

## QoS in WLAN – MAC Layer Design

### Business Objective

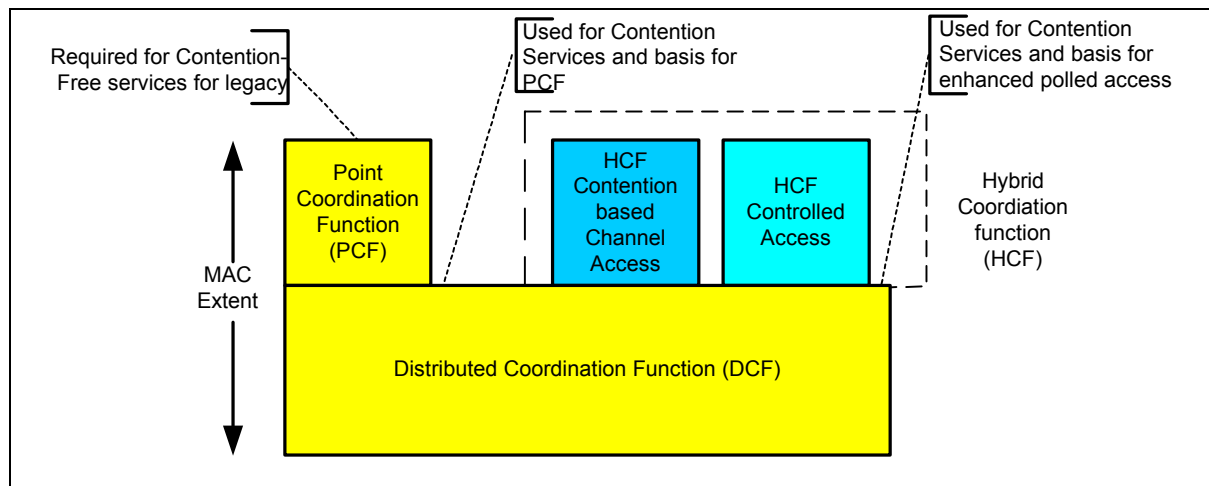
Institute of Electrical and Electronic Engineers (IEEE) finalized the initial standard for wireless LANs, IEEE 802.11, in 1997. The initial 802.11 standard has been upgraded, to include higher data rate of operation, by adopting different technologies at the physical layer (PHY). Ease of mobility and susceptibility to interference makes it difficult to guarantee quality of service during transactions in wireless networks.

When IEEE was in the process of specifying mechanisms that will enable quality of service (QoS) in 802.11, the customer (IEEE member) approached Ushustech with the requirement of supporting their WLAN team in conceptualizing and designing suitable algorithms for enhancement of QoS.

### System Overview

The ushustech team designed algorithms to enhance the QoS in Wireless LAN and thus to propose a possible implementation for the emerging IEEE 802.11e standard.

QoS Mechanisms include data prioritization, improvements in access control mechanisms, service requirement negotiation before starting a session, acknowledgement policies, etc Other mechanisms, recommended by 802.11e, are Direct Link Protocol, Group Acknowledgement and Distributed Admission Control for ensuring service guarantees in WLAN.



The algorithm proposed includes Distributed Coordination Function (DCF), Point Coordination Function (PCF), enhanced DCF (EDCF) and Hybrid Coordination Function (HCF). These mechanisms find their implementation in a scheduler, which is based on Weighted Fair Queuing (WFQ). The design was done using SDL.