cautious decrease for the random loss)

Modification made in simulator:

New class is created like TcpLedbat. Modifications are added to “void TcpClpc::PktsAacked” function , For packet loss ssThreshold are modified in “TcpClpc::CongestionAvoidance”.

Results & Explanation of Task A:

In Task A for wired we can see that throughput varies with respect to numbers of nodes , flows and packet per second. Same for other metric.

Here for increasing flows and nodes dropRatio is somewhat increasing and for increasing pps it is decreasing.

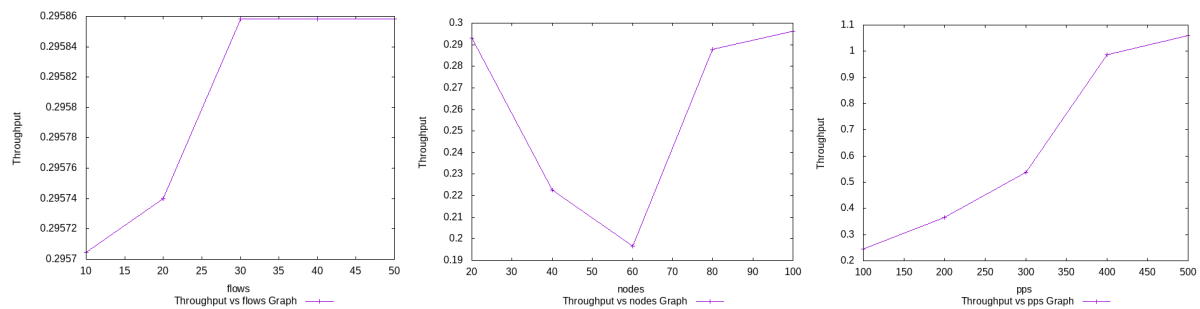
Opposite result is seen in delivery ratio. And for increasing flows End To End Delay is somewhat increasing.

In Low Rate WPAN we can see that for increasing flows after certain periods throughput remains constant. And for increasing pps there is no effect

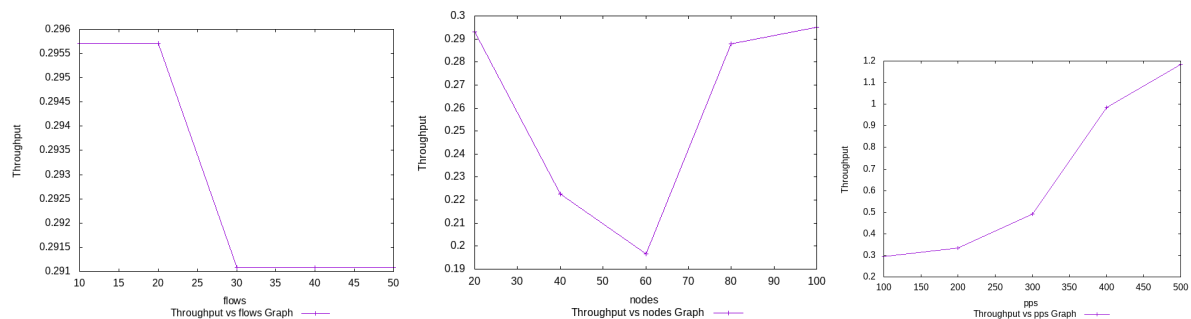
Results & Explanation of Task B:

Throughput:

CLPC



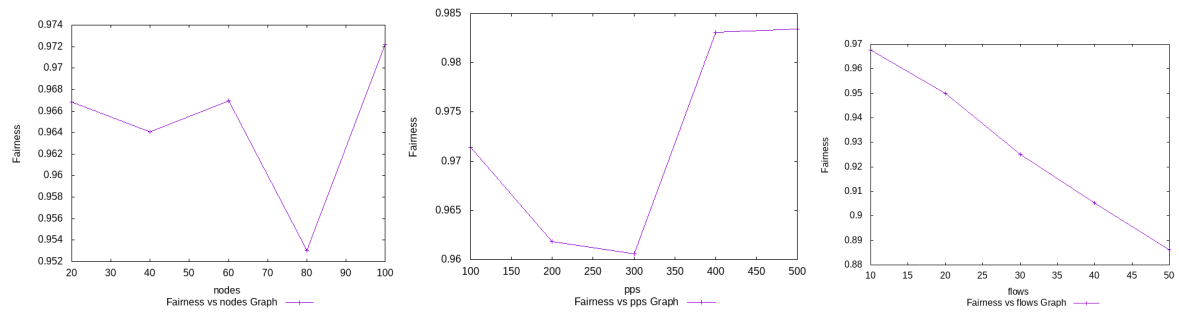
LEDBAT



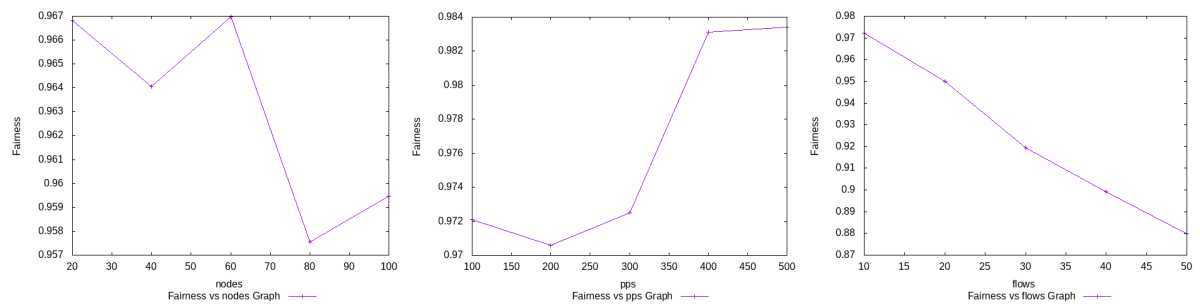
Here, Ledbat and Cltcp algo throuput vs flows has significant change, and it has small changes with variable nodes and pps.

Fairness:

CLPC



LEDBAT



We can see that fairness is almost identical for both algorithm.