A Performance based Routing Classification in Cognitive Radio Networks

Abstract

Cognitive Radio Networks (CRN) is offering tremendous performance and operational benefit by providing high bandwidth to mobile users via dynamic spectrum access techniques. In this paper, we address the problem of routing in CRN which concerns about identification and maintenance of the optimal path from source to destination through intermediate relay nodes and spectrum on each link using available common channels. In this survey, the characteristics features and limiting factors of existing routing protocols are thoroughly investigated with its performance evaluation criteria's. First, the overview of the routing with its unique challenges is given under the restriction of interference and fairness to increase overall network throughput. Next, a detailed classification of the routing strategies is given according to performance evaluation matrices which are considered according to specific demand and requirements of network users. A representative selection of these strategies is discussed in detail in this paper together with services given to unique challenges of CRN. Important issues and future directions are also discussed, while highlighting the need of close coupling between interaction of network users and dynamic decision theories.

References

- Mitola, J., III; Maguire, G. Q., Jr.; “Cognitive radio: making software radios more
A Performance based Routing Classification in Cognitive Radio Networks


- Bing Xia; Wahab, M. H.; Yang Yang; Zhong Fan; Sooriyabandara, M.; , &quot;Reinforcement learning based spectrum-aware routing in multi-hop cognitive radio networks,&quot; Cognitive Radio Oriented Wireless Networks and Communications, 2009. CROWNCOM &apos;09. 4th International Conference on, vol., no., pp. 1-5, 22-24 June 2009,


- Xin-Lin Huang; Gang Wang; Fei Hu; Kumar, S., &quot;Stability-Capacity-Adaptive Routing for High-Mobility Multihop Cognitive Radio Networks,&quot; Vehicular Technology, IEEE Transactions on vol. 60, no. 6, pp. 2714-2729, July 2011, doi: 10.1109/TVT.2011.2153885


- A. Abbagnale, F. Cuomo, Gymkhana: a connectivity-based routing scheme for cognitive


**Index Terms**

Computer Science

**Keywords**

Wireless Network  Routing  Cognitive Radio Networks (crn)  Multi-hop Networks  Spectrum Utilization

Dynamic Spectrum Utilization