International Airport
Network Closet Case Study

This international airport is one of the world's busiest passenger airports, averaging more than 200,000 passengers each day. At more than 2 million square feet, its passenger terminal complex contains more than 145 domestic and 25 international gates.

Background

To meet the growing demands of the increasing number of travelers, this international airport embarked on a significant development program to modernize and expand its current facilities and support systems. This included the development of a wireless data network for travelers who demand that the facility provide reliable, high-quality wireless connectivity.

Case Summary

Location: United States

Products/Services:
- Liebert IP Telephony Availability System
- Liebert GXT UPS System
- Liebert OpenComms Monitoring

Critical Needs: Create a power infrastructure to deliver high-availability power protection for the world's largest wireless hotspot, and a voice and data wireless telecommunications access system for use by travelers, airlines and other private airport tenants.

Results

■ Removed power quality constraints to support current wireless needs and growth plans.

■ Overcame physical space and security limitations by using innovative, lockable wall-mount power cabinets in 37 existing, distributed and unsecured network access rooms.

■ Exceeded 99% system availability goal by establishing power infrastructure that provided 99.99% power availability for wireless system.

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The Situation

The airport built a wireless access system that supports Internet access and cellular phone service, making the airport one of the world's largest hotspots with 5.6 million square feet covered by wireless access. The size of the project was just one issue that needed to be addressed. The fact that the system was going to support one of the busiest passenger airports in the world also provided a number of challenges.

Overcoming Constraints to Growth

One of the main issues was the power quality inside the airport. The power quality in an airport of this size varies dramatically with lights, restaurants, shops, elevators, escalators and conveyor belts all placing demands on the power infrastructure.

To provide the desired wireless coverage, the project called for 37 network access rooms located throughout the airport, including five concourses and underground train tunnels. Because the rooms were so distributed, it was impossible to support them all with back-up generators. This meant it was even more important for each room to be supported by a UPS system that could fit within the small space and adequately override short-term power outages and protect the equipment.

These rooms would house both the wireless Internet and cellular phone networks. Most cellular carriers place cell towers just off airport property. The result is sporadic coverage and discouraged cell phone customers. The airport wanted 100 percent coverage. This required a Distributed Antenna System (DAS) with more than 500 antennas located in the ceilings of the airport. These would then be wired back to the various network closets.

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Physical security was another major issue to address because the airport did not have the ability to control access to the network rooms. Many of the rooms were shared with the various airlines and concourse concessionaires. Some of the rooms also contained security, telephone and power equipment.

When it came time to decide on the power solution, the airport understood that along with being flexible and reliable, the equipment needed to support the Cisco Catalyst 3650 switches that would be used. One name kept coming to the top of the list…Liebert solutions from Emerson Network Power.

The Solution

Tom Meyers, president of PM Technologies, a Liebert Network Solutions Partner, was called to help design and install the power infrastructure.

"Emerson Network Power was the logical choice for this project," says Meyers. "Along with being the global leader in enabling Business-Critical Continuity, it is also a Cisco Technology Developer Partner that works closely with Cisco to develop solutions to specifically support Cisco routers and switches."

PM Technologies examined the scope of the project and recommended the Liebert IP Telephony Availability System, which provides a complete power protection system housed in a lockable cabinet that can also house the Cisco switch.

The Liebert GXT UPS is the heart of the Liebert IP Telephony Availability System. Its true online design continually conditions power and isolates the Cisco switch from power surges or other damaging anomalies. It provides the highest level of power conditioning, eliminating the subtle disturbances that may cause data interruption or corruption, such as EMI/RFI noise, and harmonic and voltage oscillations caused by network equipment.

"The project called for 155 Cisco access points with 37 network rooms, each of which would house a 24-inch or 48-inch rack containing the Cisco switch, cellular phone equipment and either a 1,000 VA or 2,000 VA Liebert GXT UPS system," says Meyers. "The racks feature lockable side and front access panels, which ensure that only proper personnel and technicians have access to the equipment."

The wall-mounted racks provided the flexibility needed to be able to install equipment in rooms that were already full of equipment and contained little space for new equipment. Two different sized cabinets were needed because some of the rooms contained only Wi-Fi equipment, while others contained Wi-Fi and cellular equipment.

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Located within each rack, along with the wireless equipment and the UPS, is a Liebert OpenComms multi-function network interface card for remote monitoring through SNMP and remote restart. This allows the UPS systems to be managed across the network.

Monitoring capabilities were a key component of the project, especially because of the amount of space and the number of network rooms. Normally, it would take a technician five to six hours to manually inspect all 37 locations; however, now that the airport's IT staff receives alarms whenever there is a potential power situation, they can solve the issue before it becomes a problem.

The Results

The airport now has a flexible and reliable power infrastructure that enables it to meet current wireless application needs and plan for future subscriber capacity requirements. It currently boasts 100 percent wireless access coverage. This even includes the train tunnels, which are located 40 feet underground.

The Liebert equipment enabled the airport to achieve "four nines" power availability of the wireless telecommunications system, which exceeded the goal of "two nines."

"The peace of mind that comes with using a certified Cisco compatible solution, such as the Liebert IP Telephony Availability System, was extremely important to the customer," Meyers says.

For more information on Liebert technology, visit **www.Liebert.com.**

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