



RESEARCH ARTICLE

Scalable Heat Routing Protocol for Wireless Mesh Networks

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Abstract— Wireless Mesh Network is a wireless network consisting of nodes in a mesh topology. As compared to routing in other networks, wireless mesh network faces a lot of problem. Routing in wireless mesh network is a challenging task. Field based routing uses a little information to route the packets in the network. Due to this characteristic, field based routing algorithms are less expensive and mainly effective, but such algorithms also face different types of efficiency and scalable issues. Many existing unicast routing protocols like AODV are not well adapted in wireless mesh networks as the messages are flooded across large number of mobile nodes and a few access points with Internet connectivity. As these mobile nodes have limited resources like limited CPU, memory, size and battery, many such routing protocols were suggested. In this paper, the cluster head chaining scheme is used to solve this problem, and is designed to scale to the network size with the use of realistic mobility patterns. HEAT depends on temperature field for packet transmission towards the Internet gateways. It does not require flooding of control messages. The packets are routed along the increasing energy or temperature value of the nodes. Another feature is designing an efficient protocol with respect to throughput and packet delivery ratio in a dense network, which is also scalable to the number of packets. The results clearly show that the benefit of Heat in terms of scalability and it is also more efficient in their packet delivery ratio and throughput. This approach is been analysed through NS2 simulations there-by study the trade-offs between scalability and congestion control.

Key Terms: - *Wireless Mesh Networks; NS2 simulation tool; MANET; Heat*

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