Jordan University of Science and Technology

Neighborhood Route Diffusion: A Novel Mechanism for Improving Packet Delivery in Highly Mobile Ad Hoc Networks

Authors: Muhannad Quwaider, Jayanthi Rao and Subir Biswas

Abstract: This paper proposes a Neighborhood Route Diffusion (NRD) mechanism in which certain selected entries from a node?s routing table are selectively diffused to its neighbor nodes. When done efficiently, this selective route diffusion can create a temporary envelope of emergency route information to a destination around all nodes that are actively forwarding packets to that specific destination. When a link on a route fails due to mobility, the intermediate node on the failed link can forward packets to one of its neighbors which has already been diffused with the route information for the corresponding destination. It is shown that in most such occurrences, the packets can be successfully forwarded all the way to the destination using such pre-diffused routing information. This mechanism for salvaging packets during mobility-initiated link breaks can avoid packet drops which are usually prevalent in regular mobility aware routing protocols such as AODV. This paper presents strategies and network protocols for the selective NRD process and its associated routing mechanisms.