Enhanced CLWPR Protocol with Social Properties Exploiting Physical Proximity in VANETs

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Abstract— Opportunistic mobile networks have attracted a lot of attention and several routing protocols have been proposed. However, most algorithms do not consider the importance of users' properties of human mobility in physical world. Given this fact, in this work we enhance CLWPR, a cross-layer optimized position-based routing protocol for urban VANET environments, combining social properties and users' individual mobility traces in order to design an efficient content dissemination scheme. We introduce an offline social metric (OSM), which is based on physical proximity and opportunistic contacts of nodes. Our proposed protocol favors nodes with close offline social relationship as next forwarder nodes. We present a comprehensive study of the performance of our enhanced CLWPR protocol routing against other routing protocols in distributed vehicular networks using realistic representative urban scenarios with synthetic and real traffic.

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