Abstract

A mobile ad hoc network is a collection of mobile nodes that are interconnected via a wireless medium forwards packet to other nodes through multi hop mechanism. The genuine intermediaries relay the packets intended for the indirect radio range destination node. The cooperation existing between the intermediate nodes acts as a strong determinant for successful routing in ad hoc network. The association between these nodes can be weakened by the advent of wormhole adversary inside the network. This adversary tries to deteriorate the routing fabric embedded in this network by short circuiting the normal flow of packets through a resource enriched out of band channel exclusively dedicated for this purpose. Two wormhole adversaries collude to achieve this mission and the strong association between them dampens the robust routing protocols designed for effective routing in ad hoc network. The nefarious nexus between the colluders can be amputated by invoking a host of novel remedial measures as proposed in this paper. The comparison between the Cumulative Transmission Rate and Threshold Transmission Rate, mismatch in ROUTE CACHE value, ACKNOWLEDGEMENT packet hop count are a few to thwart the occurrence of wormhole attack in ad hoc network. Deploying a suitable agent to monitor and circumvent the spurious activity if exceeding a specific threshold is also enrolled. Suitable graphs have been simulated to endorse the research idea proposed in this paper.
Arresting Wormhole Attack in Ad hoc Network using Cumulative Threshold Transmission Rate

References

- Marti, S., Giuliani, T. J., Lai, K., and Baker, M., "Mitigating Routing Misbehavior in
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Mobile Ad hoc Networks”, Department of Computer Science, Stanford University.

Index Terms

Computer Science Wireless Security

Keywords

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