

网络、通信与安全

一种能量高效的Ad hoc无线网络广播算法

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摘要 广播在Ad hoc无线网络中有着广泛的应用,而Ad hoc网络节点资源、网络资源严重受限,广播引起的广播风暴问题加剧了资源的消耗。提出了一种能量高效的无冲突的广播策略,该策略利用所有两跳邻节点的剩余能量和度等信息选择前向转播节点,并将前向转播节点分为相互不干扰的独立子集,统一为独立子集设置退避时间,避免冲突的发生。该策略平衡了网络中节点的能量消费、延长了网络寿命,同时减少了广播延迟和转播冗余,确保了广播的可达性。仿真结果也表明提高了广播的效率。

关键词 [Ad hoc无线网络](#) [独立子集](#) [泛洪](#) [冗余转播](#)

分类号

Energy efficient broadcasting strategy for Ad hoc wireless networks

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Abstract

Broadcasting is a common operation in ad hoc wireless networks with severe resource constraints.The problem of broadcasting storm aggravated the resource consumption in ad hoc networks.We propose energy efficient broadcasting strategy without collision for ad hoc networks which is made use of 2-hop neighbor knowledge,the surplus energy of a node and the degree of node to decide to rebroadcast.The nodes in forward node list are divided into several independent subsets which can rebroadcast simultaneously without collision.The different time of rebroadcast is set adaptively by the density of independent subset node.Analyses and simulations have shown that the strategy has prolonged the lifetime of network,had fewer redundant rebroadcast,higher reachability and lower delay than other algorithms.

Key words [Ad hoc wireless network](#) [independent subsets](#) [flooding](#) [redundant rebroadcast](#)

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