

type of attack, node may behave maliciously for some time but later on it behaves absolutely normally. This type of attacks is more difficult compared to black hole attack.

4) *Wormhole attacks*: In a wormhole attack, a malicious node can record packets (or bits) at one location in the network and tunnel them to another location through a private network shared with a colluding malicious node. Wormhole attack can be done with one node also, but generally two or more attackers connect via a link called wormhole link. Wormhole attack is of three types: Closed Wormhole, Half Open Wormhole, and Open Wormhole. All of these have been shown in Figure 4.

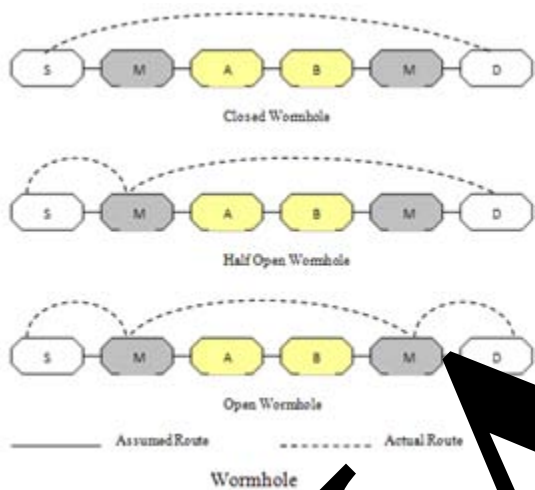


Fig. 4

5. CONCLUSION:

MANETs are a reliable, efficient, and scalable and most importantly a secure protocol as they are highly insecure, self-organizing, rapidly deployed and they use dynamic routing. In this paper, we discussed the vulnerable nature of the mobile ad hoc network, and owing to that; there are numerous security threats that disturb the development of it. This paper also covers the security attributes and the various challenges to security design. This paper also presents the security issues. Then it presents the main attack types that exist in it. This Paper has focused on designing security architecture in tackling security challenges that mobile ad hoc networks are facing.

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