MAC type	Routing protocol	Agent Type	Application
802.11	DSDV	UDP	Exponential Traffic

802.11 :

IEEE 802.11 is a series of protocols for wireless networking. Often these are called Wireless LAN, WLAN, or Wi-Fi. Such a protocol allows computers that have the needed radio parts to communicate with each other, without a cable. There are several different forms of Wi-Fi. The first that were widely available were IEEE802.11a and 802.11b.

The system is portable within the network coverage and access to the network is not bounded by the length of the cables.

Since radio waves are used for communications, the signals are noisier with more interference from nearby systems.

DSDV:

Destination-Sequenced Distance-Vector Routing (DSDV) is a table-driven routing scheme for ad hoc mobile networks based on the Bellman–Ford algorithm. The main contribution of the algorithm was to solve the routing loop problem. DSDV requires a regular updates of its routing tables, which uses up battery power and a small amount of bandwidth even when the network is idle.

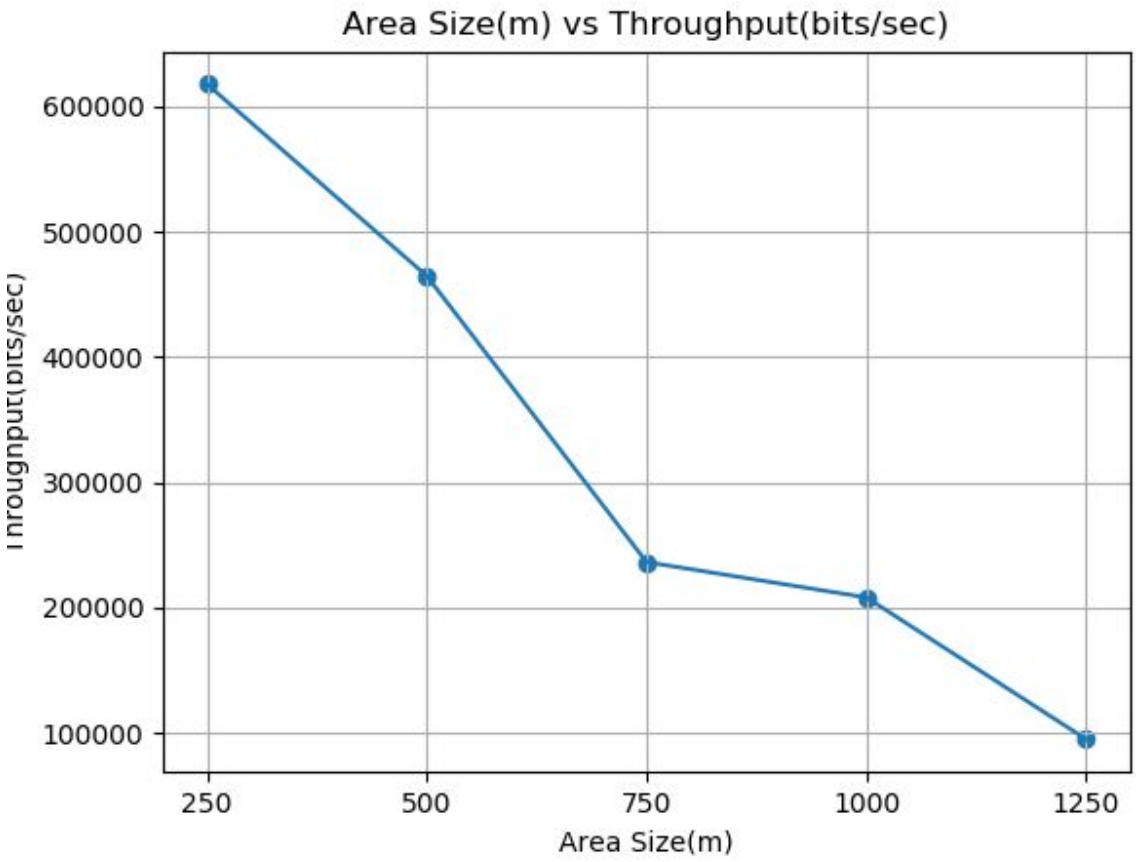
UDP:

