A Fast Construction of Intrusion Relieved Communication Path based on Trust level and Heuristic Search

Abstract

An Adhoc network is subjected to many malicious activities and security threatens because of its wide distribution and heterogeneous nature. Intrusion is one among such activities that comprise confidentiality, integrity or availability of resources. Numerous efforts have been made in the literature to detect intrusion in an Adhoc network, however less number of efforts have been put to construct an intrusion relieved network. In the previous work, we proposed a methodology to construct an intrusion relieved network based on trust level of every node. The methodology used Rotboost algorithm to estimate the trust level of every node in the upcoming instants. As the learning of Rotboost requires more time, we planned to incorporate a fast learning algorithm to improve the efficiency of the methodology. Moreover, this paper introduces an efficient heuristic search algorithm to find the shortest path instead Dijkstra algorithm. As Dijkstra is time consuming in determining shortest possible network paths, it ultimately affects the efficiency of constructing intrusion free path. Replacing Dijkstra by heuristic search algorithm can lead to better performance in terms of computational complexity and the intrusion free path can be constructed in an efficient way. Hence a modified architecture for intrusion detection and intrusion free path detection is constructed and simulated. The simulation results show that the modified architecture outperforms the conventional architecture in terms of intrusion detection rate, path costs and computational efficiency.
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References

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Index Terms

Computer Science  Security

Keywords
Intrusion  Heuristic  Path Identifier  Fast learning  Rotboost intelligence