Be-Ozr: An Efficient Available Bandwidth Estimation In Ieee802.11E Network

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Abstract

In wireless network, the support for Quality of Service (QoS) depends on the ability of a network to estimate the available bandwidth of a link effectively and efficiently. Due to the shared nature of the wireless medium, there has been challenges in achieving an accurate measurement of the available bandwidth. This paper therefore proposes an efficient available bandwidth estimation approach that improves the accuracy of previously proposed approach for accurate measurement. The approach used in this paper is to passively estimate the available bandwidth, where the maximum range of the channel idle time measurement used in the calculation is re-defined to address the outer zone range threshold (OZR). This limits the under-estimation and over-estimation of bandwidth measurement. The proposed approach used limits the network overhead and achieves accuracy and efficiency. Results obtained from the simulation shows how our proposed approach out-performs the state-of-the-art approach in terms of throughput and delay, using the IEEE802.11e. We have been able to achieve 8% improvement in accuracy and efficiency when compared with the best of the state-of-the-art available bandwidth estimation technique.

Full Text

Due to technical limitations, full-text HTML conversion of this manuscript could not be completed. However, the manuscript can be downloaded and accessed as a PDF.

Figures

Figure 1

Figure 2

Availability Definition

Figure 3

IEEE802.11e EDCA frame exchange sequence [28]

Figure 4

BE-OZR Throughput for all the traffic

Figure 5

a: Best Effort Throughput b: Voice Throughput c: Video Throughput

Figure 6

Comparison of BE-OZR against the state-of-the-art Wireless LAN Delay.