

Optimizing Content Dissemination in Vehicular Networks with Radio Heterogeneity

Abstract:

Disseminating shared information to many vehicles could incur significant access fees if it relies only on unicast cellular communications. We consider the problem of efficient content dissemination over a vehicular network, in which vehicles are equipped with two kinds of radios: a high-cost low-bandwidth, long-range cellular radio, and a free high-bandwidth short-range radio. We formulate and solve an optimization problem to maximize content dissemination from the infrastructure to vehicles within a predetermined deadline while minimizing the cost associated with communicating over the cellular connection.