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Abstract

In the next Generation Networks like Mobile WiMAX, it is highly essential to create a market mechanism that would allow the customer to communicate with Network and negotiate a contract based on some QoS parameters like blocking probability, delay, arrival rate, spectral efficiency, resource allocation and price. However, the mechanisms, rather than technical-oriented scheme, that involve the use of economic theories may provide better solutions to accommodate the high demand of mobile services. The purpose of this research work is to propose and validate mathematical model that study the effect of pricing incentives as an additional strategy for encouraging a more efficient usage of limited network resources. A modified efficient dynamic pricing scheme for optimal network resource utilization in Mobile WiMAX network has been developed and validated. The percentage improvement of the Cumulative Revenue (CR) generated by the proposed model over the existing model ranges between 25% and 150% depending on the values of the Price Leveling Factor (PLF). The percentage improvement of the Cumulative Resource Efficiency Index (CREI) generated by the proposed model over the existing model ranges between 6% and 7. 1% depending on the values of the Price Leveling Factor (PLF). The proposed scheme proved to generate more revenue per Bandwidth Utilization than the existing model.

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Index Terms

Computer Science Networks

Keywords

Cumulative Resource Efficiency Index (CRI) Cumulative Revenue (CR) Acceptance Probability

Utility

Low Priority User (LPU) and High Priority User (HPU). Bandwidth Utilization (BU)