

The Effect of Mesh Mode and DSM Method on the Performance of Load Balancing Algorithm in Wi Max Networks^{*}

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Abstract

This research studies the effect of the mesh mode and the DSM method used in wired networks on the performance of the load balancing algorithm in IEEE 802.16e WiMax networks which supports the mobility. The goal of load balancing in WiMax networks is to improve the QoS and increase the number of subscribers who can access the network; this means increasing resource utilization. The research uses the worst zone approach in order to load the balance; this leads to redistribute some terminals (subscribers) between the base stations of WiMax network by a centralized distribution system. This last quickly controls the redistribution process of the load to prevent impacts on the quality of service for subscribers especially those who are making real time applications. The research compares between the performance of network after applying the load balancing algorithm in the WiMax network supporting the mesh mode using the worst zone approach and the performance of WiMax network after applying the DSM method which is used in wired networks to balance the load between the switches, and denotes the advantages and the disadvantages of each method after the study of performance and analysis the results. The research addresses also the classes of service used in WiMax network and focuses on the QoS parameters particularly the data rate, the most important parameter.

Keywords: WiMax Network, Mesh Mode, Load Balancing Algorithm, DSM Method.

^{*} For the paper in Arabic see pages (175-188).

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