Adaptive Allocation of Virtual Radio Resources over Heterogeneous Wireless Network

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Abstract:

Virtual Networks and cloud services are hot topics nowadays, being considered, together with the information centric approach, key elements for the Future Internet. In this paper, an adaptive radio resource allocation mechanism for virtual resources sharing a common heterogeneous wireless infrastructure is presented and evaluated. The Virtual Network Radio Resource Allocation (VRRA) being proposed takes advantage of the set of shared resources available within a cluster of wireless resources from different Radio Access Technologies (RATs), optimising their utilisation in order to maintain the contracted capacity. Simulation results show that the introduction of VRRA allows supporting the minimum bandwidth requirement in a wireless cluster, composed of several physical base stations from different RATs. For the Virtual Network providing high data rates and guaranteed services presented in this paper, the Virtual Network Operator Satisfaction Level can be improved by 40% with the introduction of VRRA.