Optimizing Performance of Co-Existing Underlay Secondary Networks

ABSTRACT

In this paper, we analyze sum throughput and (asymptotic) sum ergodic rate performance of two co-existing downlink multiuser underlay secondary networks employing either fixed-rate transmission (FRT) or (channel aware) adaptive rate transmission (ART). We consider cases when this ITL apportioning is based on statistical properties of the channels, or on full (or partial) knowledge of the channel gains. For these cases, proper network management (NM) strategies are evolved to maximize sum throughput or sum ergodic rate of the secondary networks. Each NM strategy determines whether both secondary sources should transmit concurrently or not, and also determines their transmit powers. We demonstrate that a channel aware NM (CANM) strategy is superior to an optimal fixed NM (FNM) strategy. With secondary sources employing non-opportunistic user selection, in case of FRT (ART), we demonstrate that there exists a critical target-rate (ITL) below which it is advantageous to operate both secondary networks concurrently.

EXISTING SYSTEM

- In existing system, radio resource allocation and interference management play key roles in deployment of such heterogeneous networks.
- Radio environment to serve as databases for dynamic spectrum access.
- However, to implement an underlay scheme with concurrent secondary transmissions in a cellular framework, the major issue not only lies in mitigating interferences among other heterogeneous users, but also careful handling of interferences from heterogeneous transmitters to maintain QoS of the macro cell

PROPOSED SYSTEM

- In this paper, we analyze performance of two co-existing underlay multiuser secondary downlink networks.
- Increasing the number of concurrent transmissions not only reduces the available power per secondary transmitter, but also reduces the downlink SINRs due to increased number of secondary interferences, and is not always useful.
- Therefore the gains diminish with increase in concurrent secondary transmissions.

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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