Beacon Update for Greedy Perimeter Stateless Routing Protocol in MANETs

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Abstract

A Big challenges to develop routing protocol that can meet different application needs and optimize routing paths according to the topology change in mobile ad hoc networks. The continuous transmission of small packet is called beacon packet, that advertises the presence of a base station and the mobile units sense the beacons and attempt to establish a wireless connections. Basing their forwarding decisions only on the local topology, geographic routing protocols have drawn a lot of attentions in recent years. However, inaccurate local topology knowledge and the outdated destination position information can lead to inefficient geographic forwarding and even routing failure. Proactive local position distribution can hardly adapt to the traffic demand. It is also difficult to pre-set protocol parameters correctly to fit in different environments. We have developed two self-adaptive on-demand geographic routing schemes. The local topology is updated in a timely manner according to network dynamics and traffic demands. Our route optimization scheme adapts the routing path according to both topology changes and actual data traffic requirements. Each node can determine and adjust the protocol parameter values independently according to different network environments, data traffic conditions and node's own requirements. Our simulation studies have shown that the proposed routing protocols are more robust and outperform the existing geographic routing protocol. Specifically, the packet delivery latency is reduced almost four times as compared to GPSR at high mobility.

Keywords - Mobile Ad hoc Network, Geographic routing, GPSR, Local topology, Beacon packets.

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