Routing Approaches for Cognitive Radio Ad-hoc Networks and Challenges

Abstract

Cognitive radio networks (CRNs) are composed of cognitive devices capable of changing their configurations on Real time, based on the spectrum environment. This capability provides chance to opportunistically reuse the portion of the spectrum as required resigned by the licensed users (PU's). From another point of view, the tractability in the spectrum access level attaches to an increased complexity for designing of communication protocols at each layer. This brings focuses on the problem of designing efficient routing results for multi-hop CRNs that become a central issue in cognitive networking paradigm. We furnish a broad overview of the research in the area of routing for CRNs, distinguishing two main categories: full spectrum knowledge base, and local spectrum knowledge base procedures and protocols. For each category we depict on proposed design methodologies and routing metrics. Finally, potential future research directions are also suggested.
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- FCC, FCC 08-260, Unlicensed Operation in the TV Broadcast Bands, November 2008.
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