CSE322 Computer Network

Offline 2

Offline on NS2 Simulation

MAC type (802.15.4)

Routing protocol (DSDV)

Agent Type (TCP Tahoe)

Application (Telnet)

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Group A2

1. Description

1.1 MAC type (802.15.4)

This is a type of Media Access Control protocol that is used in wireless sensor networks. It is designed for low power, low data rate devices and operates in the 2.4 GHz frequency band. It is optimized for low power consumption and provides a high level of security for wireless communications.

1.2 Routing protocol (DSDV)

DSDV stands for Destination-Sequenced Distance-Vector. It is a type of routing protocol that is used in mobile ad-hoc networks. It is based on the Bellman-Ford algorithm and uses a distance vector approach to determine the best route for data packets to travel. It is known for its stability and low overhead in terms of network resources.

1.3 Agent Type (TCP Tahoe)

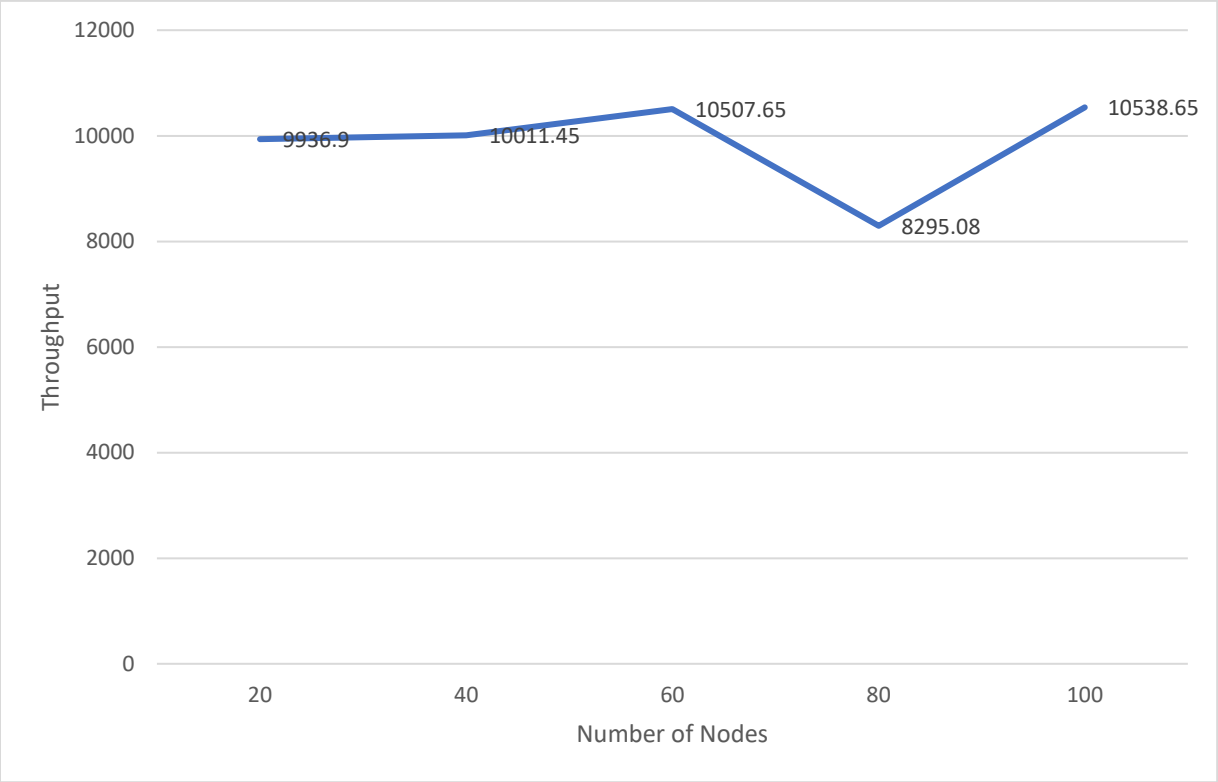
TCP Tahoe is a type of congestion control algorithm used in Transmission Control Protocol (TCP). It is a slow-start algorithm that helps to prevent network congestion by gradually increasing the amount of data sent over the network. It starts with a small window size and increases it gradually, adjusting the window size depending on the network conditions.

