Enhancement of SIP over MANET: a hierarchical clustering approach

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Abstract

The field of wireless communications has witnessed an unprecedented growth during the past decades. The presence of such a fast rate development in wireless networking and Internet Technology (IT) devices persuades the researchers to focus on a worldwide used type of networks, namely the Mobile Ad-hoc Network (MANET). A MANET is a special type of decentralized wireless networks consisting of a group of randomly distributed devices with wireless capabilities. This infrastructure-less unique type of networks directed the researchers towards proposing new approaches that facilitate the implementation of the widely used services, protocols, and applications of the wired networks. Among which, the Session Initiation Protocol (SIP) is a signaling protocol used for supporting Voice over Internet Protocol (VoIP) applications. It allows the establishment of multimedia sessions and calls between different parties. SIP functionality totally depends on a centralized infrastructure, and complexity arises when deploying such a protocol over MANETs. This paper proposes a new hierarchical clustering theme for MANET routing. The proposed approach compensates the lack of a centralized infrastructure that allows the deployment of SIP over MANETs. Enhancing routing modules are presented to build the routing tree based on a hierarchical addressing theme.

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