Infrastructure Sharing for Mobile Network Operators Analysis of Trade-offs and Market

ABSTRACT

- We analyze the trade-off between increasing the transmit power of a BS and the intensity of BSs owned by the buyer MNO required to achieve a given quality-of-service in terms of the SINR coverage probability.
- Also, for a seller MNO, we analyze the power consumption of the network per unit area which is shown to be a piecewise continuous function of BS intensity, composed of a linear and a convex function.

EXISTING SYSTEM

- The conflicting problems of growing mobile service demand and underutilization of dedicated spectrum has given rise to a paradigm where mobile network operators share their infrastructure among themselves in order to lower their operational costs, while at the same time increase the usage of their existing network resources.
- We model and analyze such an infrastructure sharing system considering a single buyer MNO and multiple seller MNOs.

PROPOSED SYSTEM

- Accordingly, the BS intensity of the seller MNO can be optimized to minimize the areal power consumption while achieving a minimum QoS for the buyer MNO.
- We then use these results to formulate a single-buyer multiple-seller BS infrastructure market. The buyer MNO is concerned with finding which seller MNO to purchase from and what fraction of BSs to purchase.
- On the sellers' side, the problem of pricing and determining the fraction of infrastructure to be sold is formulated as a Cournot oligopoly market.

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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