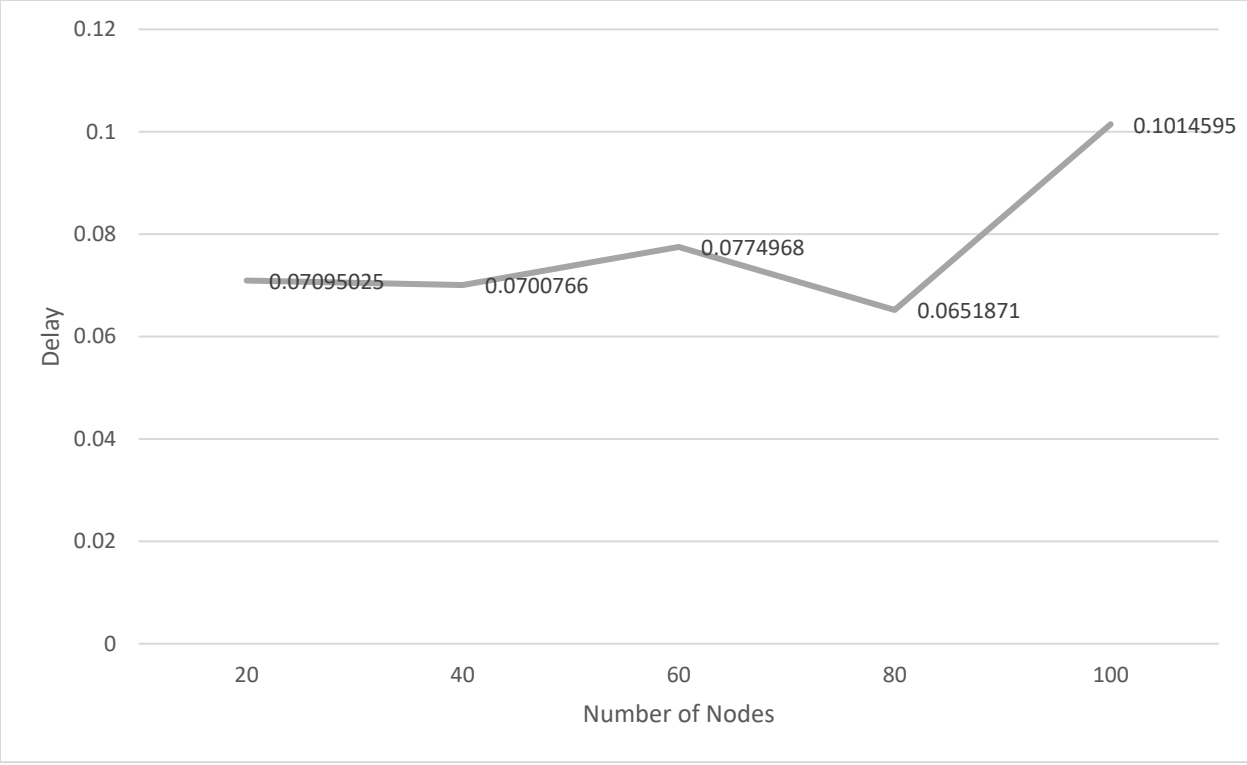
1.4 Application (Telnet)

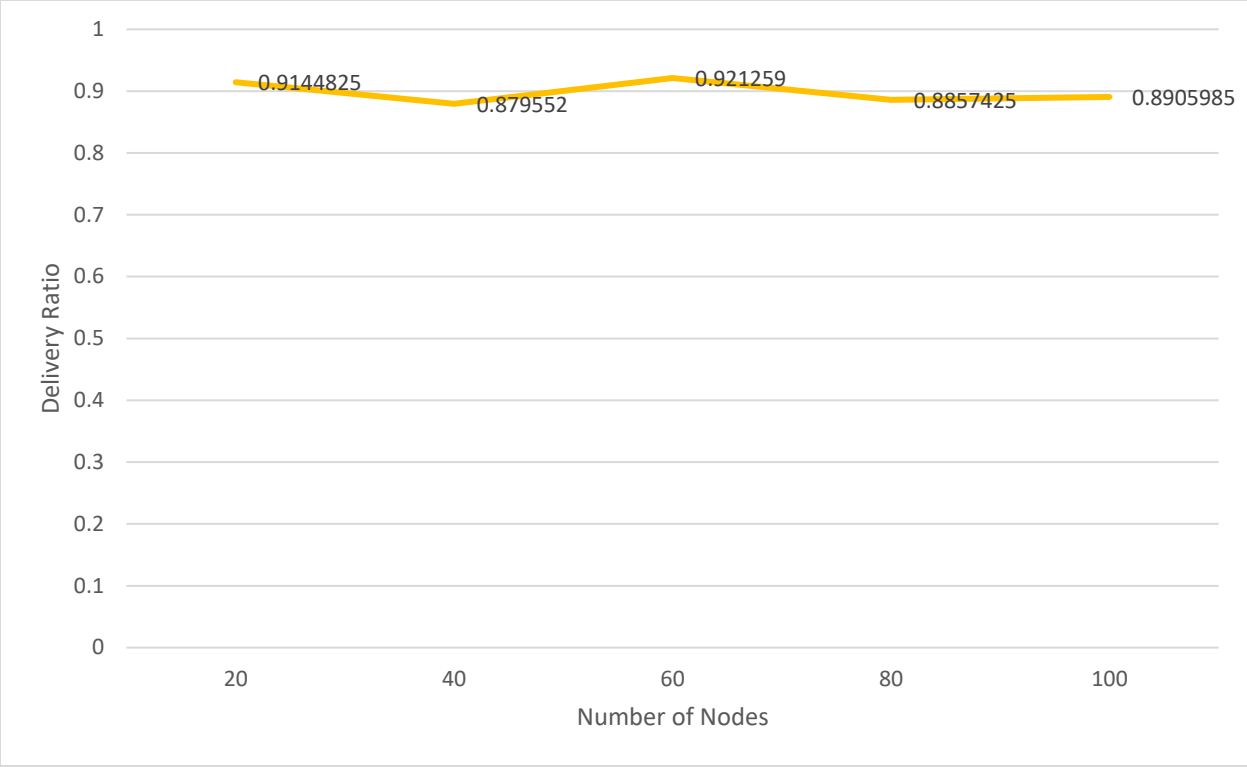
Telnet is a network protocol that allows users to connect to remote computers and access resources on those computers. It allows users to remotely access a command-line interface on a remote computer, making it useful for remote administration and troubleshooting. Telnet is widely used in IT and networking environments for remote access and management of servers and other network devices.

