**ABSTRACT**

The inherent characteristics of Mobile Ad hoc network (MANET) such as dynamic topology, limited bandwidth, limited power supply, infrastructure less network make themselves attractive for a wide spectrum of applications and vulnerable to security attacks. Sinkhole attack is the most disruptive routing layer attack. Sinkhole nodes attract all the traffic towards them to setup further active attacks such as Black hole, Gray hole and wormhole attacks. Sinkhole nodes need to be isolated from the MANET as early as possible. In this paper, an effective mechanism is proposed to prevent and detect sinkhole and wormhole attacks in MANET. The proposed work detects and punishes the attacker nodes using different techniques such as node collusion technique, which classifies a node as an attacker node only with the agreement with the neighboring nodes. When the node suspects the existence of attacker or sinkhole node in the path, it joins together with neighboring nodes to determine the sinkhole node. In the prevention of routing attacks, the proposed system introduces a route reserve method; new routes learnt are updated in the routing table of the node only after ensuring that the route does not contain the attacker nodes. The proposed system effectively modifies Ad hoc on demand Distance Vector (AODV) with the ability to detect and prevent the sinkhole and wormhole attack, so the modified protocol is named as Attack Aware Alert (A3AODV). The experiments are carried out in NS2 simulator, and the result shows the efficiency in terms of packet delivery ratio and routing overhead