Abstract

Network wide broadcasting is a fundamental operation in ad hoc networks. In broadcasting, a source node sends a message to all the other nodes in the network. Unlike in a wired network, a packet transmitted by a node in ad hoc wireless network can reach all neighbors. Therefore, the total number of transmissions (Forwarding nodes) used as the cost criterion for broadcasting. The broadcast operation, as a fundamental service in mobile ad hoc networks (MANETs), is prone to the broadcast storm problem if forwarding nodes are not carefully designated. The forward node selection has been studied extensively in undirected graphs in which each node has the same transmission range. In practice, the transmission ranges of all nodes are not necessarily equal. This thesis proposes a reliable and efficient localized broadcasting algorithm using 2-hop neighborhood information more effectively to reduce redundant transmissions in asymmetric Mobile Ad hoc networks that guarantees full delivery. Among the 1-hop neighbors of the sender, only selected forwarding nodes retransmit the broadcast message. Forwarding nodes are selected such a way that to cover the uncovered
2-hop neighbors. The retransmissions of the forwarding nodes are received by the sender as the confirmation of their reception of the packet. The non forwarding 1-hop neighbors of the sender only acknowledge the reception of the broadcast. If the sender does not detect all its forwarding nodes retransmissions and non forwarding nodes acknowledgements, it will resend the packet until the maximum number of retries is reached. Simulation results show that the proposed broadcast algorithm provides good broadcast delivery ratio with low overhead and minimum latency.

Reference


Index Terms

Computer Science  Wireless Networks
## Key words

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