Fair bandwidth assignment in hierarchical scheduling for mobile WiMAX system

ABSTRACT

The increasing demands for multimedia applications with various QoS requirements arouse the interest of researchers in the Fourth-generation wireless networks such as WiMAX. In order to ensure that the QoS requirements of these applications are met, effective scheduling algorithms must be designed. Even though it may be trivial to ensure that the minimum QoS of all service classes is attained, this often results in a marked degradation of the overall system throughput. In this paper, we propose a fair bandwidth assignment algorithm that allocates the bandwidth among different services classes based on a hierarchical scheduler. By taking the overall system throughput and the QoS requirements into consideration, our proposed algorithm dynamically assigns the available bandwidth to the various service classes in such a way that the network resource utilization is optimized. Simulations result showed that the proposed algorithm optimize the overall system throughput and assigns bandwidth effectively to the different service classes while ensuring that the QoS requirements are satisfied.

Keyword: Mobile WiMAX; MDRR; QoS; Scheduler