WI-FI - QUALITY OF SERVICE QOS

There are plans to incorporate quality of service QoS capabilities in WiFi technology with the adoption of the IEEE 802.11e standard. The 802.11e standard will include two operating modes, either of which can be used to improve service for voice −

- WiFi Multimedia Extensions WME − Mandatory
- WiFi Scheduled Multimedia WSM − Optional

WiFi Multimedia Extensions WME

WiFi Multimedia Extensions use a protocol called Enhanced Multimedia Distributed Control Access $EDCA$, which is an extension of an enhanced version of the Distributed Control Function DCF defined in the original 802.11 MAC.

The *enhanced* part is that EDCA will define eight levels of access priority to the shared wireless channel. Like the original DCF, the EDCA access is a contention-based protocol that employs a set of waiting intervals and back-off timers designed to avoid collisions. However, with DCF all stations use the same values and hence have the same priority for transmitting on the channel.

With EDCA, each of the different access priorities is assigned a different range of waiting intervals and back-off counters. Transmissions with higher access priority are assigned shorter intervals. The standard also includes a packet-bursting mode that allows an access point or a mobile station to reserve the channel and send 3- to 5-packets in a sequence.

WiFi Scheduled Multimedia WSM

True consistent delay services can be provided with the optional WiFi Scheduled Multimedia WSM. WSM operates like the little used Point Control Function PCF defined with the original 802.11 MAC.

In WSM, the access point periodically broadcasts a control message that forces all stations to treat the channel as busy and not attempt to transmit. During that period, the access point polls each station that is defined for time sensitive service.

To use the WSM option, devices need to send a traffic profile describing bandwidth, latency, and jitter requirements. If the access point does not have sufficient resources to meet the traffic profile, it will return a *busy signal*.