Abstract

Increasing popularity of VoIP systems has witnessed applications in emerging technologies like Cognitive Radio Networks (CRN). The stringent QoS requirements in VoIP coupled with complexities in CRN have initiated intensive research in the field of performance analysis and optimizations guided by simulation results. However, in the absence of any standard model of VoIP over CRN, accuracy and credibility of the simulation output are strongly dependent on proper design of the simulation model that must have a strong mathematical foundation. The objective of this paper is to build standard models for VoIP in CRN and successfully implement VoIP applications over CRN domain, which will serve as initial point for development with respect to all future simulation studies in VoIP over CRN category. Initially, models of VoIP in CRN are developed using OPNET Modeler 16.0. A following distributed architecture in single-channel and multi-channel scenarios and further in Visual C++ adhering to the principles of centralized architecture. The models are validated by comparison of simulation results obtained in both platforms. The underlying mathematical model behind the design is established and the critical factors pertaining to both VoIP and CRN domain are extensively analyzed.
References

Simulation Design and Performance Analysis for VoIP in Cognitive Radio Networks


Index Terms

Computer Science          Wireless Communication

Keywords