Available Online at www.ijcsmc.com

International Journal of Computer Science and Mobile Computing

A Monthly Journal of Computer Science and Information Technology

ISSN 2320–088X

IJCSMC, Vol. 3, Issue. 3, March 2014, pg.488 – 500

RESEARCH ARTICLE

A SECURE AND TRUSTED ROUTING SCHEME FOR WIRELESS MESH NETWORKS

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Abstract- In this paper, we propose a secure and reliable routing technique based on fuzzy logic (SRRT) for finding a secure and reliable path in wireless mesh networks. In this technique for each node we find out two variables, trust value and hop count value, to determine the lifetime of the routes. The trust level that is used to choose a reliable and secure route between the communicating nodes is not a predefined value. Therefore to facilitate the evaluation of trust levels, a fuzzy logic based approach has been also implemented. To assign trust levels to nodes of wireless mesh networks, a fuzzy trust evaluation mechanism receives information about the behavior history of wireless mesh network nodes. Three types of misbehaving nodes are considered in this paper. These include dropping the packets by the node, packets forwarding in a wrong direction and delay the packet regularly. Every node along route discovery records the trust value and hop count value in RREQ packet. In the destination with the aid of fuzzy logic, a new parameter is generated from inputs trust value and hop count value of each route which is called "Route". The path with more route value is selected as a secure and reliable route from source to destination. Simulation results show that SRRT has significant performance and reliability enhancement in comparison with other traditional existing on-demand routing algorithms.

Keywords-Wireless Mesh Networks, Reliability, Trust Value, Packet Dropped, Fuzzy Logic, SRRT

Full Text: http://www.ijcsmc.com/docs/papers/March2014/V3I3201499a34.pdf