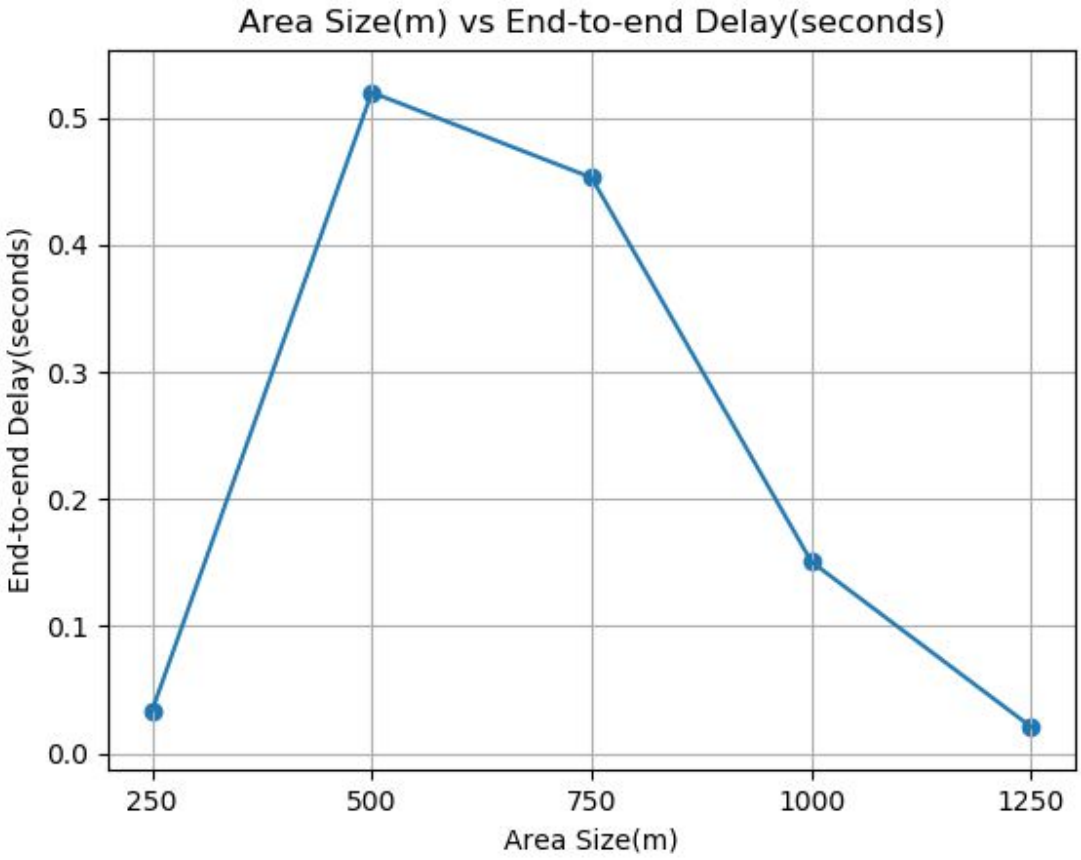
The User Datagram Protocol (UDP) is simplest Transport Layer communication protocol available of the TCP/IP protocol suite. UDP is said to be an unreliable transport protocol. In UDP, the receiver does not generate an acknowledgement of packet received and in turn, the sender does not wait for any acknowledgement of packet sent. This shortcoming makes this protocol unreliable as well as easier on processing. UDP is deployed where the acknowledgement packets share significant amount of bandwidth along with the actual data.

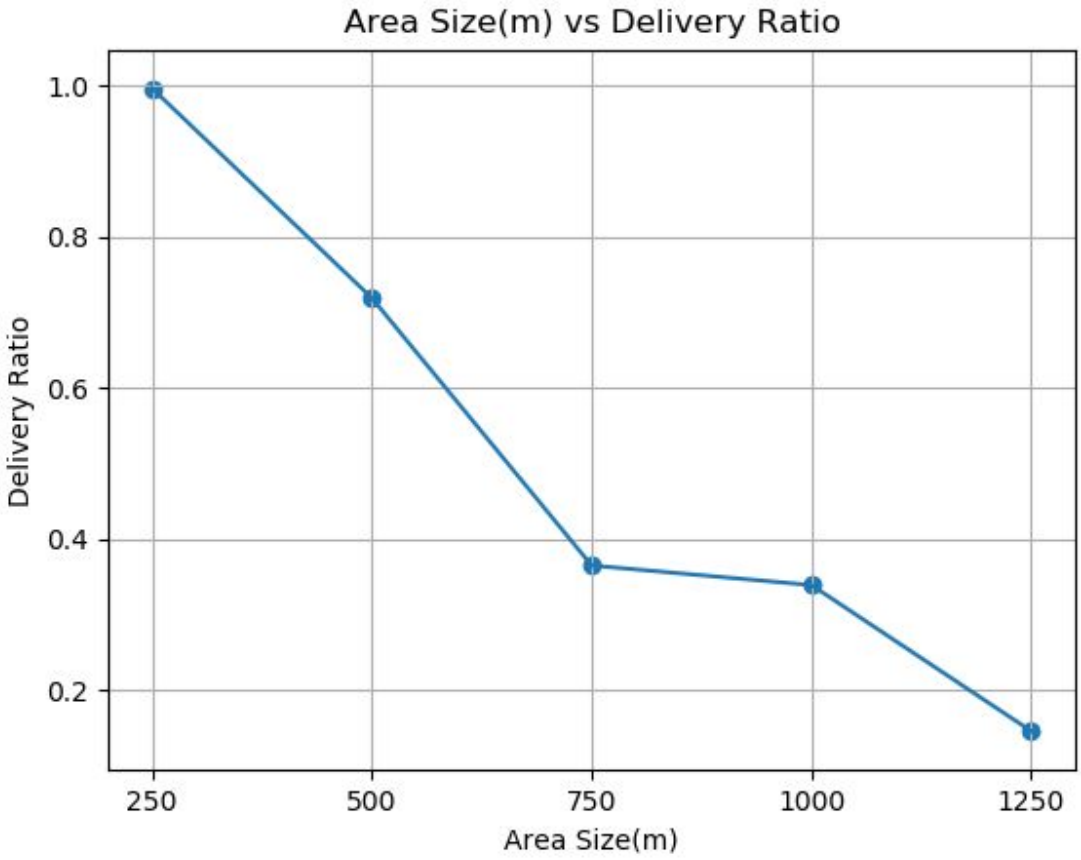
Exponential Traffic:

