Abstract

Energy is a scarce resource in Wireless Mobile Adhoc networks (MANETs). Adhoc on-demand distance vector (AODV) [6] routing protocol is a reactive protocol used in MANETs. To achieve energy efficiency, Expanding ring search technique is used in MANETs to reduce the network overhead by minimizing the number of Route Request (RREQ) packets broadcasting throughout the network. If the destination node is very far from the source node, Expanding ring search (ERS) [8][9] technique will take much iteration to find the destination node and thus increases the routing overhead. Because of the battery constraints, protocols have to make efficient to conserve the battery. In order to minimize this routing overhead, we propose a new
technique called as Cluster Source Initiated AODV routing protocol. Our approach conserves the energy of the nodes by avoiding the redundant rebroadcasting of RREQ by selecting cluster head from each group. The deployed nodes in the network are sub-divided into number of clusters and each cluster has its own cluster head. The source node is considered as cluster head in that cluster and it broadcasts RREQ to the members of that particular cluster. The cluster nodes which have a shortest path to the next cluster heads will broadcast the RREQ to next cluster head. Then the intermediate cluster head will broadcast the RREQ to its cluster members. This process is repeated till RREQ reaches destination node. Simulations are performed to study the performance of Cluster Source Initiated AODV routing protocol using Network Simulator – 2 (NS2). The results show the reduced routing overhead and the energy of nodes conserved to a greater extent.

References

- D. N. Pham and H. Choo, &quot;Energy Efficient Ring Search for Route Discovery in MANETs&quot;, IEEE International Conference of Communication, Turkey, 2008.
- D. N. Pham, V. D. Nguyen, V. T. Pham, N. T. Nguyen, X. BacĐ, T. D. Nguyen, C. Kuperschmidt and T. Kaiser, &quot;An Expanding Ring Search Algorithm For Mobile Adhoc Networks&quot;, International Conference on Advanced Technologies for communication, Vietnam, 2010

Index Terms

Computer Science  Wireless Communication
Keywords
Mobile Ad-hoc Networks  Ad-hoc On-demand Distance Vector Routing Protocol
Expanding Ring Search
Cluster Formation
Energy Consumption
Spatial Co-relation.