A Cluster based Adaptive Broadcasting scheme for overhead reduction in MANET

Abstract:

Mobile ad hoc network (MANET) has distributed and decentralized architecture with mobile nodes. Since the nodes are mobile in nature, maintaining the route and link between the source and destination are difficult. The routing process increases the routing overhead and decreases the throughput, due to the large routing table used by the mobile nodes. To overcome this issue, several approaches are developed to make more efficient routing. But they have not focused on failures of link and path. We propose Cluster based Adaptive Broadcasting (CBAB) scheme to attain the correct balance between overhead and end to end delay. In first phase of this scheme, we create cluster routing procedure and election of cluster head based on neighbour coverage metric. In second phase, overhead is reduced with the help of link expiration time and removing redundant rebroadcast massages. By implementing these solutions, we have achieved better stability and less overhead towards the ultimate goal of cluster routing scheme. We have implemented our proposed scheme within Network Simulator (NS2.34) tool environment. The simulation results, proves that the proposed scheme achieves better delivery ratio, less communication overhead, reduced control overhead, less computation overhead and very low end to end delay than existing schemes namely AODV, Neighbour based Probabilistic Rebroadcast (NBPR) and Dynamic Route Discovery (DRR)