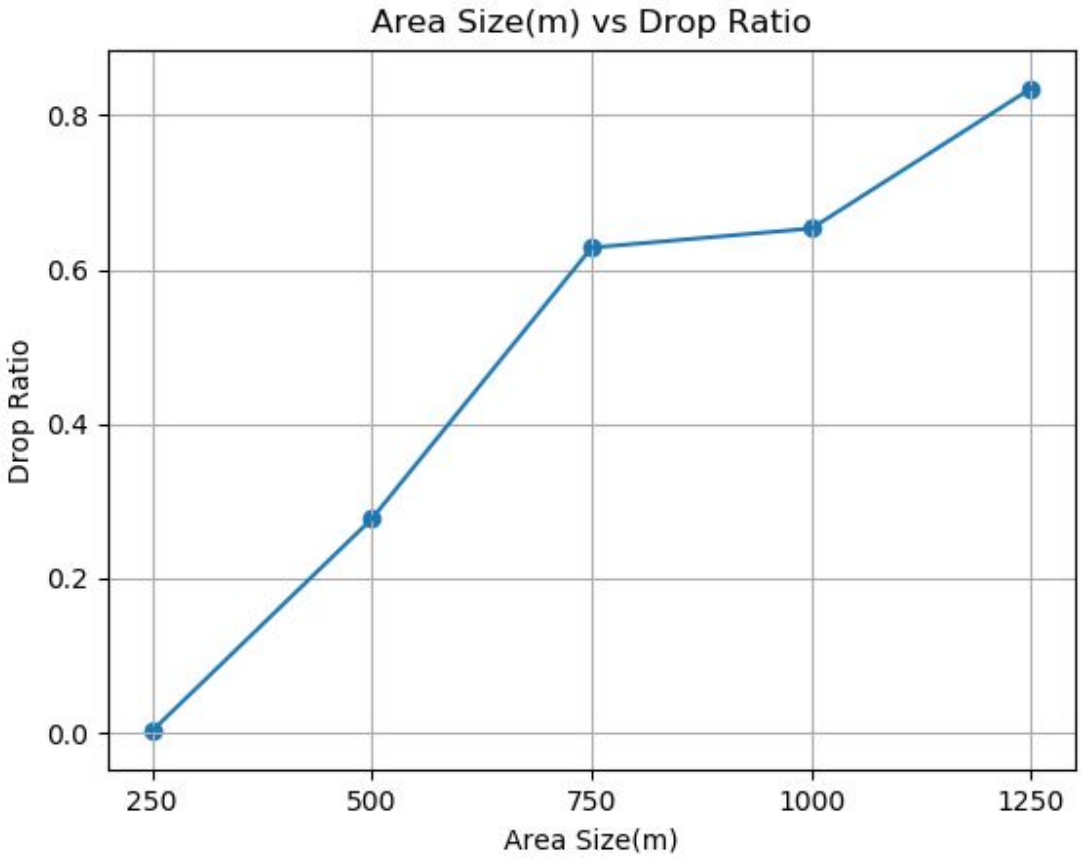
Exponential traffic objects generate On/Off traffic. During "on" periods, packets are generated at a constant burst rate(sending rate during on time). During "off" periods, no traffic is generated. Burst times(average on time for generator) and idle times(average off time for generator) are taken from exponential distributions.

