Node Mobility and Encounter Rate Metrics to Enhance Stability in MANET

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Abstract:
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Abstract:
Mobile Ad hoc Networks (MANETs) have been broadly functional in a wide variety of scenarios, for example, in disaster recovery, health care, video conferencing, and battlefield transmissions. MANET is an independent and peer-to-peer network which builds a chain of nodes to enable data transmission from sender to receiver. Hop count is measured as the most significant metric in MANET. Though several metrics have been introduced as the replacement for the hop count metric, there is a need for outperformance in mobile scenarios. The node mobility will affect the link stability, and it creates congestion. To solve these issues, a Node Mobility and Encounter Rate metrics (NMER) to enhance the stability of the network. It selects the route based on the node mobility and Encounter Rate (ER) metrics. The congestion ingredient measures the congestion level in the MANET. The objective of this route has the least cost for forward data packets and minimizes congestion. The NMER approach simulation results demonstrate that the NMER approach minimizes the packet loss ratio and reduces the network delay.

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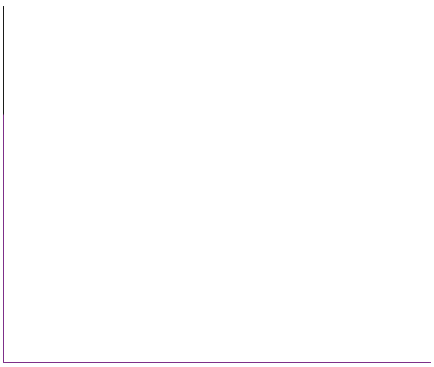
Contents

I. Introduction

A MANET is a self-enhancement of movable wireless nodes linked with one another by connections; in this network, each mobile node acts as a router [1]. Dynamic scenario, Bandwidth-restrained as well as uneven capacity links, limited energy and inadequate security are the essential characteristics and MANET significant attributes like lacking infrastructure, multi hop, distributed routing deployment of cost. The need for these gadgets to communicate seamlessly is becoming more important as they evolve and spread across every aspect of civilization. These devices must broadcast via a multi-hop method because of their limited range. MENET handles several features, for example, Self-configuration, broadcast communication, inadequate resources, mobility, Data centric routing, unreliable wireless link and route expensive. Every node must do the forwarding, acquiring, and routing tasks, but in a MANET, the routing techniques must be skilled and provide a variety of Quality of Service (QoS) criteria [2]. Throughput, routing load, delay, packet received rate, stability, energy efficiency and packet loss parameters analyzes the QoS in MANET [3]. The control of mobility is a substantial challenge for MANET. The potentially hazardous analysis of the existing ways to manage mobility administration by comparing them to a set of criteria that is, at their core, essential aspects [4]. The node reliability strategy considers and employs unimodal function is evaluated using a Markov model [5]. Figure 1 shows the MANET example.



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