Buffer Occupancy Analysis Broadband Polling-Based WLAN

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Summary

Driven by growing demands for high-bandwidth multimedia services, Wireless Local Area Networks (WLANs) are now being designed with access schemes catering for both synchronous and asynchronous services. A polling-based Medium Access Control (MAC) protocol for broadband indoor WLAN is briefly presented. Analytical evaluation of the embedded queueing model is performed under some assumptions, and the wireless terminal buffer size probability mass function is derived as a function of the cell loss probability, frame length and structure, and the input traffic statistics. The analysis considers a finite buffer size terminal case, and presents statistics of buffer blocking and mean number traffic cells in buffer. The analysis considers renewal input traffic models such as the generalized batched-Bernoulli models where traffic arrivals during interservice times are statistically independent.

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