

AeroGuard™ MIMO High Performance Wireless Mesh Solution for Large Hospital in Los Angeles County.

Reliable mobility an essential requirement for multiple user types over one WLAN infrastructure

Application Scenario:

In the county of Los Angeles, a leading Hospital is deploying one of the most advanced wireless infrastructures of any comparable medical facility in the United States. The large health care facility admits several hundred new patients each day. With over 300 beds and many more to be added soon, the Hospital needed a scalable wireless infrastructure in order to serve the rapidly growing communications needs of health care staff and patients.

The hospital's demanding healthcare information system, provides everything from departmental solutions to corporate e-mail and calendar management. Serving potentially hundreds of simultaneous users, the addition of a high performance wireless infrastructure is at the top of its IT department's priority. The need results directly from the proliferation of efficient wireless devices such as PDAs, Wi Fi Phones, Lap Tops and Tablet PCs. This dictates that the wired Ethernet cabling infrastructure be supplemented with a reliable, secure and high performance wireless Mesh type infrastructure.



Figure 1: All Wireless Solution for a Hospital in the LA County

Desired Outcome:

One of the primary goal the hospital's IT technology management team was to set up a wireless computing environment that would allow students and medical staff to easily access essential patient data anywhere, anytime, enhancing patient care, saving valuable time and cutting health care costs. Needless to say that such wireless environment had to be as **secure** and worry free as is normally only available through their wired local area network, but **without restricting roaming.**

It was quickly determined that, given limited wired infrastructure to begin with and the need for a fast and cost effective solution, a traditional wireless solution requiring hundreds of access points was not an option. They would need to **minimize the number of access points**, provide adequate system capacity, and include a wireless Mesh architecture that eliminated the requirement of CAT-5 cable connections. The solution had to be **manageable from one central location, including the data security and user authentication.**

