

An Uplink Performance Evaluation for Roaming-Based Multi-Operator WCDMA Cellular Networks

Abstract

This paper studies the uplink performance of multi-operator WCDMA cellular networks. Allocating the resource of a cell between different operators and the deployment of a QoS-aware uplink admission control for each operator is studied and simulated. The contribution of this work lies in granting higher priority to soft handoff calls. We introduce queuing techniques and the idea of 'soft guard channels', which is represented by reserving a small fraction of the cell load for the higher priority calls. The performance of this admission control with different scenarios is studied. The Grade of Service (GoS) is considered here to evaluate the system performance. Based on the simulation results we can conclude that this algorithm can reduce the dropped soft handoff calls and improve the overall system performance. Hence, this algorithm is able to satisfy the network operator by allowing more traffic (more revenue) and at the same time satisfying the user by guaranteeing lower handoff call drop.