**Optimal Double Route Search for Enhancing Energy Efficiency in Mobile Adhoc Networks**

A mobile ad hoc network (MANETs) is a wireless network consisting of number of autonomous mobile devices temporarily interconnected into a network by wireless media. MANETs has become most prevalent areas of research in the recent years. Energy efficient routing, Resource limitations, scalability and Security are greatly challenging issues in MANETs. Network optimization under constraints is a general classical problem. One of the main constraints to be considered for the design is often the network reliability. Other constraints, such as bandwidth, backbone topology, or delay, have also been taken into account. Optimal use of links in a Mobile AdHoc network is achieved through physical diversities in links. Diversity means using two physically disjoined links for communication between two nodes. The selection of the pair of routes that maximizes the connectivity of a node is not an easy problem, because such connectivity cannot be expressed as an additive function of the availability of links and nodes in the path pairs. Algorithms available selects optimal routes by loose assumptions, occurrence of failure is greater. In this, we will encode the probabilistic relation between the connectivity of a node and the availability of nodes and links. By optimizing the structure of MANETs the optimal routes selection can be achieved. By introducing appropriate approximations on the double Routes availability equations, we propose a new algorithm, The optimization of node connectivity involves three main steps: 1) estimating the availability of nodes and links; 2) estimating the connectivity of each node with the desired destination node, based on the availability of the nodes and links in the established routes; and 3) optimizing the availability of the whole network by selecting, for each node, the pair of alternate routes that maximizes its connectivity.

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