

## A QoE-driven Cross-layer Resource Allocation Scheme for High Traffic Service over Open Wireless Network Downlink

**Authors :** Liya Shan, Qing Liao, Qinyue Hu, Shantao Jiang, Tao Wang

**Abstract :** In this paper, a Quality of Experience (QoE)-driven cross-layer resource allocation scheme for high traffic service over Open Wireless Network (OWN) downlink is proposed, and the related problem about the users in the whole cell including the users in overlap region of different cells has been solved. A method, in which assess models of the BestEffort service and the no-reference assess algorithm for video service are adopted, to calculate the Mean Opinion Score (MOS) value for high traffic service has been introduced. The cross-layer architecture considers the parameters in application layer, media access control layer and physical layer jointly. Based on this architecture and the MOS value, the Binary Constrained Particle Swarm Optimization (B\_CPSO) algorithm is used to solve the cross-layer resource allocation problem. In addition, simulation results show that the proposed scheme significantly outperforms other schemes in terms of maximizing average users' MOS value for the whole system as well as maintaining fairness among users.

**Keywords :** high traffic service, cross-layer resource allocation, QoE, B\_CPSO, OWN

**Conference Title :** ICCV 2015 : International Conference on Connected Vehicles

**Conference Location :** Zurich, Switzerland

**Conference Dates :** January 13-14, 2015