Report

CSE322 : Computer Networking Sessional

Offline on ns2

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Parameters:

Wireless MAC: 802.15.4

IEEE 802.15.4 is a wireless communication standard that is part of the 802.15 set of standards from the IEEE for wireless personal area networks (WPANs). It is designed for low-rate wireless data communication and provides a low-power, low-cost solution for wireless sensor networks, home automation, and other applications.

Routing Protocol: DSDV

DSDV (Destination-Sequenced Distance-Vector) is a routing protocol for mobile ad-hoc networks (MANETs) that is based on the Bellman-Ford algorithm. It uses sequence numbers to ensure the freshness of routing information and prevent routing loops. Each node in the network maintains a routing table that lists the next hop and the number of hops to each destination, as well as a sequence number assigned by the destination node.

Agent type: UDP

UDP (User Datagram Protocol) is a transport layer protocol that is commonly used to send short messages (datagrams) between devices on a network. Unlike TCP, it is a connectionless and unreliable protocol, meaning that it does not establish a virtual connection between devices and does not guarantee the delivery or order of messages. It is often used for real-time applications, such as streaming audio and video

Application: Exponential Traffic

Exponential traffic refers to a traffic pattern where the rate of incoming traffic increases exponentially over time. This type of traffic is often seen in network applications such as file transfers, where the initial transfer rate is slow, but then increases as more data is transferred.

Node Positioning: Random

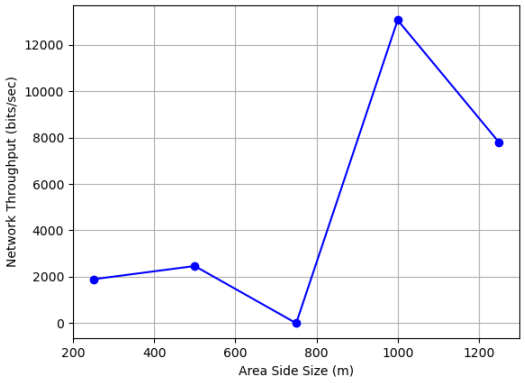
Sink: Fixed (1)

Source: Random

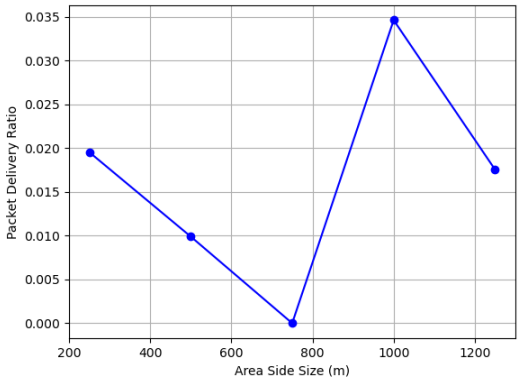
Graph generated from output data:

With respect to Area Size:

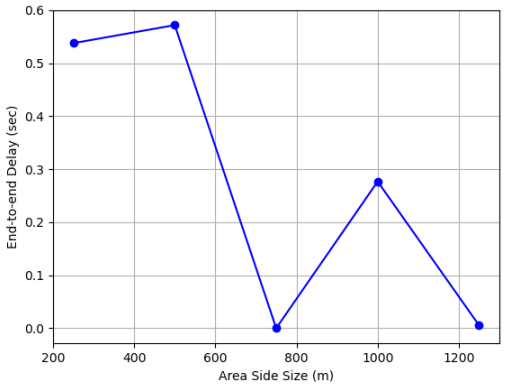
Network Throughput:



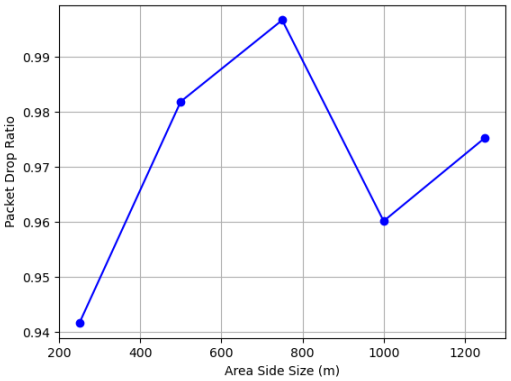
Packet Delivery Ratio:



End-to-End Delay:

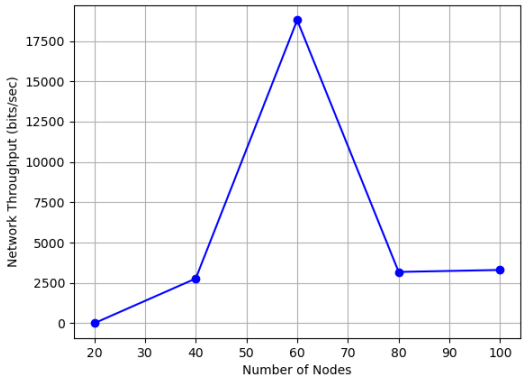


Packet Drop Ratio:

