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TAODV: modification of AODV protocol using TRUST mechanism for mobile ad-hoc networks

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This paper defines a new approach for prevention of jamming attack in mobile ad-hoc networks (MANET). MANET's are easy prey to be caught by attackers because they are mobile and hence not attached to a fixed location and not exposed to similar threat. MANET is a collection of mobile nodes which can be configured by its own, where each node itself acts as a router for other nodes. The idea is to employ a TRUST mechanism in AODV protocol to prevent jamming attack. AODV protocol originally uses computational logic to provide authentication for newly arrived nodes, while TRUST mechanism uses subjective logic. Trust model represents trust among nodes through a term called "opinion". Opinion is a three dimensional parameter having dimensions - trust, mistrust, and unknown. These parameters describe the authenticity of a node in MANET. The value of "opinion" keeps updated during information exchange process. If a node performs normally, its authenticity from other node's viewpoint increases otherwise it loses its trust from other nodes and the malfunctioning node is denied from network. The performance of new protocol is evaluated through analysis and simulation. The proposed protocol should provide better results relative to following parameter-packet delivery ratio, end-to-end delay, energy and throughput. The results of both AODV and TAODV protocols are compared.