

Estimation of Media QoE without Reference*

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Abstract

QoE analysis of media services over IP networks (e.g., VoIP, IPTV, OTT, etc.) is a complex task, since it is based on the subjective human opinion. The subjective assessment requires a large number of volunteers to periodically provide feedback about the perceived quality of a service. Accordingly, there is a requirement for an objective alternative to the inherently subjective, perception-based service quality assessment approaches. The pivotal point of the presented solution is that the actual service quality is calculated from the momentary value of the QoS metrics measured at packet-level and it is presented on the MOS scale. Using an estimation-based approach, we are working on an objective NR type QoE estimation mechanism that needs no reference content from the sender side. To determine an estimation function, we performed combined (subjective and objective) assessments to build a reference dataset of 3-tuples of MOS, jitter and loss values. Applying polynomial regression and investigating canonical correlation, we are searching a low-degree two-variable polynomial to hash objective QoS metrics (jitter and loss, respectively) to the subjective MOS score of the service quality.

Keywords: QoE estimation, QoS-QoE correlation, QoS metrics, subjective assessment, network measurement

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