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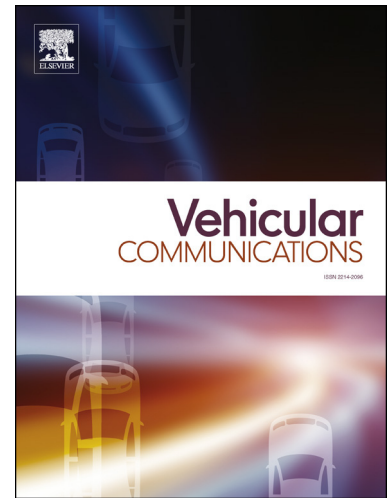
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TFDD: a Trust-based Framework for Reliable Data Delivery and DoS defense in VANETs

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Abstract

A trust establishment scheme for enhancing inter-vehicular communication and preventing DoS attacks 'TFDD' is proposed in this paper. Based on a developed intrusion detection module (IDM) and data centric verification, our framework allows preventing DDoS attacks and eliminating misbehaving nodes in a distributed, collaborative and instantaneous manner. In addition, a trusted routing protocol is proposed that, using context-based information such as link stability and trust information, delivers data through the most reliable way. In this study, the simulation results obtained demonstrate the effectiveness of our trust framework at detecting dishonest nodes, as well as malicious messages that are sent by honest or dishonest nodes, after a very low number of message exchanges. Furthermore, colluding attacks are detected in a small period of time, which results in network resources being released immediately after an overload period. We also show that, in a worst-case scenario, our trust-based framework is able to sustain performance levels, and outperforming existing solutions such as T-CLAIDS and AECFV.

Keywords: Trust Management, Vehicular Ad-hoc Networks, DoS defense,

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