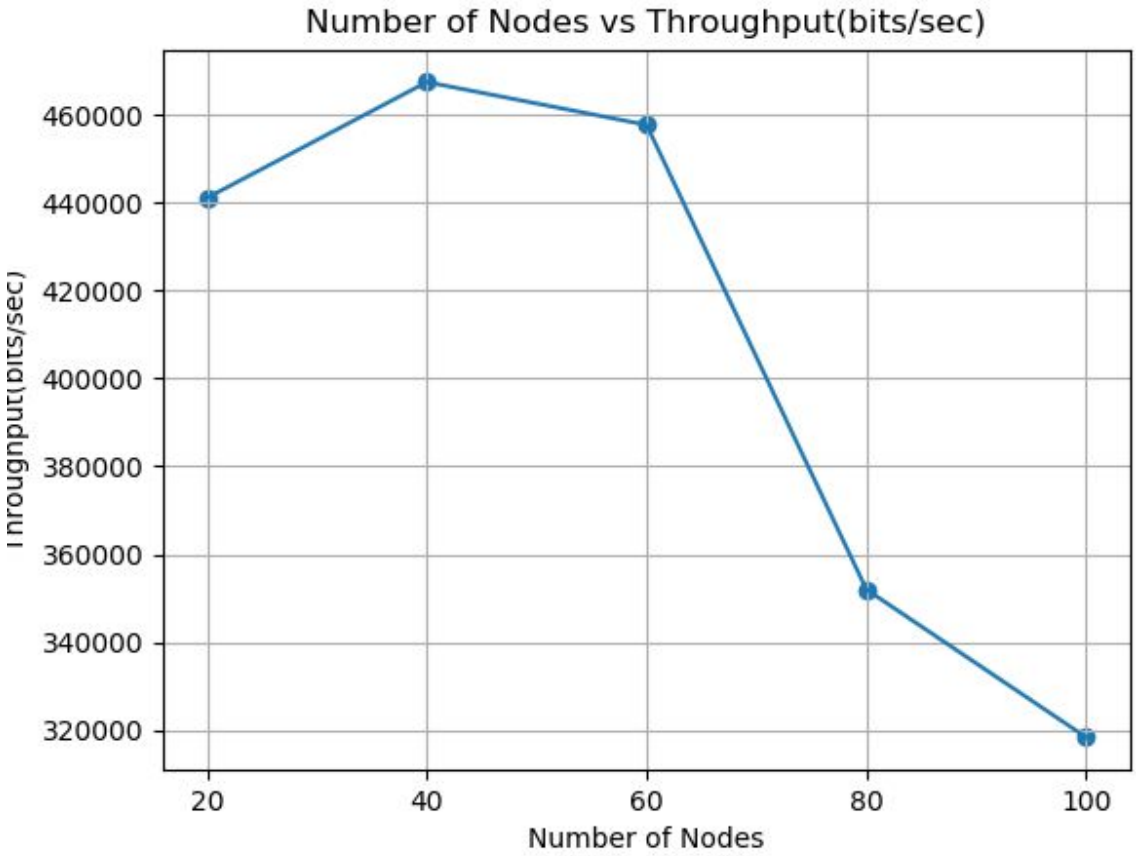
Graphs:

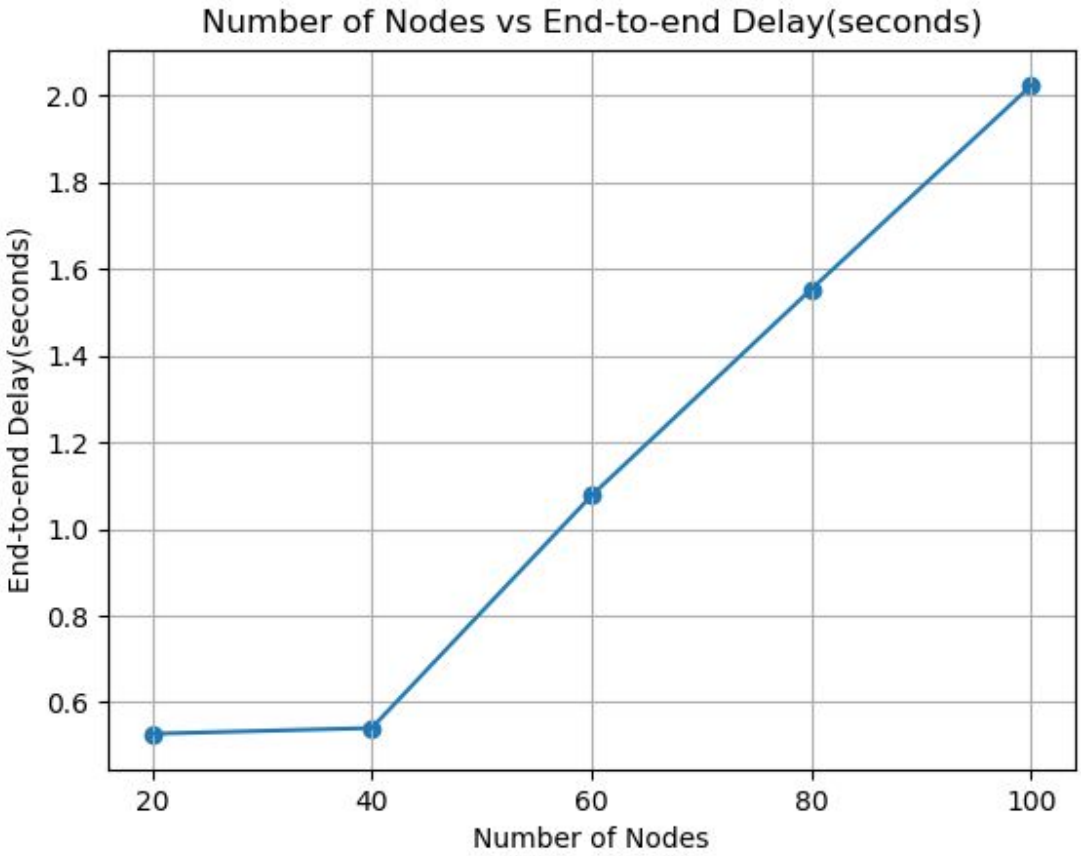

Area Size(m) vs Throughput(bits/sec)
600000
500000
400000
300000
200000
100000
250
500
750
1000
1250
Area Size(m)

