

Cisco Aironet Wireless Provides Mobility for Orange County Employees



Government offices in Orange County, Florida, are gradually going wireless. Using Cisco Aironet® 350 Series access points and PC client adapters, wireless networks were set up late in 2000 in two principal administrative buildings in Orlando: the Internal Operations Center (IOC) and the Orange County Board of County Commissioners Administration Building.

Sixteen access points were sufficient for the four-story IOC and 20 for the five-story Administration Building. Orange County information-technology specialists handled the installation after a site survey to determine optimal positioning points.

The Cisco Aironet 350 Series is also being used for a wireless network in the Orange County Historical Building. Ten access points were needed to ensure full coverage in this sprawling six-story structure.

Benefits of Inline Power

Cisco Aironet 350 Series access points are IEEE 802.11b-compliant and Wi-Fi-certified by the Wireless Ethernet Compatibility Alliance (WECA) for interoperability. One of the benefits of the Cisco 350 Series access points are that they can be powered remotely across the same cables used

for Ethernet. The power can be provided by a Cisco-powered switch, a powered patch panel or a small inline device called a power injector. The ability to remotely power the access points means that only one Category 5 copper cable needs to be run to the Cisco Aironet 350 Series access points.

“The new Cisco Aironet 350 Series access points are ideal for old facilities like the Administration Building and the Historical Building, which was originally an 1850s courthouse, because you get your electricity right through the Ethernet wire. In both places, it’s difficult to install electrical outlets every place we would want them,” said Frank Hughes, network architect for Orange County Information Systems. “We used the Cisco 3520 switches for voltage to front-end our existing Cisco 5000s, giving us an Ethernet solution in one package.”

This was a significant money-saver for the county. “It eliminated the need for electrical cable, which was extremely beneficial because it would’ve been prohibitively expensive to put enough electrical outlets in the old buildings to support a full Ethernet system. For convenience and for cost, the 350 Series inline power switch really met all our needs,” Hughes said.

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Each building has its own wireless network, which users access via laptops configured with Cisco Aironet 350 Series client adapter cards. Like the Cisco Aironet 350 Series access points, the client adapter cards are IEEE 802.11b-compliant and Wi-Fi certified.

Connected on Every Floor

About 40 laptops are in each of the two administrative buildings, where the primary users are county commissioners, department directors and managers. “Our primary reason for putting wireless here was to assist people who spend lots of their day in meetings. They carry laptops, go from floor to floor, from conference room to conference room, and don’t want to have to be constantly forced to log out and lose contact with the Ethernet network. That’s why we use Cisco Ethernet switches and set up virtual local-area networks (VLANs). Normally with a VLAN, every floor gets a separate network, but we created one that goes vertically through the building instead of horizontally, so the wireless goes to all the floors,” Hughes said. “It’s working really well.”

Curators are the principal wireless users in the Historical Building. They regularly carry wireless-equipped laptops as they walk among the exhibits, either conducting tours or examining the displays. Twenty laptops are wireless-enabled in the Historical Building.

Though each building is on its own separate network, a county employee with a laptop configured for one building can access the network in each of the others simply by rebooting, Hughes said. “That’s because we use the Dynamic Host Configuration Protocol (DHCP) of Cisco Network Registrar® (CNR), which automatically tells the PC all it needs to know about the network in the different building. We have the laptops configured for the specifics of our own internal networks in all three buildings. We wanted to make this a flexible way to access the network.”

Orange County is also taking advantage of the security features of the Cisco Aironet 350 Series and has implemented both the 128-bit Wired Equivalent Privacy (WEP) and the service set identifier (SSID).

“For additional security, and at Cisco’s suggestion, in the next budget we will install a virtual-private network (VPN) concentrator on each wireless VLAN in each building. We will implement DES (data encryption standard) on all clients at that time, which will make it very difficult for unauthorized persons to access the government network by hacking the WEP key and SSID. Even if WEP and SSID are compromised, DES encryption is very difficult to decrypt,” Hughes said.

Expansion Plans

More Orange County buildings will become wireless as funds become available. Already on the agenda is the Orange County Convention Center, one of the largest in North America. The county has also budgeted wireless systems for a number of sheriff’s department facilities. Among them is a building, now under construction, that will house 700 workers. Another is a remote training facility.

The county’s Emergency Operations Center, staffed by Fire Department and 911 workers, is expected to go wireless during the next budget cycle.

“And we’ll put wireless in any other location that can benefit from mobility,” said Hughes. “I expect this will include the Public Works and the Public Utilities departments. We’re just waiting for the county to give us the order.”

The selection of Cisco Aironet for its wireless networks stemmed partly from a history of positive experiences with Cisco Systems products. The entire government network, including Asynchronous Transfer Mode (ATM), routers, and switches, is Cisco technology.

“In addition, I had seen some trade magazine tests of the different wireless technology, and Aironet kept winning all the tests. We also purchased a couple of Aironet products and benchmarked them against some competitors, and Aironet proved the magazines right,” Hughes said. “Then, when Cisco acquired Aironet, it made it easy for us to integrate this technology into our existing Cisco network. A classic no-brainer.”



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