Available online at www.sciencedirect.com

ScienceDirect

Procedia Computer Science 47 (2015) 460 – 470

Procedia Computer Science

ENERGY OPTIMIZATION IN MANETS USING ON-DEMAND ROUTING PROTOCOL

K.Sumathia[1], A.Priyadharshinib

aPG Scholar,Department of Computer Science and Engineering, Coimbatore Institute of Technology, Coimbatore and 641014, India
bAssistant professor, Department of Computer Science and Engineering, Coimbatore Institute of Technology, Coimbatore and 641014, India

Abstract

Mobile Ad hoc networks (MANET) allow a set of wireless hosts to exchange information without any special infrastructure. The projct entitled "**Energy Optimization in Manets using On-Demand Routing Protocol"** motivates the need for energy management in ad hoc wireless networks. Limited battery power is one of the most important issues in mobile ad hoc network as the mobile nodes operate in limited battery power. Also there occurs a problem of broken links due to the lack of energy which cause disorder in network system. Such problem occurs due to the unawareness of energy of mobile neighbor nodes. This paper presents the implementation of Adaptive HELLO messaging scheme to determine the local link connectivity information for monitoring the link status between nodes along with the incorporation of Dynamic On Demand Routing Protocol to reduce the energy consumption of mobile nodes to certain extent.

Peer-review under responsibility of organizing committee of the Graph Algorithms, High Performance Implementations and Applications (ICGHIA2014)

Keywords: Mobile ad hoc networks; Routing; Hello messge; DYMO; Energy management; On demand routing.

1. INTRODUCTION

1.1 Introduction to Mobile Ad hoc Network (Manet)

MANET is one of the most emerging fields in research and development of wireless network. As the popularity of mobile device and wireless networks increased significantly over the past years, it has now become one of the most vibrant and active field of communication in wireless technology.

Peer-review under responsibility of organizing committee of the Graph Algorithms, High Performance Implementations and Applications (ICGHIA2014)
doi:10.1016/j.procs.2015.03.230

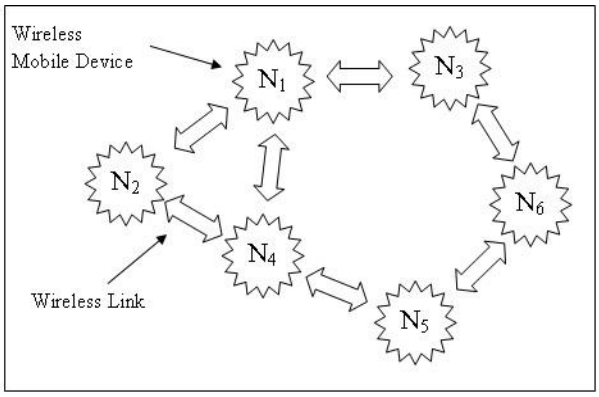

Figure 1.1 Mobile ad hoc Network (MANET)

MANET is a self configuring and infrastructure- less network. Each device or node is free to move independently, and will therefore change its links with other devices frequently in any direction. The primary challenge in creating a MANET environment is to continuously maintain the information required to route the traffic properly. Such networks can operate by themselves or by connecting itself to the larger Internet. They may contain one or more transceivers. This results in a highly dynamic and autonomous topology.

MANET has routable networking environment to process the exchange of information or packet from one node to other node. Different protocols are simulated for measuring the packet drop rate, the overhead introduced by the routing protocol, end-to-end delay of packet, network throughput, etc.

This paper proposes an implementation of Adaptive Hello messaging scheme and Dynamic On-Demand routing protocol to establish a link and efficiently utilize the energy to enhance the life of network.

The rest of this paper explains the advantages of MANET, various routing protocols is MANET, overview of previous proposals, including proposed work, finally the last section contains the performance evaluation of proposed system.

1.2 ADVANTAGE OF GOING TO MANET

Ad hoc networks are suited for the situations where an infrastructure is unavailable, and it is simple and fast, not cost effective to deploy too. The following are some of the important application related to MANET,

- Business application,
- Military application,
- Emergency operations,
- Home, office, and educational applications,
- VANET,
- Wireless sensor networks, mesh networks,etc.

1.3 ROUTING PROTOCOL IN MANET

MANET Routing Protocols are typically subdivided into two main categories: Proactive Routing Protocols and Reactive Routing Protocols.

1.3.1 PROACTIVE ROUTING PROTOCOL

Proactive routing protocol is the one in which each node maintains its route to all other network nodes. The route creation and maintenance are performed by both periodic and event-driven messages. The various proactive protocols are Destination Sequenced Distance Vector (DSDV) [6], Optimized Link State Routing (OLSR) [10].