CSE 4000

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Mobile Ad hoc Network (MANET)

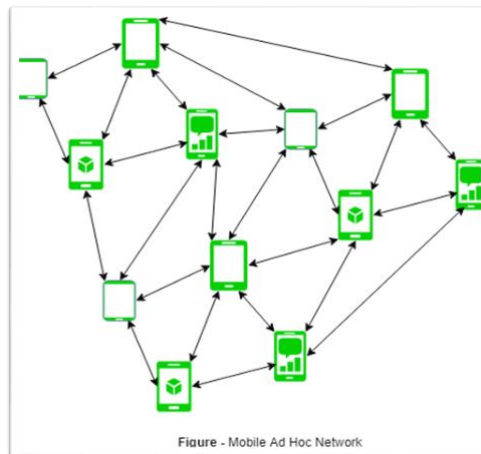MANET is a wireless network which has no fixed infrastructure.

Fig 1: Mobile Ad hoc network

Security Issues in MANET

1. ***Active:*** Active attacks are the attacks that are performed by malicious nodes.
    a. Sink holes
    b. Denial of Service
    c. Wormhole Attack or Blackhole Attack
    d. Modification
    e. Fabrication
2. ***Passive:*** In passive attacks, the routing protocol is not disturbed. Valuable information like node hierarchy and
network topology is obtained
    f. Eaves Dropping
    g. Traffic Analysis
    h. Monitoring

Security Mechanisms in MANET

There are two mechanisms in MANET. These are:

1. **Intrusion:** An Intrusion Detection System (IDS) is an indispensable part of a security system and is mainly introduced to detect possible violations of the security policy by monitoring system activities and responding to those that are apparently intrusive. If an attack is detected once in the network, a response is initiated to avoid or curtail the damage to the system.

2. **Secure routing technique:** There are numerous kinds of attacks against the routing layer in the mobile ad hoc networks, some of which are more sophisticated and harder to detect than others, such as Wormhole attacks and Rush attacks.

Blackhole Attack

Nodes can maliciously disrupt communication of other nodes. Wormhole attacks are severe threats to MANET routing protocols. When the attacker records packets at a place, and redirects them to another location, routing is disrupted. This occurs because of the redirection.

Secure Message Transmission

Secure Message Transmission (SMT) is a two-party cryptographic protocol by which the sender can securely and reliably transmit messages to the receiver using multiple channels.