Abstract

In recent years, the huge success of wireless applications has caused an exponential increase in requests to regulatory authorities for spectrum allocation. Clearly limited spectrum is a crucial impediment to continued growth of commercial wireless devices. Among all these wireless devices, many of them however operate in unlicensed bands, especially in the ISM band, which results in overcrowding in this band. Today's spectrum policy relies largely on static spectrum allocation and it is seen that many of the spectrum bands are only used in certain areas and/or part of the time. Therefore, to improve the spectrum utilization, we need a technology through which we may allow the unlicensed users to use licensed spectrum bands opportunistically in a dynamic and non-interfering manner without affecting the licensed users. Such a network in which unlicensed users make use of the unused allocated licensed spectrum bands of the licensed users to achieve better performance and throughput is known to be the cognitive radio network (CRN). Routing in CRN is a major challenge as the usable spectrum bands for the unlicensed users may vary dynamically in such networks. In this work, we proposed and designed a routing protocol for cognitive radio network in order to provide reliable routing among the secondary unlicensed users which can cope up with the dynamically changing spectrum environment and tested its performance by simulating in NS2.