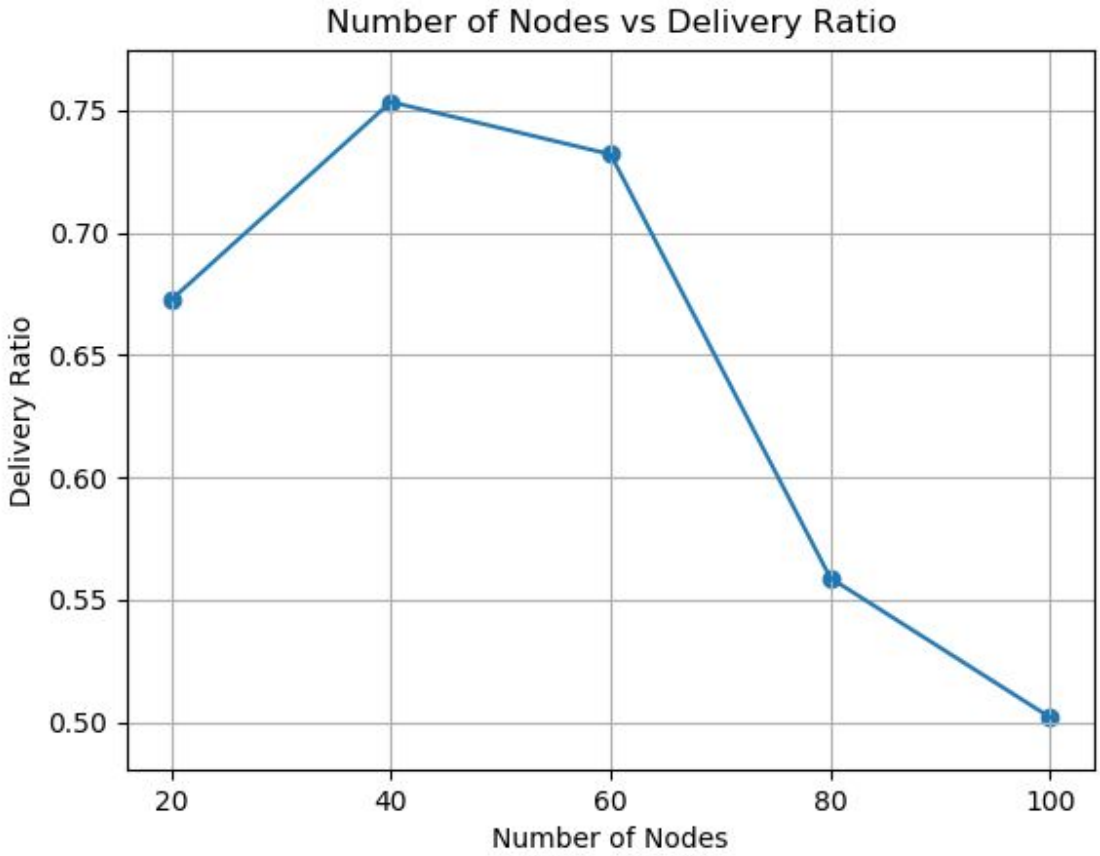

Area Size(m) vs End-to-end Delay(seconds)
End-to-end Delay(seconds)
0.0
0.1
0.2
0.3
0.4
0.5
250
500
750
1000
1250
Area Size(m)

