Impact of Downlink Signaling Capacity Constraints on the Provision of QoS in LTE

Author(s) - Institution(s):
David González G (UPC)
Mario García-Lozano (UPC)
Silvia Ruiz (UPC)
Joan Olmos (UPC)

Corresponding author email: david.gonzalez.gonzalez@upc.edu

Corresponding WG group: WG3

Abstract:
Choosing appropriate scheduling policies is of utmost importance to deliver acceptable levels of Quality of Service (QoS) to users of LTE networks. This decision is not only conditioned by the type of services expected to be offered but also by targeted QoS levels properly said. In this sense, preliminary performance evaluations depend to a large degree on the accuracy with which relevant practical system limitations are modelled. In LTE, the capacity of control channels is clearly one of the most important issues. While the impact of control channel limitations on LTE VoIP capacity has been widely studied yet, tradeoffs associated to control channel usage and the provision of QoS for Non-Real Time (NRT) services has been basically omitted in current literature. In this paper, several experiments have been conducted to investigate such interplay from different points of view. Results show that the relationship between scheduling policies, offered levels of QoS (expressed in terms of guaranteed bit rates) and control channels capacity is not trivial and requires careful planning.