

## **EFFICIENT UTILIZATION FOR SPECTRUM HANDOFF IN COGNITIVE RADIO NETWORKS USING OPTIMIZATION TECHNIQUES**

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The growth of wireless communication is advancing rapidly, demanding attention to spectrum scarcity problem in order to expand mobile services and high data rates. Since the spectrum may not be fully utilized by the first priority Primary Users (PU) at all times and in all locations, the spectrum distribution of PU reduced the total utilization of the spectrum by providing the unused frequency to the second priority Secondary User (SU). The development of Cognitive Radio Networks (CRN) offers a way to get over these obstacles. It addresses the issue of spectrum inadequacy in accessing the PU by means of Dynamic Spectrum Access (DSA). The CRN benefits the SUN by enabling it to search for vacant spectrum and relocate to unused spectrum bands. When a PU requests the spectrum back, a new line spectrum handoff must be carried out by SU. The kind of policy that will be used for the handoff is decided by the SU. Therefore, the cognitive radio network employs two strategic priorities: spectrum handoff and spectrum sensing to prevent interference and channel access. Learning through the CRN environment, it can sense the spectrum and make appropriate decisions. The spectrum sensing is the specific characteristic for the channel utilization and channel vacating process based on PU. A frequent monitoring of PU has progressed for seamless communication in SU. The spectrum availability is decided based on the range of frequency and arrival rate of PU. Spectrum Handoff plays a significant role in DSA due to a rise in the demand of data transmission.