Abstract

Recently, Cooperative relaying in wireless networks is a challenging research topic due to its ability to mitigate negative fading in wireless networks. For this reason, this paper evaluates the overall throughput, with and without cooperation, in cooperative relaying wireless network. Hence, four different scenarios are proposed to evaluate the performance of four different cooperative MAC protocols. These protocols are cooperative CSMA, cooperative CSMA/CA, ideal cooperative MAC and cooperative network coding. In addition, this paper drives the mathematical model for these protocols in the proposed scenarios. Afterwards, the overall throughput, with and without cooperative relaying, is evaluated for all scenarios by using the four cooperative MAC protocols. Finally, the paper determines whether the proposed cooperative MAC protocols are beneficial or not in the four scenarios. Moreover, the regions where cooperative relaying protocols are beneficial are discussed for each scenario and the reasons for that. The results show that the cooperative network coding protocol outstands the other protocols.
References


Index Terms

Computer Science  Networks

Keywords

Networks coding, Cooperative MAC Protocols, Cooperative Network Coding, cooperative CSMA, cooperative CSMA/CA, idea cooperative MAC