

论文

无线多跳Ad hoc网络中MAC机制的公平性与网络容量利用率

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摘要

高效、公平的MAC协议是目前无线多跳Ad hoc网络研究的关键问题之一。该文在给出一种新的无线多跳Ad hoc网络的网络模型前提下, 定义了MAC协议公平性、网络容量利用率两个性能参数。给出了一种能在竞争节点间公平共享无线信道并充分利用网络容量的MAC协议(FMAC), 仿真比较了FMAC和IEEE 802.11 DCF的公平性和网络容量利用率。结果表明FMAC能在充分利用网络容量的前提下, 实现无线信道在竞争节点间的公平共享。

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Fairness and Network Capacity Utilization Ratio of MAC Mechanism in Wireless Multi-hop Ad hoc Networks

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Abstract

It is a key issue in wireless multi-hop Ad hoc networks to develop a Media Access Control (MAC) protocol by which the contending nodes can share the wireless channel fairly and can fully utilize the network capacity. Considering the characteristics of wireless multi-hop Ad hoc networks, such as multi-hop, networks topology changing frequently, and some nodes contending the wireless channel, this paper builds the model of wireless Ad hoc networks and defines two MAC performance parameters: fairness and network capacity utilization ratio. Moreover, this paper proposes a Fair MAC (FMAC) protocol by modifying the IEEE 802.11 DCF. The simulation results prove that FMAC can make the contending nodes share the wireless channel fairly and fully utilize the network capacity.

Key words [Wireless multi-hop Ad hoc networks](#) [Media Access Control \(MAC\)](#) [Fairness](#) [Network capacity utilization ratio](#)

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