

ABSTRACT

IEEE 802.16j MMR WiMAX networks allow the number of hops between the user and the MMR-BS to be more than two hops. The standard bandwidth request procedure in WiMAX network introduces much delay to the user data and acknowledgement of the TCP packet that affects the performance and throughput of the network. In this paper, we propose a new scheduling scheme to reduce the bandwidth request delay in MMR networks. In this scheme, the MMR-BS allocates bandwidth to its direct subordinate RSs without bandwidth request using Grey prediction algorithm to estimate the required bandwidth of each of its subordinate RS. Using this architecture, the access RS can allocate its subordinate MSs the required bandwidth without notification to the MMR-BS. Our scheduling architecture with efficient bandwidth demand estimation able to reduce delay significantly.