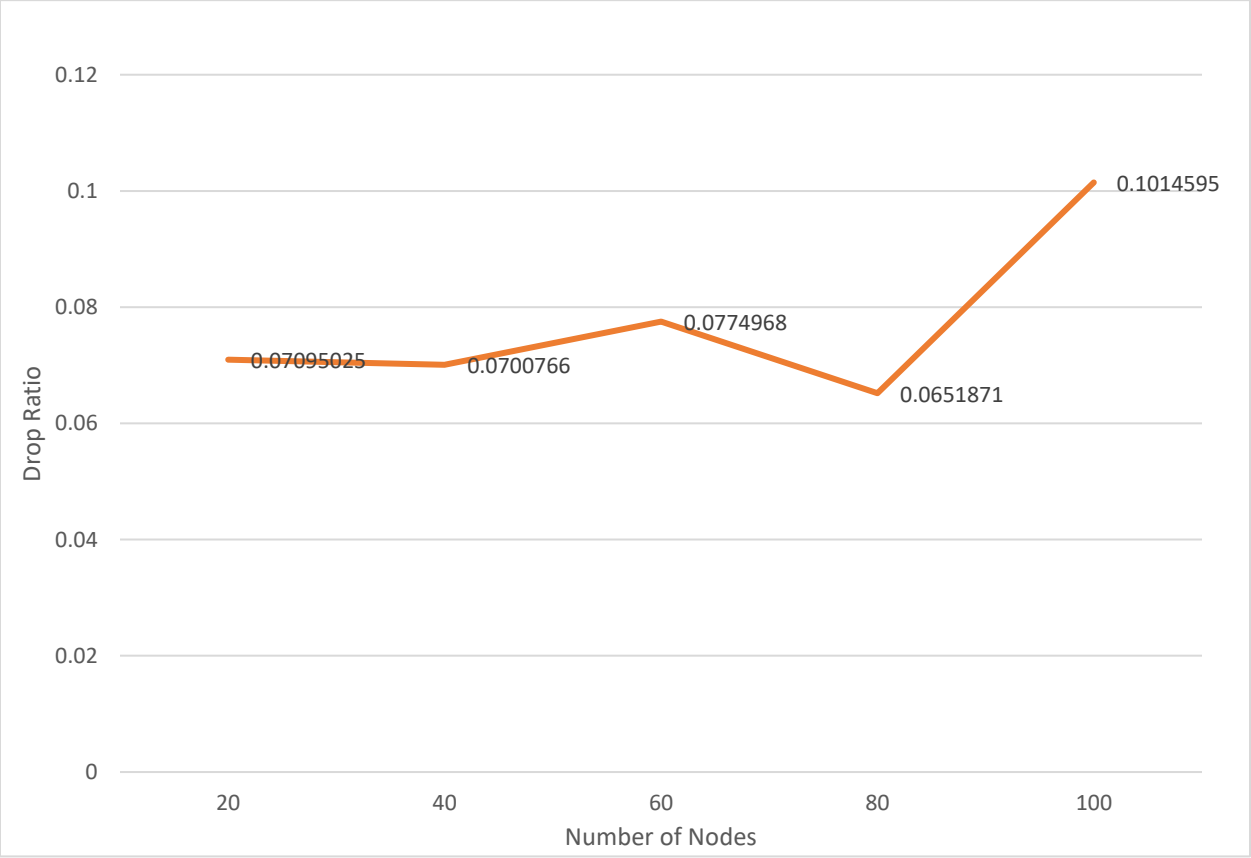
2. Data and Graph

2.1 Varying Number of Nodes

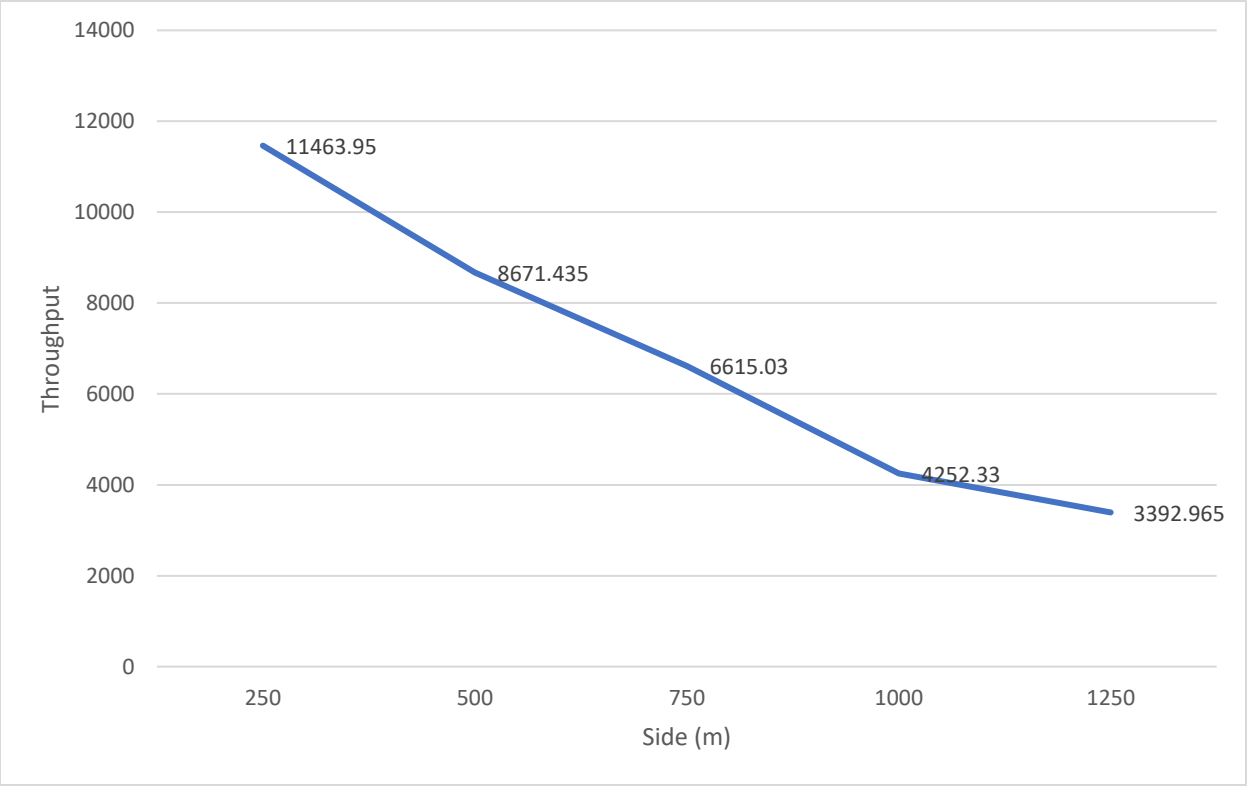


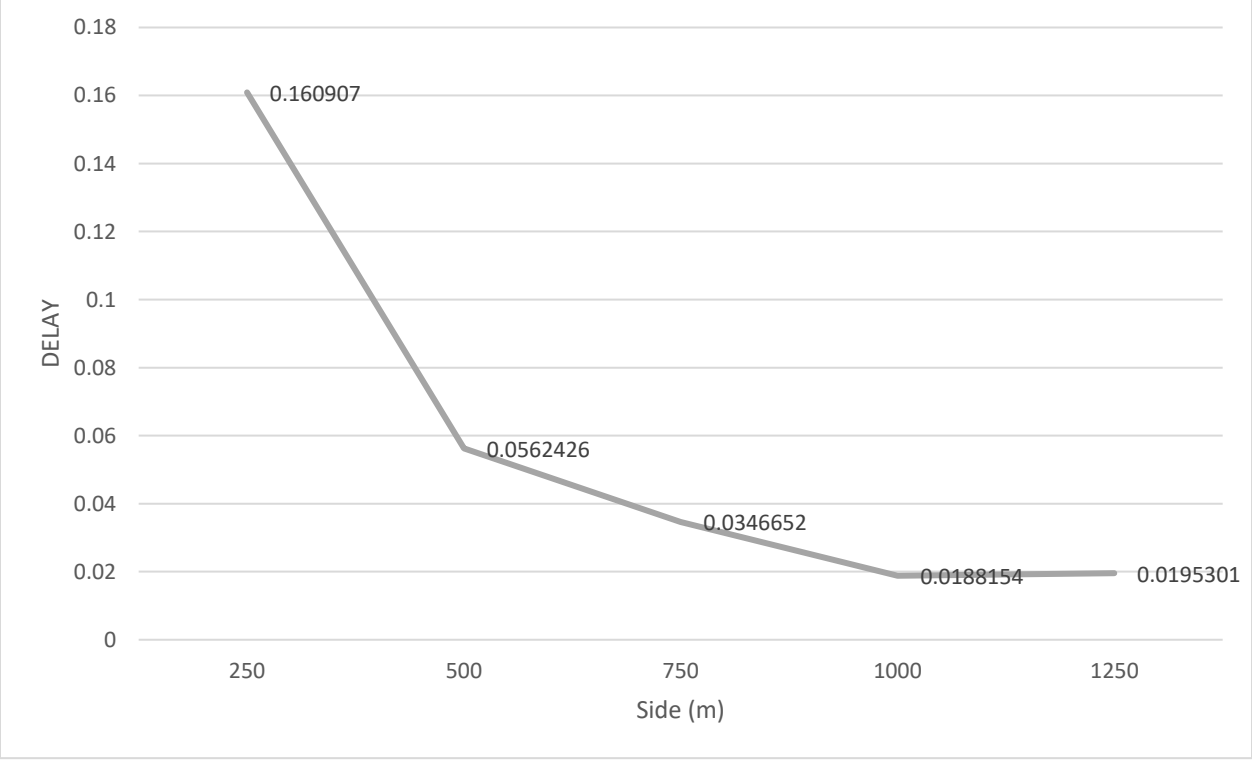


