

Case Study:

Hartsfield-Jackson Atlanta International Airport



Hartsfield-Jackson Atlanta International Airport (HAIA) is the world’s busiest passenger airport, serving more than 83 million passengers per year. As part of its mission “to be the world’s best airport by exceeding customer expectations,” HAIA has continually enhanced its 5.8 million square-foot facility. Part of that effort involves ensuring clear, reliable communications services for passengers and airport personnel to ensure a safe and productive environment.

The Upgrade Plan

In 2000, HAIA management determined that the existing network and telecommunications infrastructure was inadequate to support the airport’s long term vision. “When we looked at our current infrastructure and considered our customer needs and where we wanted to go with services, we found that there were major gaps,” says Lance Lyttle, HAIA’s chief information officer. “The airport did not have an airport wide, centrally managed, infrastructure with the required technology and bandwidth to support future required applications.”

In addition, cellular telephone and public safety wireless coverage was spotty, with dead spots and poor reception plaguing certain parts of the facility. Although some cellular carriers had deployed their own, in-building wireless distribution systems to boost their signals, other carriers relied on nearby outdoor cell towers.

As a result of the analysis, the airport embarked on a three phase, four-year, \$11 million telecommunications infrastructure upgrade program that would bring state-of-the-art voice, video, and data communications to every part of the airport for passengers, employees, and tenants. The program rolled out in three phases, the first two of which involved building new telecommunications rooms, raceways, conduits, and cable trays and then installing a centralized, OC-192 fiber-based backbone for all voice, video and data traffic.

In the third phase, HAIA built value-added services, including Wi-Fi access and pervasive cellular and public safety wireless coverage.

Cellular Coverage Requirements

Some public facilities rely solely on wireless service carriers to deploy and manage in-building systems. However, as part of its wireless neutral-host strategy, HAIA chose to build its own system. The objective is to ensure the highest quality service and coverage for both cellular and public safety systems, along with the ability to add new services as

they became available. Although several companies supply in-building wireless systems, HAIA's evaluation team worked directly with cellular carriers for over a year to select, design, and implement a system that would meet everyone's needs.

"We wanted a proven system that would support multiple providers – a system that had the carriers' confidence," says Lyttle. "We actually had weekly meetings with Cingular, Nextel, T-Mobile, metroPCS, Verizon and other carriers during our evaluation of technology options to make sure their requirements were met."

As with most in-building systems, the deployment included on-site base stations from cellular carriers. These base stations are located in the airport's new "telecommunications hotel," and the wireless signals would be propagated from them throughout the airport via a distributed antenna system (DAS). Given the size of the facility, the HAIA team wanted a DAS that could distribute wireless coverage evenly, without signal loss, regardless of the distance from the carrier base station. In addition, the team wanted a system that could easily support the airport's high customer volume and could be cost-effectively deployed and upgraded to support additional capacity and new wireless services.

The LGC Solution

The evaluation team eventually chose the InterReach® Unison system from LGC Wireless. As the world's leading provider of active in-building wireless systems, LGC Wireless is trusted by every major cellular provider.

The Unison system offered several performance advantages over other systems:

- **Deployment costs** – Unison is one of the few DAS systems that use cost-effective fiber and Cat-5 Ethernet cabling to distribute wireless signals from the carrier base stations. This would reduce deployment costs compared with other systems that relied on rigid coaxial cabling.
- **Uniform performance** – The Unison system offered guaranteed uniform delivery of wireless signals through every distributed antenna, no matter how far an antenna is from a carrier's base station. In contrast, the signal degrades with distance in coaxial-based systems using passive components.
- **Scalability** – The Unison system could scale indefinitely to handle new traffic levels without adding a lot of new equipment and cabling or re-engineering the antenna placements.
- **Service Expansion** – The Unison system can seamlessly accommodate new services such as EV-DO and HSDPA.

The Unison system uses a familiar hub-and-spoke architecture, much like that of an Ethernet LAN. At HAIA, the deployment involved eight separate Unison systems that included 36 Main Hubs, 96 Expansion Hubs, over 500 active Remote Access Units (RAUs), and more than 700 ceiling-mounted antennas.

Due to its size (one of the largest systems in the world) and a design change during deployment, installation and testing of the Unison system took about six months. It went live in mid-January 2006.

System Performance and Customer Satisfaction

The Unison system now delivers clear, high-quality voice and data services to every area of the airport, including ticket lobbies, baggage handling areas, gates, and throughout the underground passenger transportation system. It currently handles traffic for all wireless subscribers as well as the airport's public safety workforce.

With a current capacity of nearly 70,000 calls per hour, HAIA's travelers can use their time more productively for untethered voice and data calling. Already, Verizon has deployed its new 3G mobile data service (using EV-DO) for users of its wireless laptop cards, who are enjoying connection speeds of up to 900 Kbps. The other carriers are planning high-speed data service upgrades as well. The new system has also eliminated coverage gaps for security personnel, ensuring continuous contact in elevators, stairwells, or anywhere else in the facility.

Throughout the process, LGC Wireless lived up to its worldwide reputation for service. "LGC has been tremendous," says Lyttle. "With everyone - the technical individuals and the sales and marketing folks, the experience has been very good."

Now at the completion of its telecommunications upgrade program, HAIA boasts a cellular wireless infrastructure with service and coverage second to none – an asset that's only fitting for the world's largest passenger airport. Thanks to ongoing improvements and premium technology partners like LGC Wireless, Hartsfield-Jackson Atlanta International Airport is poised to continue its industry leadership.