Supaporn Hongpisuttikul 2012: QoS Improvement of Adaptive Bandwidth Allocation in IEEE 802.16. Master of Engineering (Computer Engineering), Major Field: Computer Engineering, Department of Computer Engineering. Thesis Advisor: Associate Professor Anan Phonphoem, Ph.D. 58 pages.

Currently WiMAX is one of popular high speed broadband technologies due to its long range and high coverage services characteristics. WiMAX transmission process is controlled by base station in a centralized manner. For bandwidth allocation, each user will be granted to transmit in each dedicated time slot. Howerver, with the limited bandwidth, the system can only support for a certain amount of users.

In this research, a mechanism to enhanced traditional WiMAX system with peer-to-peer technology is proposed. The mechanism checks for possible non-interference transmission among nodes to allow any disjoint pair to exchange data simultaneously and directly without passing through the base station.

The results from the numerical analysis experiment reveal that the system throughput of the proposed mechanism is not affected by the UGS data size. Moreover, the system throughput becomes better when the number of UGS requests and the ratio of real time data are high with the four-corner users' distribution characteristics.

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