

A reputation-based routing protocol for wireless sensor networks

ABSTRACT

In the last decade Wireless Sensor Networks (WSNs) have been gaining recognition due to the fact that they provide inexpensive solutions for a diversity of sensitive applications. However, these networks are at high risk to many routing attacks due to the nature of their deployment as well as their device characteristics. They are usually deployed in a distributed manner, unattended for a long period of time with limited network resources such as memory, bandwidth, energy and computation power. Therefore, security plays an important role. In this paper, we propose a reputation-based routing protocol that is sufficient to thwart the routing attacks in the neighborhood for WSNs. The proposed protocol maintains neighbors reputations based on their locations and packet transmission information to select the well-behaved forwarding node to transmit the data packets through multiple hops toward the destination. Our results illustrate the enhancement of network performance in terms of packet delivery as well as a reduced amount of attack selection in the process of transmitting packet to the destination.

Keyword: Ad hoc networks; Relays; Routing; Routing protocols; Security; Wireless sensor networks