

A QoS Aware Cluster Based Routing Algorithm for Wireless Mesh Network Using LZW Lossless Compression

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Abstract : The multi-hop nature of Wireless Mesh Networks and the hasty progression of throughput demands results in multi-channels and multi-radios structures in mesh networks, but the main problem of co-channels interference reduces the total throughput, specifically in multi-hop networks. Quality of Service mentions a vast collection of networking technologies and techniques that guarantee the ability of a network to make available desired services with predictable results. Quality of Service (QoS) can be directed at a network interface, towards a specific server or router's performance, or in specific applications. 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 interfere with each other. This paper has considered the Destination Sequenced Distance Vector (DSDV) routing protocol to locate the secure and optimised path. The proposed technique also utilizes the Lempel-Ziv-Welch (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 aggregate the multiple packets and locates a single route using the clusters to improve the intra cluster data aggregation. The use of the LZW based lossless data compression has ability to reduce the data packet size and hence it will consume less energy, thus increasing the network QoS. The MATLAB tool has been used to evaluate the effectiveness of the projected technique. The comparative analysis has shown that the proposed technique outperforms over the existing techniques.

Keywords : WMNS, QOS, flooding, collision avoidance, LZW, congestion control

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