A Novel Trust Value Based Mobile Ad hoc Networks (MANETs) Security

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Sarumathi R ; Jayalakshmi V **All Authors**

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Abstract:
Mobile ad hoc networks, abbreviated as MANETs, are a type of self-configuring network in which several wireless nodes temporarily set up linkages between each other. Due to the fact that MANET is a dynamic network, navigating it can be exceedingly difficult, and it is also more susceptible to a variety of attacks. Traditional security measures like cryptographic techniques need a significant consumption of resources like memory, speed, and transmission bandwidth in mobile ad-hoc networks and by Such methods make it impossible to identify malicious or flawed behaviour and self-centred nodes that damage the network. In Mobile ad-hoc Networks, trust methods are those that calculate the trust of mobile nodes and, as a result, help to identify malicious, selfish, and malfunctioning nodes Network. In this paper, a Trust Calculation based on nodes properties and recommendations are proposed to calculate trust for mobile Ad-hoc network. The proposed technique is very efficient to detect malicious and selfish nodes in MANET and allows trusted routing by eliminating malicious nodes. The findings of this research demonstrate that the proposed technique has a detection rate that is significantly greater than that of any other trust model used in Mobile ad-hoc networks. Routing protocols utilize trust mechanisms to identify a secure route in an efficient manner.

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I. Introduction

The Mobile Ad-Hoc Network, also known as MANET, does not have an infrastructure that is pre-defined like the wired network does. During the process of packet relaying, it functions as essentially a self-configuring network in which temporary pathways are established between the nodes. The nodes perform the duties of both a host and a router following are some of the primary properties and characteristics of a MANET[1]: dynamic topology, cooperation, and resource constraints.

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