Abstract

The quality of service support in MANETs has become an important requirement. However, the QOS support in a wireless networks is unlike that of the wireline's because wireless bandwidth is shared among neighboring nodes and the network topology continuously changes with node mobility. This condition requires communicating nodes to collaborate imperatively, in order to determinate the routes and to preserve the vital resources necessary to provide the QOS. We investigate in this paper an example of multi-layers quality of service management in MANETs, involving the following quality of services mechanisms: QOS routing with an OLSR extension with QOS support, EDCAF (Enhanced Distributed Coordinate Function) at MAC layer, and an hybrid FEC/ARQ scheme at link layer. We study the possibility of incorporating all of those protocols, as part of a collaborative independent logic, to provide a quality of service level better than that offered individually by each protocol. We use the principle of "complementarity of roles", which aims to enhance the transmission of sensitive traffic, without having to invoke any inter-layers exchange. We demonstrate through simulations that even this virtual cooperation improves different performance metrics (delay, loss rate...), on condition to select intelligently the principal actors.
Study of a Multi-layers Quality of Service Model for ADHOC networks

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