Abstract

Most cellular wireless networks are voice, data, and video integrated which now introduces the challenge on providing channel allocation techniques to ensure adequate performance for all services. Furthermore, with the increasing demand for these mobile multimedia services, cellular networks have adopted micro architectures to provide the higher capacity needed to support the broadband high speed of these services under the limited radio spectrum. This consequently has increased the undesirable interruption of ongoing calls as the mobile terminal moves from one cell to another. Handoff calls, as they are called, need to perform well and introducing a scheme that gives priority to handoff calls over new calls is necessary. This paper proposes a scheme that guarantees the Quality of Service (QoS) of handoff calls and new calls. The proposed design, based on the combining features of the existing Dynamic Channel Reservation Scheme (DCRS) and the Handoff Queuing Scheme (HQS), ensures both a low dropping probability of handoff calls and a low blocking probability of new calls with an improved channel utilization without system overload. It would be shown that through the analytical results of the proposed design, namely the Queue Dynamic Channel Reservation Scheme (QDCRS),
compared with the Fully Shared Channel Scheme (FSS); offers exceptional QoS with the opportunity for added improvement performance.

References


Index Terms

Computer Science Circuits and Systems
Keywords

Guard channel; allocation; queue; dynamic; handoff; Quality of Service (QoS); Wireless Cellular Networks; multimedia services