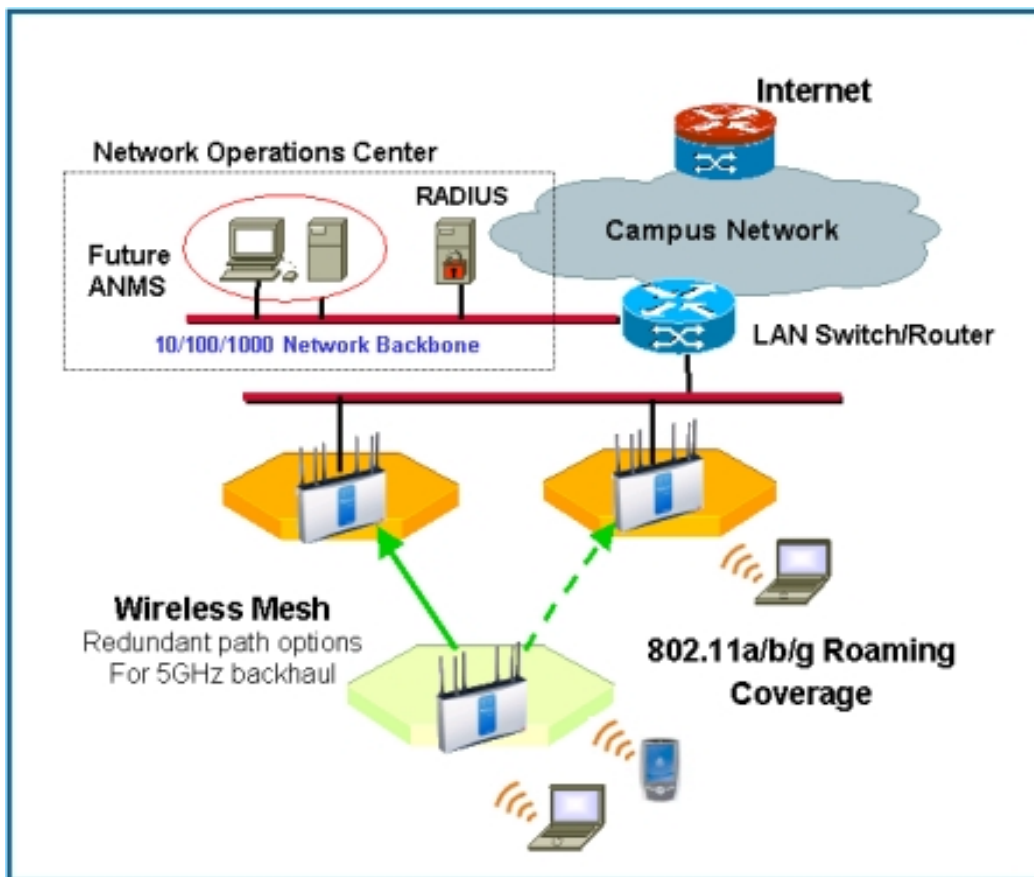


Figure 2: AeroGuard™ MIMO Managed Wireless Network

An additional objective included having adequate bandwidth to support VoIP and Video access over the wireless throughout the facility. At the core was the desire to completely eliminate patient medication errors. The Hospital deployed a system to take orders from the hospital information system, keep them ready for pick-up by care providers, eliminating chances of medication error, all through a compatible wireless network.

SOHware's high performance AeroGuard MIMO wireless Mesh fully managed solution was proposed.

AeroGuard™ MIMO All Wireless Solution:

The hospital had already installed a limited deployment of Cisco products, and continuing to use them would have been a low risk option. However, the decision was based on prudent investigation into a solution that provided better performance, greater bandwidth, increased range and coverage, and the ability to expand the network without the need for physical Ethernet cables.

A fully managed AeroGuard™ MIMO Mesh Wireless solution, shown in Figure 2, provided MIMO Access Points with dual radios that are fully compatible with conventional Wi-Fi APs and clients devices already in use. With better than **250 feet** coverage and ability to support **50 users per AP**, the solution required far fewer access points compared with a traditional solution. The AeroGuard NMS Appliance at the IT operations center provided remote configuration, fault, advanced radio frequency management, and software download capability.

Since there are **two radios in each access point**, it was possible to assign one of the radios to use an 802.11a channel frequency to **automatically form a wireless Mesh** that acts as a backhaul to the wired network. This was particularly valuable in locations where access to Ethernet cable was limited.

The access points working at 108 Mbps offered enough bandwidth for a variety of the clients and applications. Although the maximum performance is available for MIMO compliant client devices, any Wi-Fi enabled handheld devices such as laptops and personal digital assistants were fully supported and continued to receive the maximum capacity of either 54Mbps 802.11g or 11Mbps 802.11b compliance assuring the optimal system performance as supported by the client device. It was reassuring to the hospital's technology management that the solution was fully capable of serving future client devices, even those requiring an 802.11a network.

Among a host of security options available in the solution, 802.11i **AES encryption** makes the wireless environment extremely secure. The solution is **fully compatible with user authentication solutions** using industry standard AAA RADIUS server. Even patients and their visitors can be permitted open access to the Internet through the same wireless system without risking security for the rest of the network.

On the patient / guest virtual network, AeroGuard ensures layer-2 privacy between clients to assure confidentiality and privacy and at the same time enables seamless roaming for all users from floor to floor and from building to building.

The conference rooms and lecture halls were given their own secure access. No on-duty personnel were required in setting up the user's computers and the system was reliable and managed from one central location. Features include:

- Multiple user group support on a single WLAN, with unique security policies for staff and guests.
- Full compliance with 802.11i security standard including EAP, PEAP, TKIP, AES and others.
- L2 Client Privacy for privacy between guest users.
- Secure enrollment & deployment of AP
- Simultaneous wireless Mesh and access point coverage
- Remote software download and upgrades
- 802.1x: Internal/External authentication
- Rogue AP detection
- Centralized policy control for security and QoS
- Real-time alarms and traps
- Extensive Radio resource management
- Supports 16 SSID & 16 VLAN for multiple workgroups
- QoS controls (802.11e) to support Voice over IP and Wi Fi

The solution is IEEE 802.11 standards compliant and utilizes DSSS or OFDM technologies operating in the 2.4 GHz and 5GHz unlicensed FCC approved bands. SOHware AeroGuard™ MIMO access points provide up to 108 Mbps data rates with MIMO CardBus adapters and yet are fully backward compliant with all other Wi-Fi clients. SOHware understands the need to protect patient records and hence no effort is saved in providing the best security solution.