Effective Cluster based Routing Algorithm for WMNS using Effective Data Aggregation

Wireless Mesh Network (WMN) is a key technology, supporting a variety of several emerging and commercially interesting applications. The multi-hop nature of WMNs and the rapid growth of throughput demands lead to multi-channels and multi-radios structures in mesh networks, but the interference of co-channels, as a main problem reduces the total throughput, especially in multi-hop networks. QoS (Quality of Service) refers to a vast collection of networking technologies and techniques that guarantees the ability of a network to provide with predictable results. Due to interference among various transmissions, the QoS routing in multi-hop wireless networks is formidable task. In case of multi-channel wireless network, since two transmissions using the same channel may get in with each other so there exists interference. The request of QoS connection usually accompanies bandwidth requirement and QoS routing seeks a source to destination route with requested bandwidth. The main objectives of QoS based routing are optimal utilization of resources for improving total network throughput and graceful performance degradation during overloading conditions offering better throughput, Dynamic determination of feasible paths for accommodating the QoS of the given flow under various policy constraints such as provider selection, path cost etc. The overall objective of this paper is to propose a new multi-radio, multi-channel and clustering based wireless mesh protocol to improve the QoS further. This paper has considered the DSDV protocol to locate the secure and optimized path.
The proposed technique also utilizes the LZW based lossless data compression and intra cluster data aggregation to enhance the communication between the source and the destination. The use of clustering has the ability to aggregates the multiple packets and locate a single route using the clusters to improves the intra cluster data aggregation. The use of the LZW based loss less data compression has ability to reduce the data packet size so will consume lesser energy thus increase the network QoS. The MATLAB tool has been used to evaluate the effectiveness of the proposed technique. the comparative analysis has shown that the proposed technique outperforms over the available techniques.

References

- Bhakta, Ishita, Koushik Majumdar, A. Kumar Bhattacharjee, Arik Das, D. Kumar Sanyal,


**Index Terms**

Computer Science

Algorithms

**Keywords**

WMNS QOS DSDV AODV QOS IN WMNS DATA AGGREGATION.