An Economic Aspect of Device-to-Device Assisted Offloading in Cellular Networks

ABSTRACT

Traffic offloading via device-to-device (D2D) communications has been proposed to alleviate the traffic burden on base stations (BSs) and to improve the spectral and energy efficiency of cellular networks. In the proposed incentive framework, the operator improves its overall profit, defined as the network economic efficiency (ECE), by encouraging users to act as D2D transmitters (D2D-Txs) which broadcast their popular contents to nearby users. Numerical results show that the achievable network ECE of the proposed incentive D2D assisted offloading network can be significantly improved with respect to the conventional cellular networks where the D2D communications are disabled.

EXISTING SYSTEM

- In existing system, pricing strategies for both macro and femto cell operators in a cognitive femtocell network were discussed.
- However, none of these works have considered the operator's profit with respect to D2D assisted offloading especially from system-level perspective.
- The interrelation between pricing incentives and transmit powers at both BS and D2D transmitters (D2D-Txs)

PROPOSED SYSTEM

- The proposed incentive offloading design is significantly superior to the baseline design of conventional cellular networks in terms of the achievable network ECE gain.
- Besides, there exists an optimal D2D-Txs density which can maximize the achievable network ECE gain.
- Specifically, the overlay mode outperforms the underlay mode in terms of the network ECE gain when the density of D2D-Txs is small.

SYSTEM REQUIREMENTS

HARDWARE REQUIREMENTS

- Processor - Intel core i3
- RAM - 2B
- Hard Disk - 20 GB

SOFTWARE REQUIREMENTS

- Operating System : LINUX
- Tool : Network Simulator-2
- Front End : OTCL (Object Oriented Tool Command Language)

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