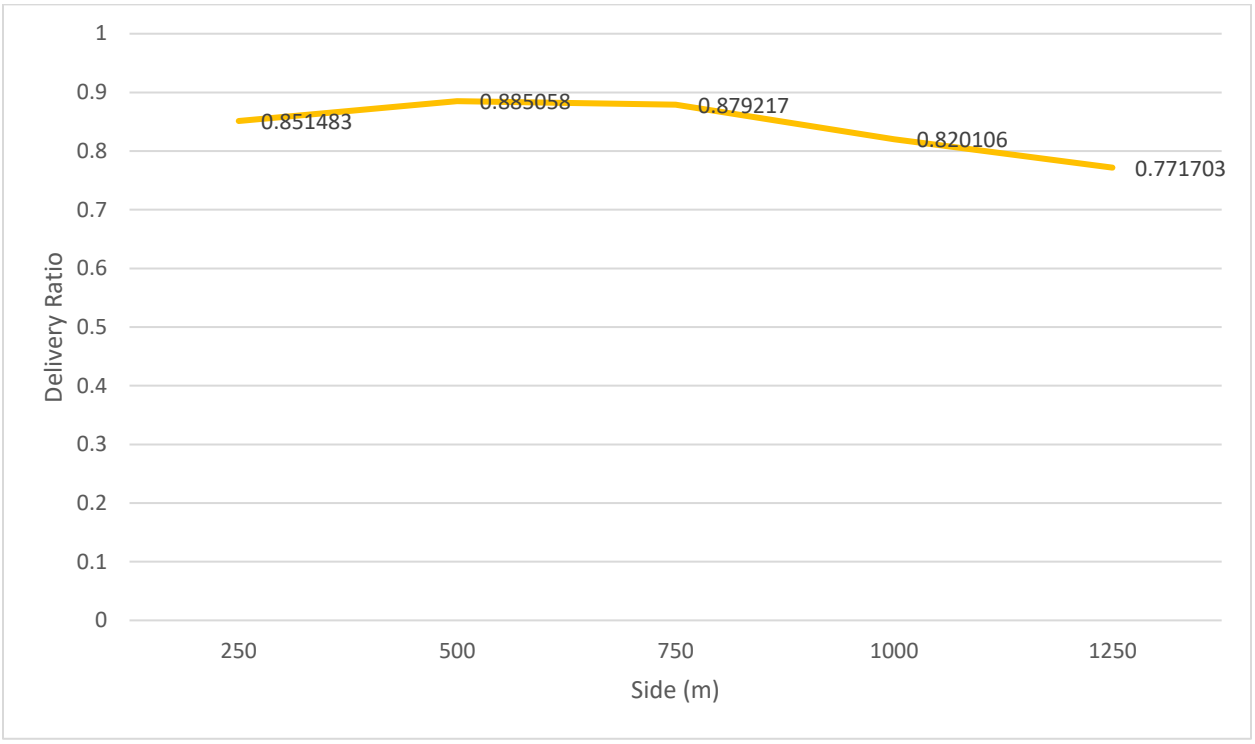

1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Delivery Ratio
0.9144825
0.879552
0.921259
0.8857425
0.8905985
20
40
60
80
100
Number of Nodes

