Abstract

Cognitive radio technology is an emerging technology which would enable a set of secondary users (SU) to opportunistically use the spectrum allocated to a primary user (PU) and has potential to serve as a solution to spectrum inefficiency and spectrum shortage problems. However, SUs face number of challenges based on the fluctuating nature of the available spectrum. When PU arrives on a specific frequency band, any SU occupying this band should free the channel for PUs which is referred as Spectrum Mobility. It is an important but unexplored event in cognitive radio network. This paper is a brief overview on the reason, mechanism, challenges and their solutions in spectrum mobility.

References

- Akyildiz, Ian F., et al. &quot;NeXt generation/dynamic spectrum access/cognitive radio
  - Van Tam Nguyen, Frederic Villain and Yann Le Guillou. "Cognitive Radio RF:
  Overview and Challenges. "Hindwai Publishing Corporation VLSI design Volume 2012,
  Article ID716476, 13 pages.
  & Engineering Research Vol. 10, Issue 1, No 1, January 2013
  - Giupponi, Lorenza, and Ana I. Pérez-Neira. "Fuzzy-based spectrum handoff in
  cognitive radio networks. " Cognitive Radio Oriented Wireless Networks and
  - R. Kaniezhil, Dr. C. Chandrasekar, "Comparing Spectrum Utilization using Fuzzy
  Logic System for Heterogeneous Wireless Networks via Cognitive Radio"; Internationa l
  - Wang, Li-Chun, and Chung-Wei Wang. "Spectrum handoff for cognitive radio
  networks: Reactive-sensing or proactive-sensing?"; Performance, Computing and
  - C-W. Wang and L-C. Wang, "Modeling and Analysis for Proactive-decision
  Spectrum Handoff in Cognitive Radio Networks"; IEEE International Conference on
  Communications, June 2009
  - Wang, Chung-Wei, Li-Chun Wang, and Fumiyuki Adachi. "Modeling and analysis
  for reactive-decision spectrum handoff in cognitive radio networks." Global
  - Morteza Mehrnoush, V. T. Vakili. "Proactive-srv spectrum handoff protocol based
  on gcs scheme in cognitive radio adhoc network." International Journal of Power Control
  - Song, Yi, and Jiang Xie. "On the Spectrum Handoff for Cognitive Radio Ad Hoc
  Networks without Common Control Channel." Cognitive Radio Mobile Ad Hoc Networks.
  - Salem, Tarek M., et al. "Efficient Spectrum Management: Challenges and
  Solution." http://www.academia.edu/7684823/Efficient_Spectrum_Management_Challenges_and_Solutions
  - Lee, Won-Yeol, and Ian F. Akyildiz. "Spectrum-aware mobility management in
  529-542.
  - Wang, Li-Chun, and Chen Anderson. "On the performance of spectrum handoff for
  spectrum mobility using virtual reservation in collaborative cognitive radio networks." Computers
  - Zahed, Salah, Irfan Awan, and Andrea Cullen. "Analytical modeling for spectrum
  handoff decision in cognitive radio networks." Simulation Modelling Practice and Theory

**Index Terms**

Computer Science  
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**Keywords**

Cognitive Radio Network (CRN)  
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