Performance enhancement of steady-state Markov analysis for cognitive radio networks via channel reservation

El Azaly, N.M.[a], Badran, E.F.[b], Rizk, M.R.M.[c], Mokhtar, M.A.[c]

[a] Pharos University, Alexandria, Egypt

[b] Arab Academy for Science, Technology, and Maritime Transport, Alexandria, Egypt

[c] Alexandria University, Alexandria, Egypt

Abstract:

Cognitive radio wireless networks CRNs have been considered as an efficient communication paradigm to the utilization of scarce spectrum. The main purpose of channel reservation of dynamic spectrum access (DSA) is to access these idle channels intelligently which are specialized for primary users (PUS) to be used by unlicensed users temporarily, which are called secondary users (SUS) without causing critical interference to the licensed user's activity. In this paper, continuous-time Markov chain paradigm is improved via channel reservation to show the best usage of the radio spectrum bands, and the transition matrix are deduced for the proposed model. Moreover, the probability state vector is proved by performing steady state analysis. The deduced expressions of the suggested model are illustrated in the numerical results section. © 2017 Faculty of Engineering, Alexandria University

Reference:

https://08105ysr2-1106-y-https-www-scopus-com.mplbci.ekb.eg/record/display.uri?eid=2-s2.0-85028382155&origin=resultslist&sort=plf-f&src=s&nlo=&nlr=&nls=&sid=9ff590a66789d9781c08c6de68f72583&sot=aff&sdt=cl&cluster=scopubyr%2c%222017%22%2ct%2bscosubjabbr%2c%22ENGI%22%2ct&sl=49&s=AF-ID%28%22Pharos+University+in+Alexandria%22+60011287%29&relpos=0&citeCnt=1&searchTerm=