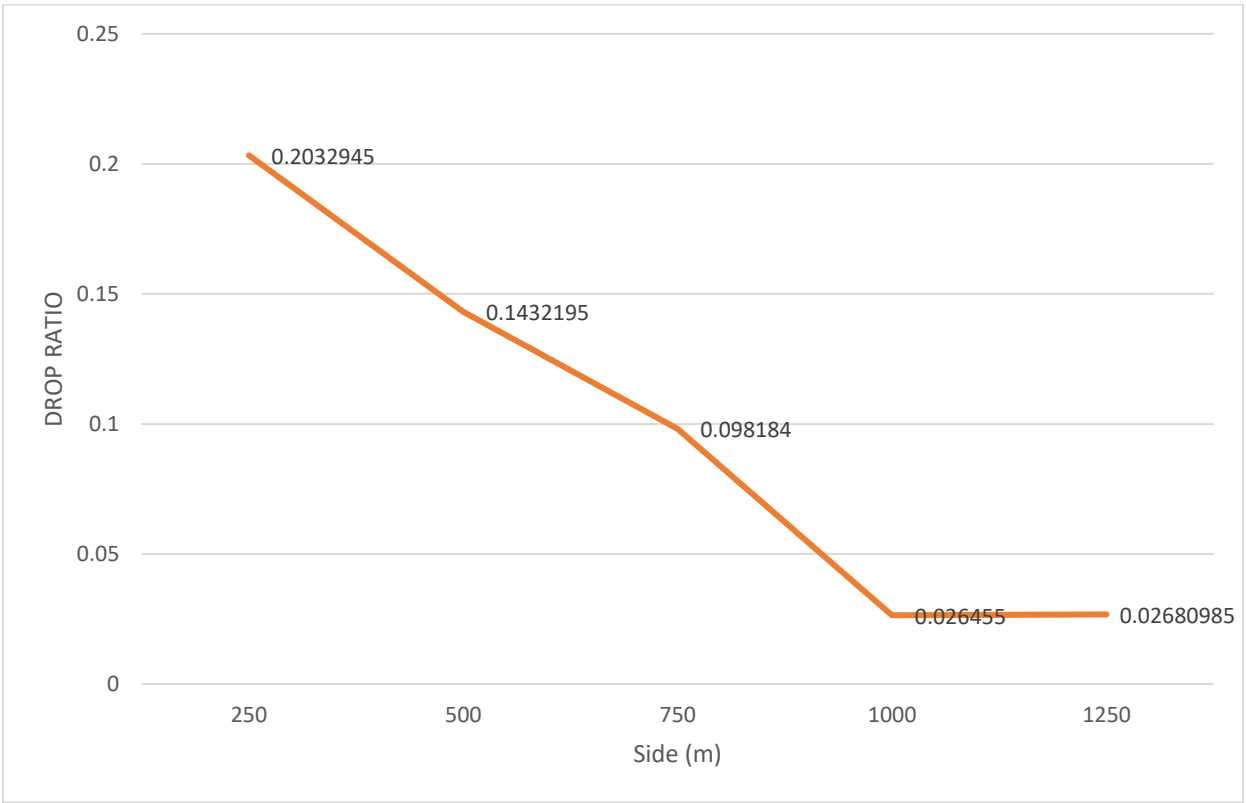

0.12
0.1
0.08
0.06
0.04
0.02
0
Drop Ratio
0.07095025
0.0700766
0.0774968
0.0651871
0.1014595
20
40
60
80
100
Number of Nodes

