

Two-level scheduling scheme for integrated 4G-WLAN network

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Abstract:

In this paper, a novel scheduling scheme for the Fourth Generation (4G)-Wireless Local Area Network (WLAN) network is proposed to ensure that end to end traffic transaction is provisioned seamlessly. The scheduling scheme is divided into two stages; in stage one, traffic is separated into Actual Time Traffic (ATT) and Non-Actual-Time Traffic (NATT), while in stage two, complex queuing strategy is performed. In stage one, Class-Based Queuing (CBQ) and Deficit Round Robin (DRR) are used for NATT and ATT applications, respectively to separate and forward traffic themselves according to source requirements. Whereas in the stage, two Control Priority Queuing (CPQ) is used to assign each class the appropriate priority level. Evaluation of the performance of the integrated network was done according to several metrics such as end-to-end delay, jitter, packet loss, and network's throughput. Results demonstrate major improvements for AT services with minor degradation on NAT applications after implementing the new scheduling scheme.