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DTU Fotonik, Department of Photonics Engineering Technical University of Denmark, Denmark

Envisioning Spectrum Management In Virtualised C-RAN

Imad Al-Samman, Matteo Artuso, Henrik Christiansen, Angela Doufexi, Mark Beach

Abstract- Cloud Radio Access Network (C-RAN) has attracted a worldwide attention in both academia and industry. This network architecture re-forming has been considered as a potential solution to meet the increasing capacity demands for future mobile data traffic. In addition, Network Virtualisation is a promising technique for efficient resource utilisation. This paper proposes a customizable resource virtualisation algorithm for multi user data scheduling in a Long Term Evolution (LTE) C-RAN deployment. The algorithm is based on the hypervisor specific assignment of air resources allocation between the virtual operators (VOs) dynamically, based on either joint scheduling or per cell schemes. The objective is to improve the resource allocation mechanism based on traffic conditions and a database of pre-defined services priorities. Two distinctive scenarios are considered and evaluated against standard Round Robin (RR) C-RAN scheduling technique. Simulation results show improvements in the overall traffic throughput and reduction in end-to-end delay for delay sensitive applications. In addition, an assessment of fairness guarantee is considered across all users.

Contact:

Imad Al-Samman

Research PhD

CSN,UoB

Senate House, Tyndall Ave, Bristol BS8 1TH

Bristol, UK

Phone: + 44586312125

Email: imad.al-samman@bristol.ac.uk