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36. Grouped Black hole Attacks Security Model (GBHASM) for Wireless Ad hoc Networks

Abstract

A Wireless ad-hoc network is a temporary network set up by wireless mobile computers (or nodes) moving randomly in the places that have no network infrastructure. Since the nodes communicate with each other, they cooperate by forwarding data packets to other nodes in the network. Thus the nodes find a path to the destination node using routing protocols. However, due to security vulnerabilities of the routing protocols, wireless ad-hoc networks are prone to attacks of the malicious nodes.

One of these attacks is the Grouped Black Hole Attack in Ad hoc On-demand Distance Vector (AODV) routing protocol in which a shortest path announcement message is broadcasted to all the hosts that results in the valid shortest path on broadcasted message replay the modifications of routing table and eventually packet loss.

The proposed grouped Black Hole Attacks Security Model (GBHASM) uses symmetric key encryption to handle grouped black hole security attacks in Ad hoc On-demand distance Vector (AODV) protocol on wireless ad hoc networks. The proposed model was tested on Network Simulator (NS-2) and has shown effective results.