

Alcatel-Lucent OmniAccess Wireless Voice Services Module

The Alcatel-Lucent OmniAccess Wireless Voice Services Module (VSM) allows enterprises to offer voice over Wi-Fi services that are reliable and easy to implement and manage. The VSM delivers standards-based voice over Wi-Fi with unique innovations that enable large-scale voice deployments. The OmniAccess Wireless Voice Services Module, the Alcatel-Lucent OmniPCX Communications Server and the Alcatel-Lucent IP Touch Wireless LAN phones form a comprehensive voice over Wi-Fi solution that offers industry-leading scalability, resiliency, manageability and an outstanding end-user experience. This end-to-end voice over Wi-Fi solution makes voice over Wi-Fi a reality for the enterprise today, and provides an architecture that supports fixed mobile convergence (FMC) going forward.



FEATURES

- WMM Queue Enforcement
- Voice Call Admission Control
- Automatic Voice Prioritization
- Voice Aware 802.1x Authentication
- Dynamic WMM Queue Management

BENEFITS

- Ensures that QoS policies are properly enforced by preventing users from transmitting non-voice traffic using voice WMM queues.
- Optimizes call reliability and voice quality by limiting the number of active voice calls that an AP will support and load-balancing or ignoring excess calls.
- Maintains voice quality in networks with a heavy mix of voice and data by automatically identifying voice protocols and assigning the highest priority queue to the associated traffic stream
- Optimizes 802.1x activity whenever a call is active so that extraneous authentication messages will not affect call quality.
- Provides flexible QoS management by allowing customization of WMM queue profiles for different QoS levels.

FEATURES

- SIP Authentication Tracking
- Call Detail Records (CDRs)

Comprehensive Voice Management

The Voice Services Module adds extensive voice management functionality, providing detailed reporting and troubleshooting capabilities. Information is available at a glance with well-organized tables and graphs. Some of the capabilities include:

- Phone number association – SIP devices can be tracked and displayed by their associated phone number.
- Call quality tracking – Automatically calculates, displays and tracks the R-value for each SIP call being processed through the OmniAccess Wireless switch.
- SIP authentication tracking – Tracks the registration of SIP devices with an IP-PBX to determine if they are authenticated devices.
- Call detail records (CDRs) – Displays the calls made to or from Wi-Fi clients, including originator, terminator, termination reason, rejected and failed calls, duration, call quality.
- CAC-based real-time information – Quickly determine call density, CAC state, and active calls.

BENEFITS

- Stateful tracking of the registration of SIP devices with a call manager to ensure that all devices on the network are authenticated.
- Displays the calls made to or from WiFi clients, including originator, terminator, termination reason, rejected and failed calls, and duration, call quality.

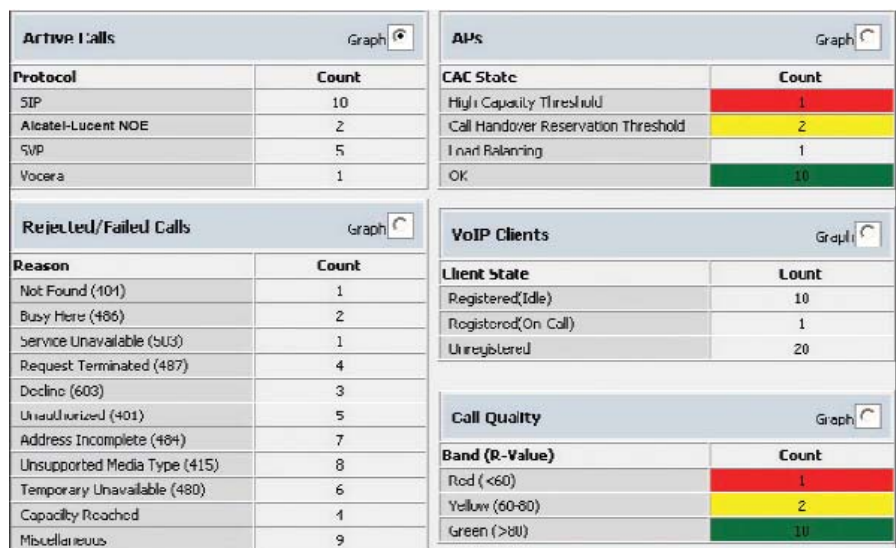
Dynamic WMM Queue Management

Voice and video applications need higher traffic priority relative to other traffic types to support strict latency and throughput requirements.

The Wi-Fi Alliance defined the Wi-Fi Multimedia (WMM) certification in response to industry requirements for Quality of Service (QoS) support for multimedia applications for wireless networks.

