

## Effective black hole attacks in MANETs

### ABSTRACT

Black hole or packet drop attack is a denial of service attack on routing protocols in which malicious nodes fabricate routing information, attract packets routed through them and then deliberately drop these packets. Most of the black hole attack simulations are performed by constantly fabricating routing information and thus consistently attracting packets to them, which can be easily detected by the intrusion detection system. In this study, a complicated and difficult to detect black hole attack is proposed. The malicious nodes only perform packet drop when they are in the advantageous positions or locations in the networks. This study investigates the impact of the proposed black hole attack performed by random as well as critical nodes, to the network performance. Critical nodes are nodes that reside along the most active traffic paths and results show that the attacks performed by these nodes cause significant damage to the networks or substantial reduction in packet delivery ratio in comparison to that of random nodes.

**Keyword:** Black hole attacks; Critical nodes; Intrusion detections systems; MANETs