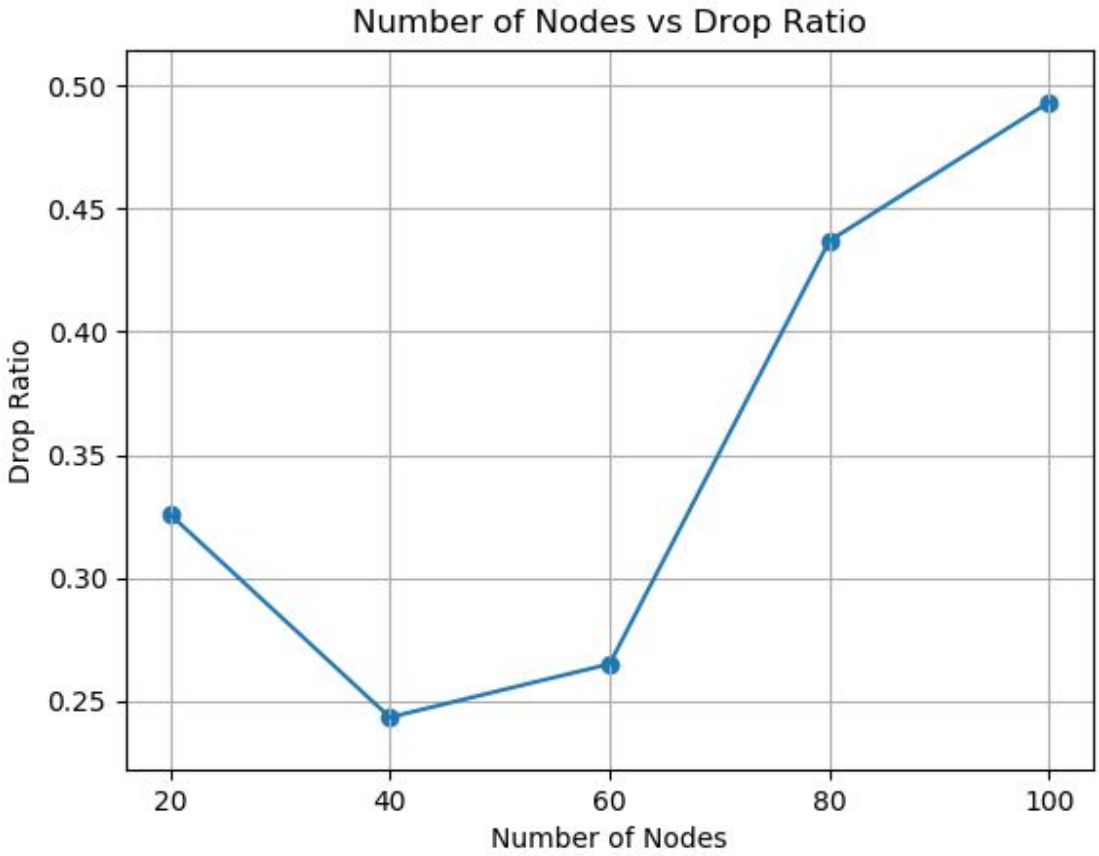

Area Size(m) vs Delivery Ratio
Delivery Ratio
1.0
0.8
0.6
0.4
0.2
250
500
750
1000
1250
Area Size(m)

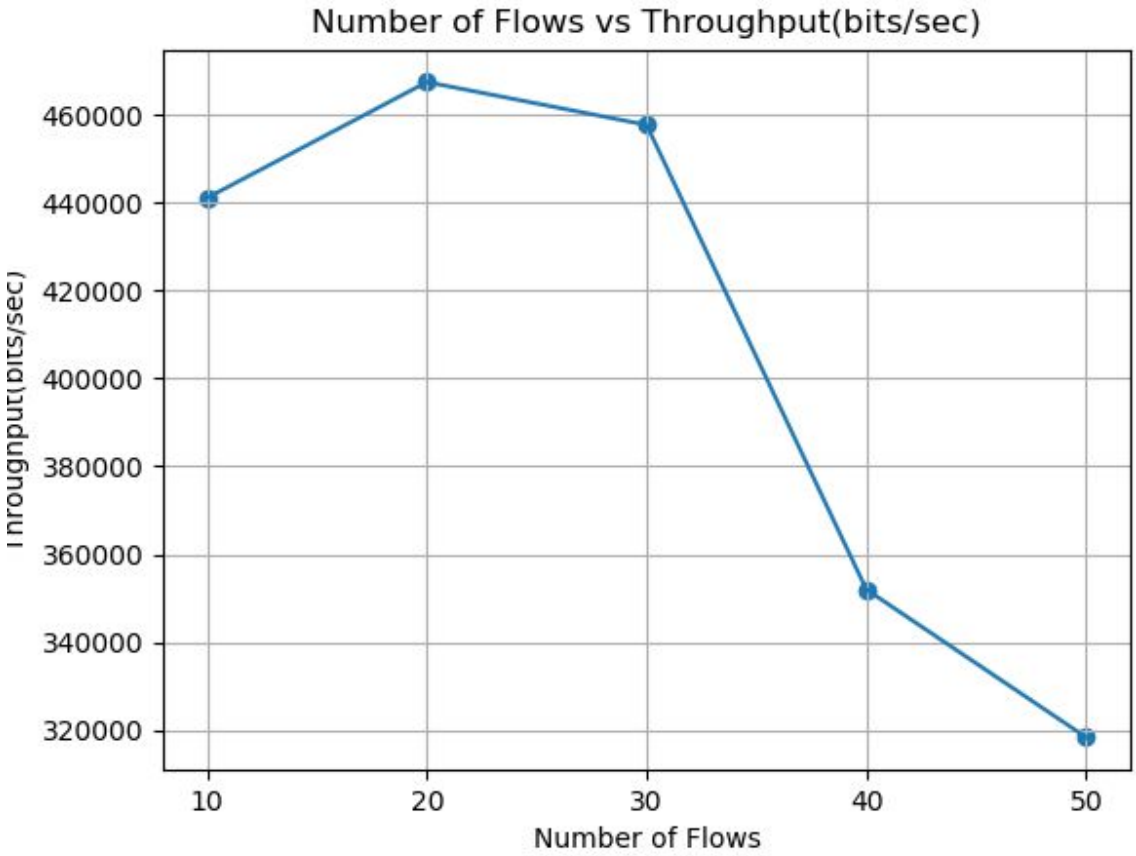

Area Size(m) vs Drop Ratio
Drop Ratio
0.0
0.2
0.4
0.6
0.8
250
500
750
1000
1250
Area Size(m)