Dynamic WMM Queue Management provides the ability to customize WMM queue profiles for different QoS levels. A user can specify how different traffic types should be prioritized as well as fine tune how AP and station parameters will affect traffic between the client and AP.

Figure 1: Call Statistics



Voice Call Admission Control

Voice Call Admission Control uses the OmniAccess Wireless switch's voice-aware infrastructure to prevent any single AP from becoming congested with voice calls. This is accomplished by limiting the number of active voice calls allowed on a radio or by setting bandwidth thresholds. The system monitors the number of active voice calls or bandwidth utilization, and if the defined threshold is reached, any new calls are load-balanced or disconnected. With SIP voice over Wi-Fi clients, The AP also sends a "service unavailable" message.

Voice awareness also improves voice quality and reliability by optimizing other functions in the network that may adversely affect call quality. For networks using the OmniAccess Wireless Adaptive Radio Management (ARM) feature, the Voice Services Module ensures that dynamic power and channel optimization activities are limited when voice calls are active on a radio. Authentication

activities can be optimized as well by minimizing authentication transactions that can affect call quality. With the OmniAccess Wireless solution, 802.1x is voice aware, so that when a client is on a call, 802.1x reauthentication and rekeying are disabled until the call is completed.

Enforcement of Quality of Service Settings

A well-known weakness of WMM is that it will allow any client to request and use any priority level for any type of traffic. Because the standard lacks a method of enforcement, a badly-behaved client can break established QoS policies by sending lower priority traffic (such as data file transfers) at higher priority (such as that reserved for voice).

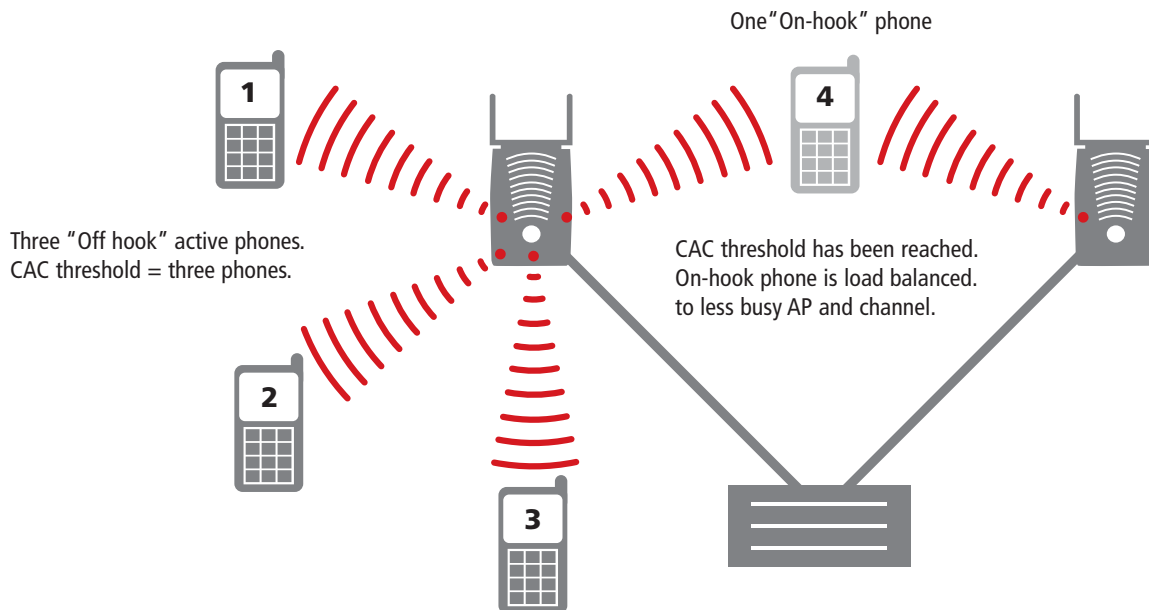
WMM Voice Queue Content Enforcement utilizes the OmniAccess Wireless switch integrated application-aware firewall to ensure that the correct priority level maps to the correct associated protocol – for instance, that voice priority is always

assigned to voice traffic. If traffic to or from the user is inconsistent with the associated QoS setting for voice, the traffic is reclassified to a lower priority and data path counters incremented.

Automatic Voice Prioritization

Automatic Voice Prioritization will maintain traffic prioritization policies automatically, even when the client or application does not support WMM. The OmniAccess Wireless solution identifies voice protocols such as Alcatel-Lucent NOE, SIP, SVP, SCCP, and Vocera and automatically places this traffic in a high-priority queue. Often there are clients that are not WMM aware and send both voice and data using the same SSID. This is true of many converged devices such as the RIM Blackberry or PCs that use softphones.

Figure 2: Voice Call Admission Control



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