2.2 Varying Area

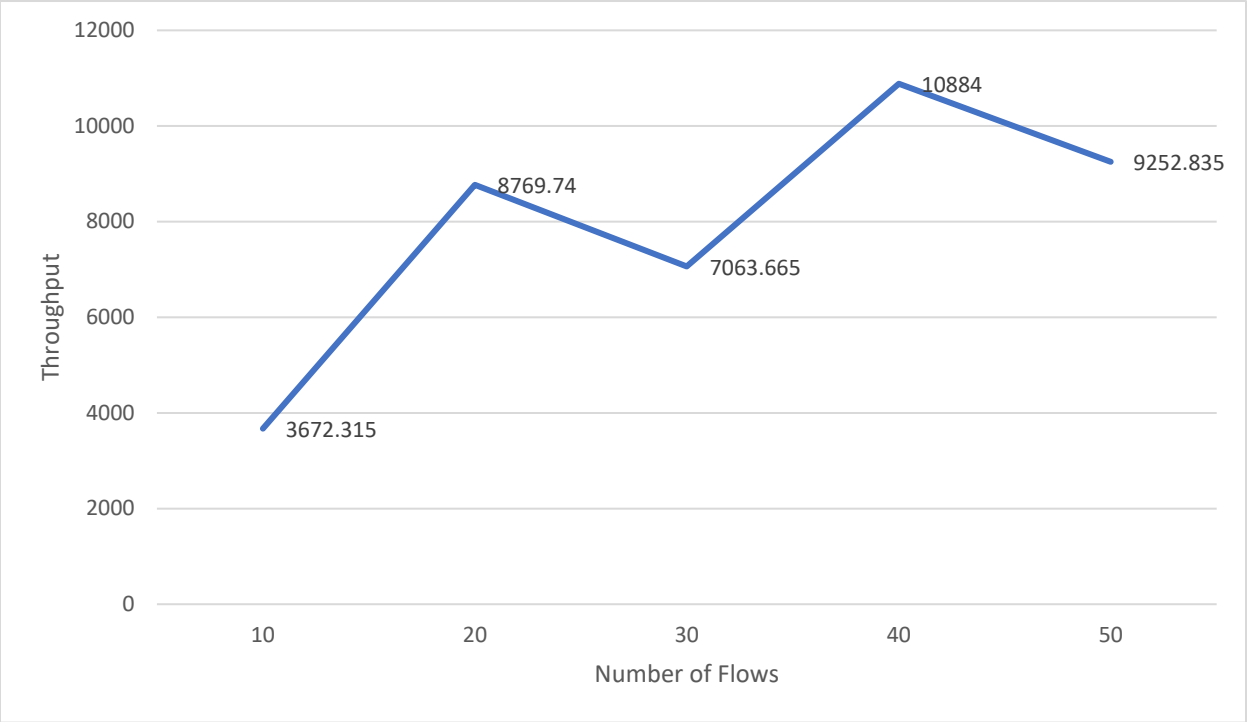


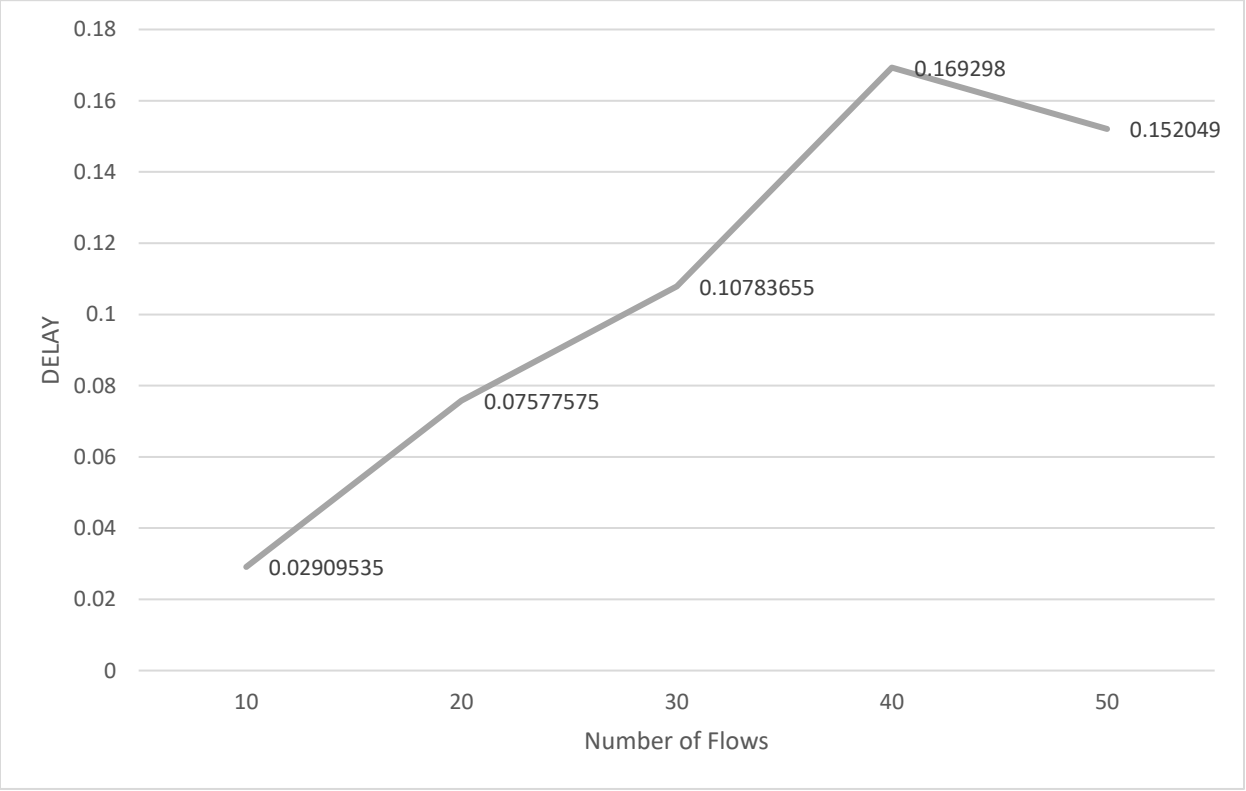


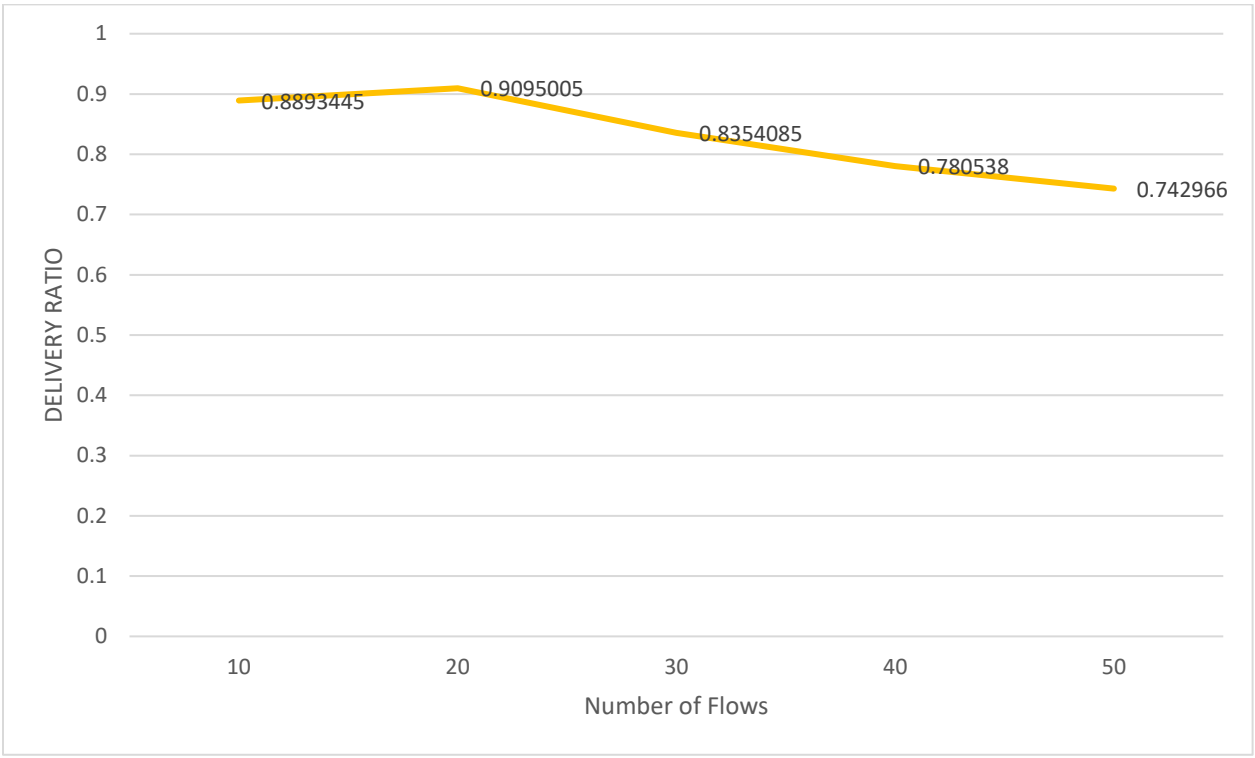

1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Delivery Ratio
0.851483
0.885058
0.879217
0.820106
0.771703
250
500
750
1000
1250
Side (m)

