论文

一种新的增加Ad hoc 网络吞吐量的MAC协议设计

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摘要
该文提出一种新的MAC协议，其目的是增加802.11b的网络容量。虽然IEEE的802.11b协议提供了较高的原始速率，但是物理层和MAC层随速率提高而引入的额外开销也不断增大。此外，物理层规范定义了两种物理层数据单元格式，但是研究者没有研究如何利用开销小的物理层数据单元来提高802.11b的容量。该文提出一种物理层自适应的算法，它能自适应地选择802.11b物理层规范中的两种不同物理层数据单元格式进行传输，并计算相应的网络分配向量。通过NS仿真证明，该协议能够提高网络的性能，如端到端的时延，有效吞吐量和传包率，特别是在高负载，高速率情况下。

关键词　　MAC　802.11b　Ad hoc网络　有效吞吐量

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A Novel Throughput Enhancement MAC Protocol for Ad hoc Networks

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Abstract
The paper proposes a new MAC protocol to improve the capacity of 802.11b. IEEE 802.11b provides very high raw bandwidth. However, the overheads introduced by the physical and MAC layers are also increasingly substantial. Moreover, there are two kinds of PLCP (physical layer convergence protocol) PPDU (PLCP protocol data unit), but many researchers did not take full advantage of short PLCP PPDU to improve the capacity of 802.11b. A new physical-adaptation algorithm is proposed, which is able to adaptively choose long or short PLCP PPDU and compute network allocation vector (NAV). The proposed MAC protocol and 802.11b were evaluated by NS. Performance results reveal that the proposed MAC protocol performs better than the 802.11b in term of average end-to-end delay, goodput and average successful delivered rate, specially for high load and high raw bandwidth.

Key words　MAC　802.111b　Ad hoc Networks　Goodput

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