Maximum Energy Level Ad Hoc Distance Vector Scheme for Energy Efficient Ad Hoc Networks Routing

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Abstract— **Energy consumption issue is an important research topic in wireless ad hoc networks, because wireless nodes in such networks operate on limited battery power. This paper describes improvement of an energy efficiency routing for ad hoc network utilizing the high energy paths. Our proposed algorithms adapt existing AODV routing protocol to improve performance in terms of energy conservation and other performance metrics. The purpose of using energy metric as route select method is to improve lifespan of Ad Hoc communication network and corresponding effect on overall network performance. Simulation results indicate that the routing schemes are more efficient than existing well-known routing protocol.**

Keywords—**Energy Efficient Routing, Ad hoc Network**

I. INTRODUCTION

Mobile Ad hoc Network (MANET) is a special type of mobile communications network without the support of cable infrastructure. Nodes in the network do not depend on any infrastructure; mobile nodes establish dynamic, multi-hop network structure and set up communication links between devices if they lie within transmission range of each other. Ad hoc network which has unique feature has brought big challenge to the high performance routing protocol design. In ad hoc networks, all nodes are generally battery-powered with limited energy resources, but most routing protocols did not consider the design of the nodes energy consumption and therefore it is the key to design an energy-aware mechanism or algorithm to solve energy problems.

In view of the energy efficient routing, this paper proposes an energy efficiency routing protocol, MEL-AODV based on the basis of the classical routing protocol. Ad hoc On-Demand Distance Vector (AODV) in Ad Hoc network. The Maximum Energy Level Ad Hoc Distance Vector (MEL-AODV) introduces maximum energy path on the network layer, combining all link nodes overall remaining energy has been adopted as an important parameter for route selection, the route with highest combined energy will be a better path for routing over the ad hoc network as the life span of the selected path can be extended to ensure maximum path availability for communication.

II. BACKGROUND

The AODV [1] is a basic on-demand routing protocol as opposed to proactive protocols where route only be established when needed and it does not require nodes to maintain routes to destination that is not actively used in communication. In addition, AODV is a combination of Dynamic Source Routing (DSR) [2] and Destination Sequenced Distance Vector (DSDV) [3] routing protocols. It