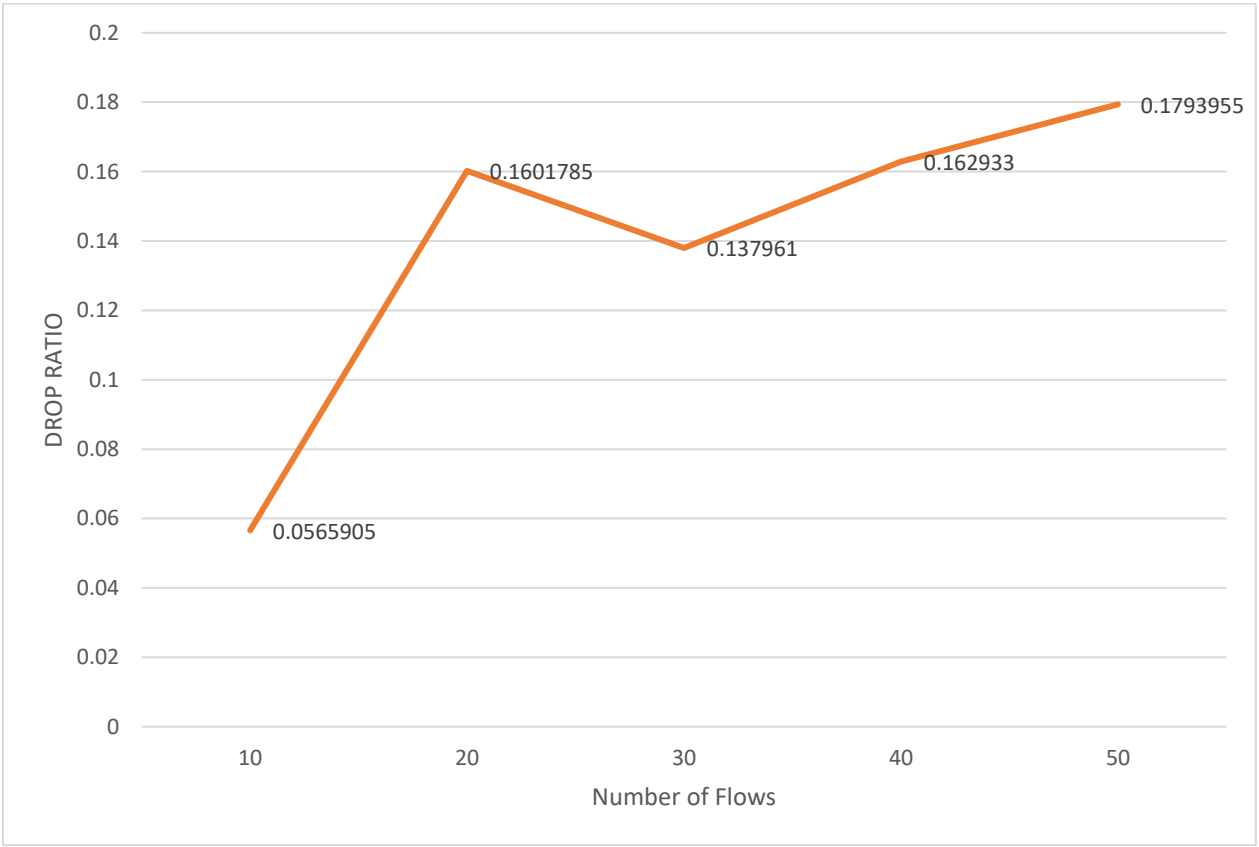

0.25
0.2
0.15
0.1
0.05
0
DROP RATIO
0.2032945
0.1432195
0.098184
0.026455
0.02680985
250
500
750
1000
1250
Side (m)

2.3 Varying the Number of Flows






1
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
DELIVERY RATIO
0.8893445
0.9095005
0.8354085
0.780538
0.742966
10
20
30
40
50
Number of Flows


0.2
0.18
0.16
0.14
0.12
0.1
0.08
0.06
0.04
0.02
0
DROP RATIO
0.0565905
0.1601785
0.137961
0.162933
0.1793955
10
20
30
40
50
Number of Flows

3. Observations

- Throughput, End-to-end delay, and Dropped Ratio went up slightly with increase in number of Nodes, while Delivery Ratio remained constant.
- Throughput, End-to-end delay, and Dropped Ratio went down with increase in Area, while Delivery Ratio remained semi-constant.
- Throughput, End-to-end delay, and Dropped Ratio went up with increase in number of flows, while Delivery Ratio decreased somewhat.
- Throughput, End-to-end delay, and Dropped Ratio are correlated and display the same trends.