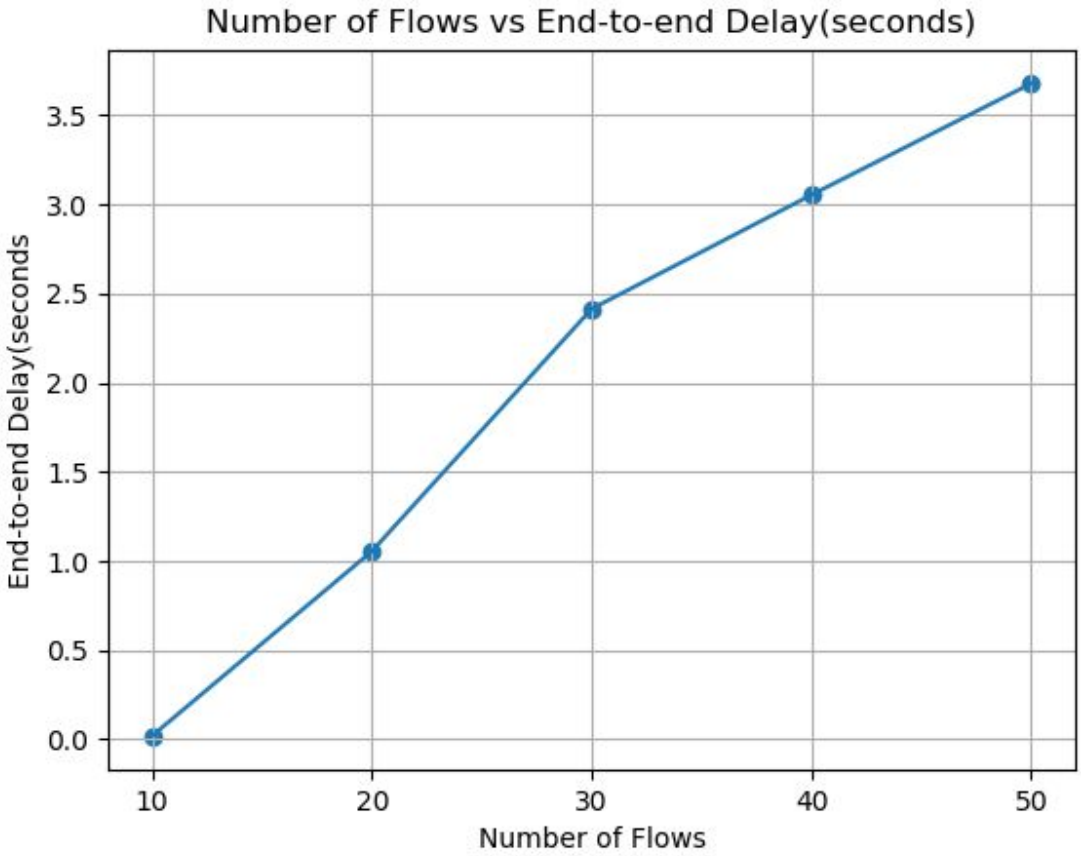

Number of Nodes vs Throughput(bits/sec)
460000
440000
420000
400000
380000
360000
340000
320000
20
40
60
80
100
Number of Nodes

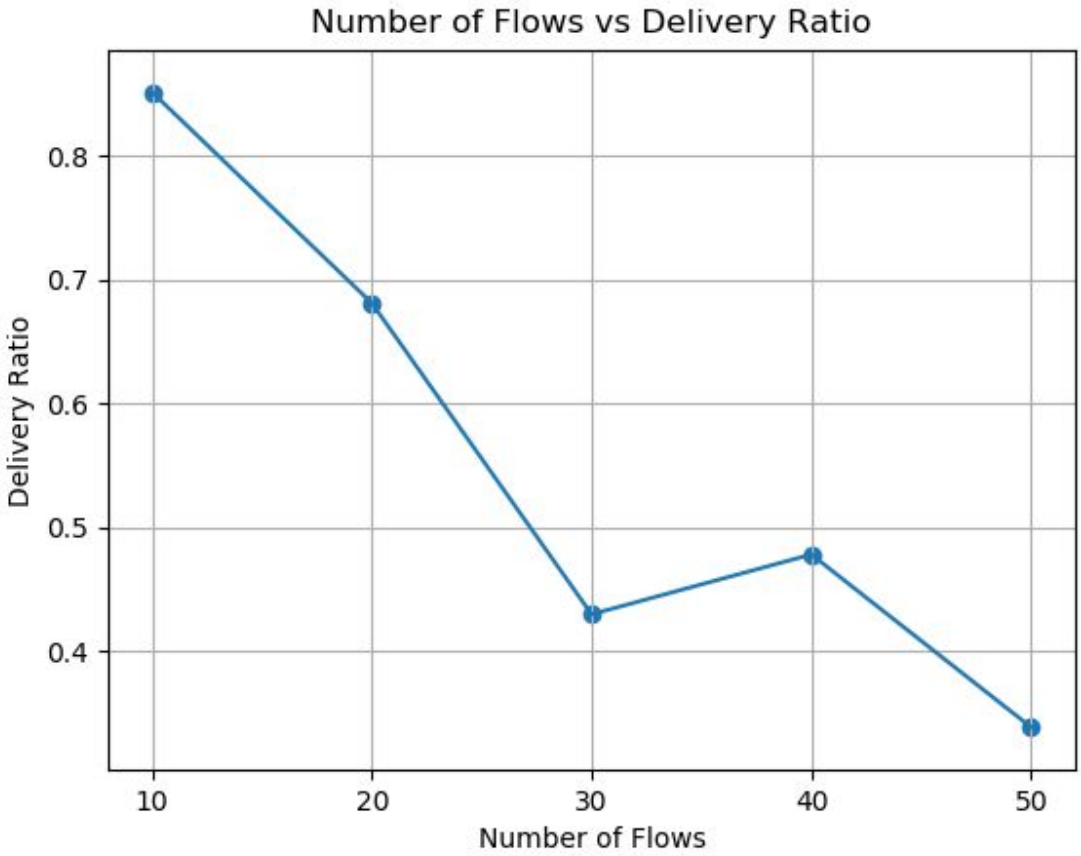

Number of Nodes vs End-to-end Delay(seconds)
End-to-end Delay(seconds)
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
20
40
60
80
100
Number of Nodes

