论文

一种多跳无线网络中的高效广播算法

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摘要
广播是多跳无线网络中的一种基本操作。现有的广播算法中普遍存在转发冗余过多的问题。该文首先分析了覆盖网络所需的最少转发节点数目，然后以此为基础，提出了一种简单高效的广播算法。该算法中，每个节点最多只需选择3个转发节点，从而明显地减少了广播的转发次数，提高了节点能量和网络资源的利用率；同时，所有转发节点实现了对整个网络接近双重的覆盖，能够保证较高的传输可靠性；此外，对不同的网络规模和拓扑的动态变化，该算法具有较好的可扩展性。仿真结果显示，该算法在多种常见的网络环境下具有比现有方法更优越的性能。

An Efficient Broadcast Method in Multi-hop Wireless Networks

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Abstract
Broadcast is a common operation in multi-hop wireless networks. However, previous schemes either have much transmission redundancy or cost too much overhead. In this paper, the minimal number of forwarding nodes needed to cover a network is analyzed. On this basis, a simple broadcast method is proposed to increase significantly the transmission efficiency. In this method, each forwarding node only needs to select no more than three forwarding nodes. The set of forwarding nodes can provide nearly double coverage to all the network area thus provide high delivery ratio. In addition, it has excellent scalability in large scale networks and highly dynamic environment. Simulation results show that the method exhibits much better performance in variety of network conditions, compared with existing methods.

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