Abstract

'Mobile ad hoc network (MANET)' is an infrastructure less, self controlled wireless network it doesn't need any centralized control so it can form and deform anywhere. Several freely movable mobile nodes with wireless connectivity can construct this type of network anywhere in no time, open connectivity and lack of central infrastructure enables the mobile nodes to freely exchange information and data with each other using radio signals. With this type of open connectivity and absence of centralized control MANET is vulnerable to many kinds of attacks and 'wormhole attack' is also present in those attacks. It is the most powerful attack and very difficult to detect in 'wormhole attack'; two collaborating attacker nodes occupy strong strategic locations in two different ends of the network. By occupying dominant positions these two nodes can cover complete network and advertise to have the smallest route for transmitting data. The two attacker nodes are linked with a high speed wireless transmission link which is called wormhole tunnel. A very efficient solution of 'wormhole attack' is discussed in this paper. The objective of our research work is to discover the alternative paths between the two communicating nodes. Then after calculating length of every alternative path we found that the length of alternative path is...
much larger than the path including wormhole tunnel.

References

- K. Toh, &quot;Ad Hoc Wireless Networks&quot;.
- S. K. Sarkar, T. G. Basavaraju and C. Puttamadappa, &quot;Ad Hoc Mobile Wireless Networks&quot;.
- Z. Danailov, &quot;Attacks on Mobile Ad hoc Networks&quot;, Seminar Report, Integrated Information Systems, Ruhr University, Bochum, Germany, 2012.
- L. Qian, N. Song and X. Li, &quot;Detecting and Locating Wormhole Attacks in Wireless Ad Hoc Networks through Statistical Analysis of Multi-path&quot;.
- R. Maheshwari, J. Gao and S. R Das, &quot;Detecting Wormhole Attacks in Wireless Networks using Connectivity Information&quot;.
- W. Ahad and M. Sharma, &quot;Efficient Multipath Algorithm in MANETs to Prevent

Index Terms
Computer Science  
Security

Keywords
AODV  
MANET  
Malicious node  
Packet drop ratio  
Wormhole Attack.