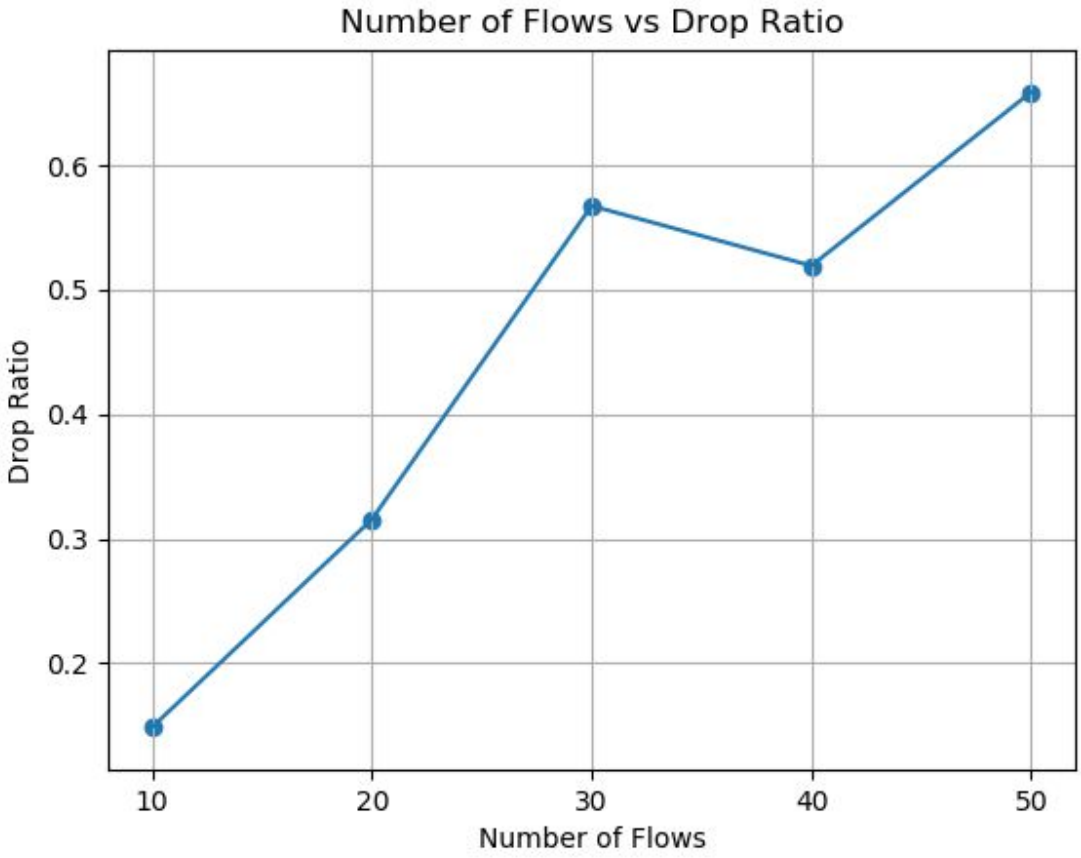

Number of Nodes vs Delivery Ratio
Delivery Ratio
0.75
0.70
0.65
0.60
0.55
0.50
20
40
60
80
100
Number of Nodes


Number of Nodes vs Drop Ratio
Drop Ratio
0.50
0.45
0.40
0.35
0.30
0.25
20
40
60
80
100
Number of Nodes


Number of Flows vs Throughput(bits/sec)
460000
440000
420000
400000
380000
360000
340000
320000
10
20
30
40
50
Number of Flows


Number of Flows vs End-to-end Delay(seconds)
End-to-end Delay(seconds
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
10
20
30
40
50
Number of Flows


Number of Flows vs Delivery Ratio
Delivery Ratio
0.8
0.7
0.6
0.5
0.4
10
20
30
40
50
Number of Flows


Number of Flows vs Drop Ratio
Drop Ratio
0.2
0.3
0.4
0.5
0.6
10
20
30
40
50
Number of Flows

Observations:

1) **Varying area sizes:**
Area size increases,
- -Throughput decreases;
- -Delivery ratio decreases;
- -Drop ratio increases;

2) **Varying Number of nodes:**
Number of Nodes increases,
- -Throughput decreases;
- -End-to-end Delay increases;
- -Delivery ratio decreases;
- -Drop ratio increases;

3) **Varying Number of flows:**
Number of Flows increases,
- -Throughput decreases;
- -End-to-end Delay increases;
- -Delivery ratio decreases;
- -Drop ratio increases;