

Abstract

This paper gives an overview of the network sharing options available for 3G and beyond network operators. Sharing of network infrastructure among operators offers an alternative solution to reduce the investment in the coverage phase of WCDMA, allows increased coverage, reduces time to market, and allows earlier user acceptance for WCDMA and its related services. Furthermore, in this paper general radio resource management (GRRM) strategies are proposed to cope with the implied new architectural changes. These GRRM strategies are devoted to achieve an efficient usage of the available pool of radio resources while satisfying the required quality of service (QoS) in heterogeneous traffic 3G wireless networks. These GRRM strategies include complete partitioning (CP), dynamic partitioning (DP), and adaptive partitioning with borrowing (APB). The Grade of service (GoS) and the resources utilization are considered in this study to evaluate the network performance. Simulation results indicate that the proposed DP resource allocation provides higher resource utilization under all load conditions leading in turn to increased revenue. While the CP resource allocation method provides the best performance in terms of fairness in assigning resources among customers of different operators, APB provides the best balance between the system utilization and the required QoS.