

Adaptive admission/congestion control policies for CDMA-based wireless internet

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Summary

Radio resource management (RRM) is vital for the next generation wireless networks. RRM comprises many functionalities and this paper focuses on the investigation of the performance of several adaptive call admission/ congestion control policies based on a window-measurement estimation of the status of the buffer at the base station under the hybrid TDMA/CDMA access scheme. In our study, we interrelate the physical limitations of the base stations (i.e. the number of transmission and reception modems), call and burst level traffic, instantaneous buffer conditions and end-to-end bit error performance in one queuing problem. Subsequently, a window measurement estimator is implemented to estimate the likelihood of buffer congestion at the base station. Accordingly, the traffic loads shall be controlled. We use event-driven simulation to simulate the multimedia integrated CDMA networks where heterogeneous traffic users are multiplexed into a simple TDMA frames. The simulation results show outstanding performance of the proposed call admission/congestion control policies in guaranteeing QoS requirements.