Another parameter considered here is the delay. Delay is the amount of time taken by the packet to reach from source to destination. Delay includes the processing delay, propagation time, queuing time, transmission time. The lower delay of joint protocol is due to the fact that joint design considers the lower aspects of each layer which is as shown in fig 4.

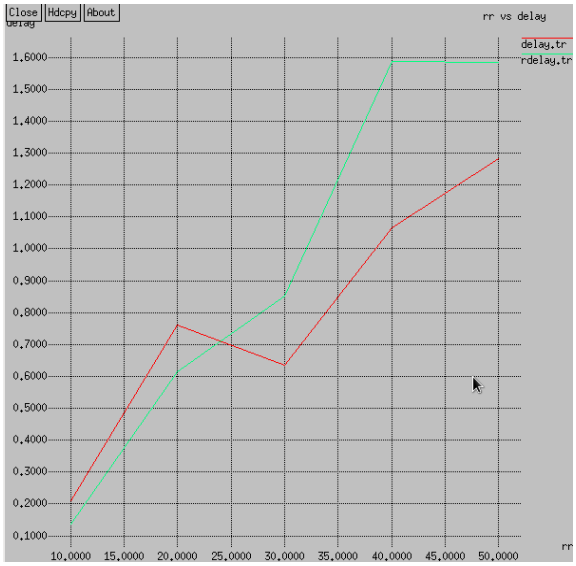

Figure 4: Comparison of delay of joint and regular protocol

Next factor we are considering is packet loss in the entire configuration. It is found that joint protocol has less packet loss compared to regular protocol since we regulate congestion in the network and achieve an efficient protocol design. The graph of Packet loss ratio of both design is as shown in fig:5. Another two factors considered are throughput and control overhead. The of plots of these two factors are shown in fig:6 and fig:7 respectively.

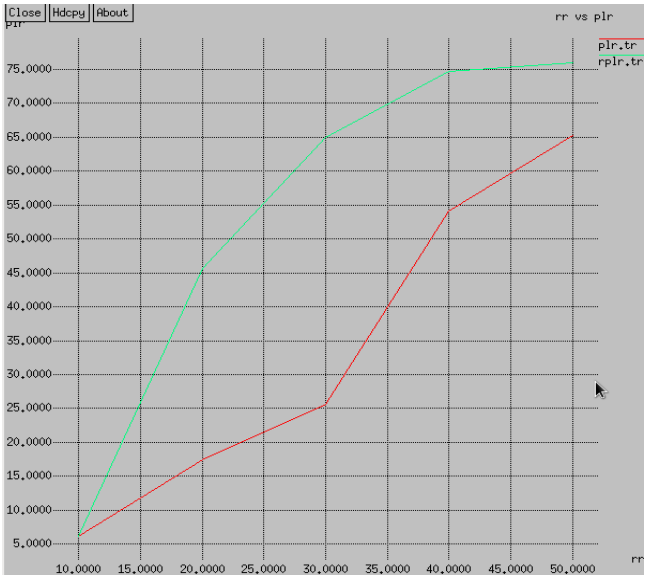

Figure 5: Comparison of packet loss of joint and regular protocol

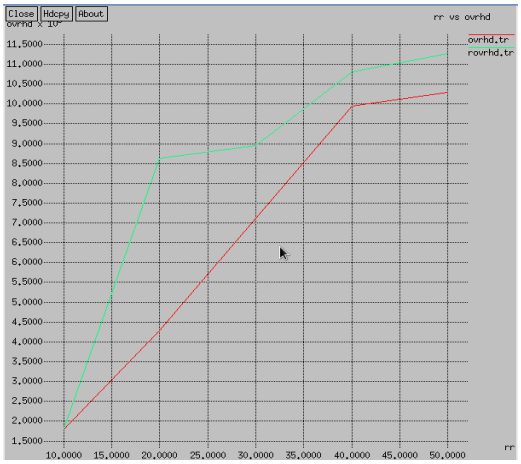

Figure 6: Comparison of control overhead of joint and regular protocol

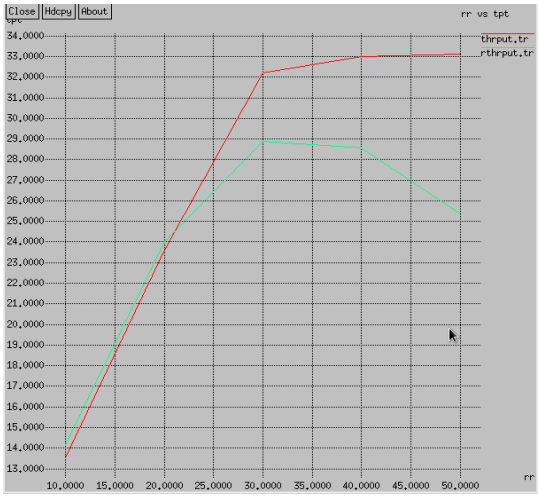

Figure 7: Comparison of throughput of joint and regular protocol

4. Conclusion

In this paper, we have studied the joint configuration of routing, access probability, congestion and transmission range parameters in wireless multihop mesh networks. Here formulated and solved several optimization problems for several wireless mesh network scenarios. The network configuration is evaluated at different reporting rate. And it is found joint configuration provides better performance and reliability compared to a regular protocol.

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