A Pythagorean Tree based Key Generation Algorithm for Secure Group Communication in MANETs

Abstract

An efficient and secure group communication in Mobile Adhoc Network (MANETs) has brought attention to many security issues. In this paper, we propose Energy Efficient Dynamic Core based Multicast Routing Protocol to establish the path between the nodes that participate in group communication. During the routing process each node computes a Pythagorean Triple and constructs a Pythagorean Triple Tree (PTT) to generate a Contributory Key. Each node computes a pair of keys which will be exchanged among the nodes to compute group key for secure group communication. The rekeying operation is performed when the node join/leave the group. The proposed approach was analyzed on Computational cost, Group Formation, Percentage of Rekeying of nodes and Communicational cost with respect to Group Size. It reduces computational and communicational cost of the secure group communication when compared with other protocols.

References

A Pythagorean Tree based Key Generation Algorithm for Secure Group Communication in MANETs


Index Terms

Computer Science

Algorithms
Keywords
Pythagorean Tree  Group Communication  MANETs  Group Key Generation
Algorithm  Energy Efficient
Multicast Routing Protocol.