CASE STUDY

Powerwave
Coverage Solutions

Seattle-Tacoma International Airport

Powerwave "Goes the Distance" with a State-of-the-Art, Multi-Technology Indoor DAS at Seattle-Tacoma International Airport

In 2003, Powerwave Technologies, a leading supplier of end-to-end wireless infrastructure solutions, was subcontracted to install a comprehensive indoor distributed antenna system (DAS) at Sea-Tac International Airport. Designed to provide seamless access to wireless voice and data services from a number of wireless carriers serving the airport, the indoor DAS will benefit more than 29 million airport travelers who pass through the airport each year. Among the key objectives in establishing an indoor DAS at Sea-Tac were to:

- Create a common, non-discriminatory, comprehensive communications access system that leverages state-of-the-art technology to provide airport operations, airline operations, tenant and concessionaire operations and passengers with reliable, seamless wireless communication coverage throughout the entire airport premises.
- Provide equal access for all wireless service providers serving the area.
- Develop a system that leverages the Port of Seattle's newly constructed Communication Infrastructure Backbone System (CIBS) to improve the passenger and tenant experience at the Airport, and operates within the current architectural/space planning and financial parameters established by the Port.
- Maximize revenue to the Port from emerging wireless technologies.
- Accommodate current technology and capacity requirements with the ability to add capacity and support for emerging technologies as the need arises.
- Provide an efficient administrative reporting interface to the airport.

A Smooth Take-Off

Powerwave Technologies offers one of most extensive lines of antennas in the world, covering cellular, PCS and Wi-Fi frequency bands. The company also boasts an impressive amount of engineering expertise gained from delivery of more than one million antenna systems and a proven track record for developing and implementing a variety of in-building solutions that provide high-quality coverage in some of the world's most densely populated areas.

Powerwave® technologies

Powerwave quickly went to work in August 2003, designing the indoor DAS for Sea-Tac International Airport that would meet the requirements of the Port of Seattle, as well as the needs of the individual wireless carriers serving the airport.

Attractive, Yet Cost-Effective

Among the major challenges faced by Powerwave during the development and implementation of the indoor DAS at Sea-Tac was to find a design that leveraged the Port's newly constructed Communications Infrastructure Backbone System (CIBS), and offered the flexibility required to meet a variety of construction standards used throughout the airport, and adhered to the airport's strict architectural guidelines. Furthermore, because some areas of the airport were under construction during the project, expert coordination was required among all parties involved to ensure that everyone was kept in the loop regarding the installation. Planning and installation of Powerwave Technologies' indoor DAS at Sea-Tac was completed in less than 16 months.

The end result was a single DAS comprised of a series of antennas, measuring only 8 by 8 inches each, with hubs discretely located throughout the airport communications closets. The system's other components, which reside outside of public view, incorporate a fiber optic conversion module located within the centralized Base Station Hotel. Using a common fiber-optic and coaxial backbone among the operators, the system also provides a substantial cost savings over other competing solutions due to fewer initial infrastructure requirements and maintenance routines, shorter installation times, and smoother technology upgrades.

Widespread Coverage, Seamless Connectivity

The indoor DAS that Powerwave designed and implemented at Sea-Tac provides seamless wireless phone and data service throughout the airport and up to a radius of 250 feet around the airport. It supports all major wireless carriers serving the area and technologies including cellular and PCS. Carrier-dedicated equipment installed on the premises enables carriers using the system to be completely independent of one another. In addition, Powerwave's distributed antenna system also supports Wi-Fi technology by enabling transmission of the Wi-Fi signal through its coaxial backbone and service antennas.

"Our multi-technology platform combines the flexibility of a common fiber optic network with the power of a robust RF antenna system, enabling carriers to offer high-quality wireless access services on and around the airport premises," said Ronald J. Buschur, president and chief executive officer, Powerwave Technologies. "Wireless users can now experience seamless connectivity without experiencing overloads due to high call volumes during peak network load times, or poor signal quality that often occurs in baggage claim areas, restrooms and other areas throughout the facility."

Conclusion

In December 2004, Powerwave completed build-out of the indoor DAS at Sea-Tac. The flexibility and scalability of the indoor DAS can accommodate current technological and capacity requirements as well as those of emerging technologies and future standards through the addition of new repeaters/amplifiers as needed. Future possibilities are endless, with an increasing number of wireless enterprise applications in development. It is envisioned that in the future the system may be used to support airport operations such as traffic management, gate control and baggage handling.

Powerwave is responsible for the operation and maintenance of the distributed antenna system at Sea-Tac until December 2006. The recently completed Powerwave Technologies National Operations Center (NOC) in Fort Worth provides day-to-day operational support, performing ongoing optimization, maintenance and repair of critical network elements including the antennas and base station equipment. This service is supplemented with ongoing training provided to Sea-Tac's internal network operations and support staff. Sea-Tac is the eighth international airport to deploy Powerwave Technologies' distributed antenna systems. Other locations include Brussels Airport in Belgium; Vancouver Airport in Vancouver, Canada; Tulsa International Airport in Tulsa, Okla.; Norfolk Airport in Norfolk, Virginia; Munich Airport in Munich, Germany; Toronto Airport in Toronto, Canada; and Schiphol Airport in Amsterdam, The Netherlands.

About Powerwave Technologies

A global leader in end-to-end wireless coverage and capacity solutions, Powerwave Technologies, Inc. offers cutting edge wireless infrastructure to address the demands of enterprise and commercial customers. Powerwave offers a comprehensive suite of solutions, including Antennas, Base Station Solutions and Coverage Solutions. Powerwave's product line supports all wireless network protocols and frequencies including Next Generation Networks in 4G technology such as WiMAX™ and LTE®. Powerwave solutions, products and services also help wireless operators and OEMs reduce capital and operating expenses, speed rollout of services, improve coverage and capacity, and reduce environmental impact. For more information, visit us at www.powerwave.com.

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