



Wireless Engineering Research and Education Center

Resource Sharing in Integrated 802.11-802.16 Networks

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Abstract

The medium of communication in wireless networks makes it unique when compared to any other networks. The shared nature of wireless medium makes it necessary to have a policy for sharing the resources to benefit in useful communication. The design of such policies becomes complex when there is a limited availability of resources such as in wireless networks. In this talk, we will focus on the implication of applying such policies in an integrated 802.11/802.16 network scenario. Integration of 802.11 and 802.16 is made important due to economic and technical benefits of the synergy. 802.11 and 802.16 are complementary technologies in a way that 802.11 is used for very high speed WLAN (Wireless LAN) connectivity and 802.16 (Wireless MAN) is used for high speed WMAN connectivity. We begin by surveying the existing work in 802.11/802.16 integrated networks and introduce a cognitive algorithm based partial sharing policy to share resources in an integrated 802.11/802.16 environment. We do a study on the starvation issues and how to alleviate them using a mathematical model based on Markov Chains. Results beneficial for network operators indicating blocking probability (BP) and BP based throughput will be observed as well.

Bio

Nirmal Andrews is a Masters student in the Department of Electrical and Computer Engineering at Auburn University, Auburn, AL. He obtained his Bachelors degree in Electronics and Communication Engineering from K.C.G College of Technology, Anna University in 2005. Currently, he is a Research Assistant under Dr. Prathima Agrawal. His current areas of research are coexisting and integrated networks.

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