Abstract

The scheduling part of the IEEE 802.16 (WiMAX) standards is kept as an open issue to provide differentiation among equipment manufacturers and operators. The uplink scheduling is very significant and more complex compared to downlink scheduling. Uplink scheduling is divided into two parts; one is scheduling the resources among many users from a base station
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(BS) and the other is sharing the resources among its services in a single user. BS uplink scheduling has been given more attention compared to subscriber station (SS) uplink scheduling. SS scheduler plays a significant role in providing the quality of service (QoS) among its services. The channel status awareness is vital in designing the SS scheduler as the channel conditions vary for a mobile user. This work proposes a scheduling algorithm for SS, which utilizes the channel information and queue length variation for the reallocation of received aggregated bandwidth grant to optimize the QoS parameters. The performance of the proposed algorithm is studied by conducting simulations using QualNet 5.0.2 simulation tool. Simulation results demonstrate the effectiveness of the proposed algorithm to improve the QoS.

References

- Alexander Sayenko, Olli Alanen, Juha Karhula, Timo Hamalainen, Ensuring the QoS Requirements in 802.16 Scheduling, MSWiM’06, October 2–6, 2006, Torremolinos, Malaga, Spain.
- Zhongbin Qin, Geng-Sheng Kuo, Performance Optimization for Uplink Transmission in IEEE 802.16e BWA Networks, IEEE CCNC 2008 proceedings.
- Sun Zhen-Tao, Abdullah Gani, Intelligent Uplink Bandwidth Allocation Based on PMP Mode for WiMAX, 2009 International Conference on Computer Technology and Development.

Index Terms

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