Abstract

Spectrum handoff is one of the main issues in cognitive radio networks. Spectrum handoff occurs when the owner of the spectrum or the primary user reclaims a channel already used opportunistically by a secondary user. Such handoff becomes more frequent especially in case of multichannel access since that in a wider band, a PU is likely to reclaim a part of the band more quickly. This process has a negative impact on the performance of SU transmission in terms of delay and link maintenance. In this paper, the problem of minimizing the secondary user handoff process because of primary user activity is underlined. An analytical formulation based on knapsack problem is established and a new spectrum selection scheme is proposed. The main idea is to maximize jointly the holding time and the achievable throughput of the selected channels. The performance of the proposed access model is investigated through numerical simulations.

References

- P. Li, N. Scalabrino, and Y. Fang, "Channel switching cost in multichannel wireless mesh networks," in Milcom'07.
Quadratic Greedy Algorithm for Multichannel Access in Cognitive Radio Network


Index Terms

Computer Science

Algorithms

Keywords
Handoff  Holding Time  Rate  Knapsack problem  heuristic  quadratic greedy algorithm.