A Query Based Trust Evaluation Scheme for Emergency Response Communication Networks

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Abstract

The natural or man-made disaster demands an efficient communication and coordination among first responders to save life and other community resources. This requires the generation and exchange of current information among first responders and emergency management centers in real time for making life saving decisions. Normally, the traditional communication infrastructures such as landline or cellular networks are damaged and don’t provide adequate services to first responders for exchanging emergency related information. Mobile ad hoc networks are commonly used as communication means during emergency response operations. Reliable and robust communication is vital for efficient emergency response operations. In large scale emergency response, various rescue teams from different rescue organizations participate for controlling the emergency situation. As the nodes from different rescue organizations join the same emergency response network, there is a possibility that some of the nodes may demonstrate selfish or malicious behavior. A node may experience some damage during emergency management operations that prevents it from forwarding the packets successfully. The communication interruptions among first responders and emergency
management centers result into mismanagement of emergency response efforts causing more loss of human lives and other community resources. We propose a query based trust evaluation scheme for ad hoc emergency response networks that keeps track of faulty, selfish and malicious nodes. This information may be used by routing protocols to isolate faulty, selfish and malicious nodes during route setup process for providing reliable and robust emergency response communication services.

Reference


Index Terms

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