Interactive Multi-Media Applications: Quality of Service Guaranteed under Huge Traffic

Abstract

The internet has brought about revolution in the telecommunication system. The use of computer applications has changed with easiness and low cost. Interactive Multimedia IMM applications such as Voice over Internet Protocol VOIP and video conferencing are being produced. They offer beneficial services to academicians, officers and other users. But these services suffer from performance degradation in the today’s high speed Wireless Local Area Network WLAN. However, guaranteed Quality of Service QoS remains the bottleneck in the network which becomes a great challenge to improve. This work reviewed many approaches attempted to improve the QoS for these applications. Here we considered mapping a QoS class parameter i.e. Quality of Service Class Identifier-to-Differentiated Services Code Points QCI/DSCP to the upstream and downstream data flowing in the core of the network that improves its overall performance. This is achieved by mapping QCI to DSCP and then mapping again the QCI/DSCP to the IMM traffic. This gives the QoS bearer packets highest priority and a strong signal. The results obtained after simulation in QualNet shows that our proposed mechanism produced better performance of the network in comparison to the default. This is measured in terms of three network performance metrics (average delay, average jitter and
throughput). The overall average end-to-end delay is decreased by 34%, while overall average jitter drops by 24% and the throughput rises slightly by 4.6%.

References


**Index Terms**

Computer Science
Software Engineering

**Keywords**

Interactive Multimedia IMM
Voice over Internet Protocol VOIP
Wireless Local Area Network WLAN
Quality of Service QoS
Quality of Service Class Identifier QCI
Differentiated Services Code Points DSCP.