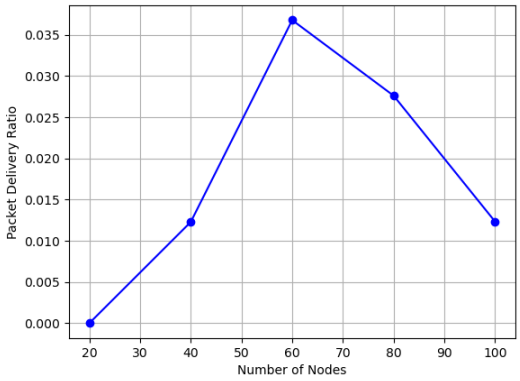


With respect to Number of Nodes:

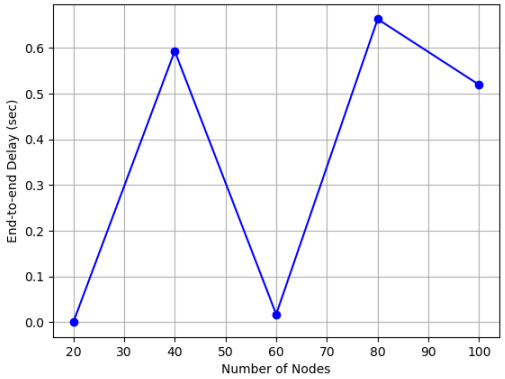
Network Throughput:



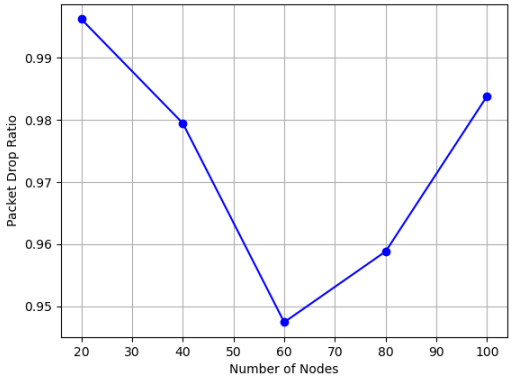
Packet Delivery Ratio:



End-to-End Delay:

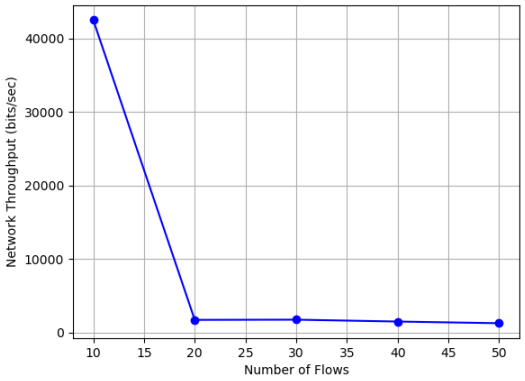


Packet Drop Ratio:

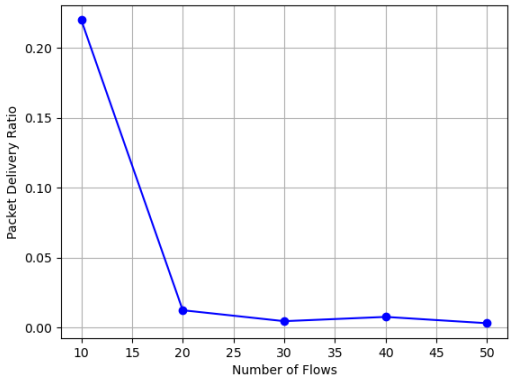


With respect to Number of Flows:

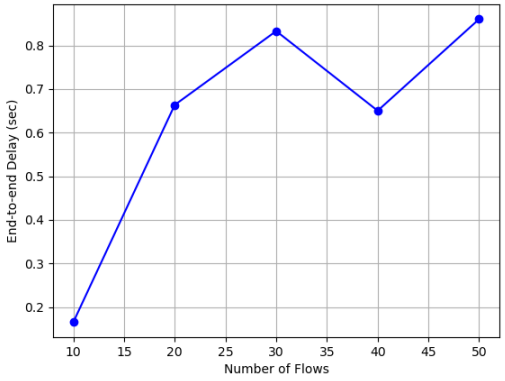
Network Throughput:



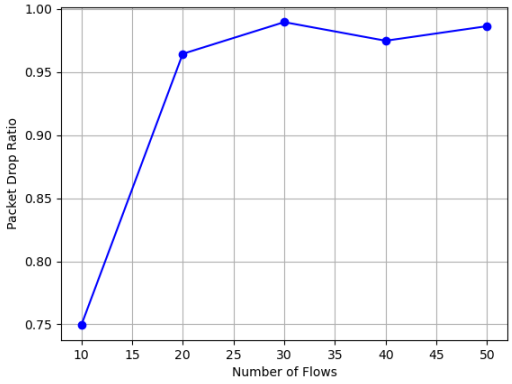
Packet Delivery Ratio:



End-to-End Delay:



Packet Drop Ratio:



Observation:

1. Energy model had to be included in the parameters setting up the nodes, as it was not able to give any proper output without it with MAC 802.15.4.
2. As I had been assigned one fixed sink, it sometimes receives no packets at all, making the desired values null.
3. The results for 802.15.4 are very unpredictable and follow no trend. So it is very difficult to infer anything from the graph.