

ABSTRACT

Integration between WLAN and fiber optic networks (WiLANoF), build a wider area of coverage, thus making more station (STA) could access the network. Unfortunately, the increasing of accessibility is not enough for handling the increasing of realtime access service demand. A protocol design to optimize the used of WiLANoF is needed to handle realtime application. This protocol design uses Hybrid Coordination Function-Control Channel Access (HCCA) protocol.

In this final assignment, internal channel engineering is conducted to determine WiLANoF 802.11g/e network resource capacity with HCCA protocol by placing traffic only in Contention Free Period (CFP) side. This capacity is assumed equal with maximum channel utility condition. Maximum channel utility is achieved by conducting optimization for Transmission Opportunity (TXOP) in HCCA protocol. Optimization is conducted using Dynamic Programming approach with Backward and Forward Recursion method.

TXOP optimization which is achieved by using Backward Recursion method resulting TXOP maximum value equal to Forward Recursion method. This shows system is defined correctly and the recursion theory is proven right. Maximum channel utilization for realtime application in mandatory traffic rate is acquired from this TXOP maximum value.

Keywords: WiLANoF 802.11 g/e, HCCA, TXOP, Dynamic Programming, Recursion Backward, Forward Recursion.