

Stability and Throughput Improvement for Multichannel CSMA and CSMA/CD Protocols with Optimal Bandwidth Allocation.

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Abstract: This paper examines appropriate protocols for high speed multiple access communication systems where the bandwidth is divided into two separate asymmetric channels. Both channels operate using slotted non-persistent CSMA or CSMA/CD techniques. Free stations access the first channel while all retransmissions occur in the second channel. We define the stability regions and the rules for optimal bandwidth allocation among the two channels for improvement of the system performance in case of infinite population. Numerical results show that the optimal behaviour gives performance improvement as it compared with the single channel system with the same capacity.

Keywords:

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