

America Online

COVERAGE
SYSTEMS

Powerwave deploys North America's first Indoor Multi-Carrier Wireless Network

Neutral Host
Wireless Network

Frequency Range: 800 MHz-1.9 GHz
Coverage Reliability: 100%

Coverage Area: 1 million sq. ft.
Venue Type: Enterprise Campus

Challenge

Provide access to 15 separate wireless services within 7 separate buildings.

Solution

Powerwave's LinkNet Platform, a flexible and scalable solution that can simultaneously manage multiple wireless services over a single distributed antenna system.

Result

Employees and guests "on-the-go" can now use their assorted wireless devices from 'Anywhere' on the premises.

The Customer Back in 1985 when America Online (AOL for short) was founded, there were less than 10,000 Internet subscribers worldwide and the services that this pioneering ISP had to offer were extremely limited and rudimentary by current standards. Today, the company boasts more than 29 million subscribers around the globe and is the self-proclaimed world leader in interactive services, Web brands, Internet technologies and e-commerce services. As consumers become increasingly dependent on online services, they are demanding alternative new ways to access them in addition to their desktop PCs. To meet their demands, AOL has launched their 'Anywhere' initiative to provide subscribers with a new level of service and bring the medium to its next stage of development. For example, AOL subscribers can now access their e-mail, instant messages, news headlines, stock portfolios, and other key features not only on their PCs, but also through their TVs, over any telephone or by using a broad range of wireless devices.

The Challenge Located in Dulles, Virginia, AOL's national headquarters is a massive complex covering 1 million square feet and occupying 7 separate campus buildings. Given the nature of the industry that they dominate as well as the direction that the company is headed in, it's no surprise that their 3,225 employees rely heavily on wireless devices to perform their jobs. In total, they subscribe to 11 different wireless service providers for access to 15 separate wireless services. The unfortunate irony is that clear, strong, reliable wireless signals generally eluded them within their state-of-the-art

facilities. Coverage was extremely spotty throughout and important calls and pages were frequently dropped or lost altogether. This in turn led to serious delays when conducting critical business and created great frustration for employees who would have to step outside to resume communications. While the materials used to construct the AOL campus buildings were the main culprits, their surroundings also contributed to the problem. Concrete, steel and brick as well as special architectural details such as metallic glass panels can all be extremely hostile to RF signals. And when too many high-rise structures made of such materials are built too closely together, signal transmissions can be blocked altogether. For AOL, this situation had a profoundly negative impact on productivity and became a major concern for top executives.

The Wireless Service Provider While resolving their coverage problem efficiently and cost-effectively was the top priority, AOL also wanted to ensure that their employees would be able to continue to use the wireless service providers of their choice. These included Sprint PCS, PageNet, SkyTel, AT&T Wireless, Nextel, WebLink, MetroCall, Cingular, Arch, Verizon and T-Mobile. In essence, what they were seeking was a single source solution that would allow them to converge all of their carrier signals. Acutely aware that this was a daunting challenge, they consulted with each of the wireless service providers as well as various vendors specializing in wireless technology solutions. While all of the wireless service providers were eager to help, each was only able to

LinkNet™



Powerwave Technology

Powerwave's LinkNet Platform is the most flexible and scalable solution on the market today, and the only one that can simultaneously manage traditional cellular and paging services, as well as private wireless and public safety frequencies under a single antenna distribution network.

Key Advantages

- **Low infrastructure costs** by converge all commercial, private and public safety wireless frequencies under a single antenna distribution network
- **An effectively maintenance-free common DAS** by using passive multi-service components
- **Future-proof system** through modular design that enables amplification modules to be easily added to keep pace with future enhancements or a change in user demand with minimal effort and expense
- **High system availability** through the use of passive DAS components and hot-swappable amplification modules that enable replacements to be made easily and while the network is live
- **Reliable and clear wireless communications** offered through your choice of broadband or channelized service modules that can be configured to allow a 25 kHz up to 15 kHz channel spacing

design a solution to support their individual frequency(s) and service offering(s) – an expensive and complicated proposition. And from the various wireless technology vendors, AOL received various disheartening responses. Only Powerwave Technologies had the capability to fulfill AOL's unique request and at the same time, manage all of the complex technical demands and business relationships with the various wireless service providers.

The Solution It was only fitting that AOL, with their forward thinking 'Anywhere' initiative, should select Powerwave, the leading provider of 'Inside' wireless coverage, to deploy North America's first in-building multi-service wireless network. The first phase of the process involved a thorough on-site survey by Powerwave's highly experienced team of engineers in order to assess the campus layout and pinpoint all of the obstacles that needed to be outsmarted. During the second phase of the process, the Powerwave engineering team set about designing the optimum solution for extending wireless coverage to those "impossible" spaces inside the various buildings where it typically failed. What they ultimately recommended was the installation of Powerwave's patented LinkNet™ Convergence Platform, the most flexible and scalable solution on the market today and the only one that can simultaneously manage various frequencies and service offerings including Paging, Cellular, PCS, iDEN,® Trunking, UHF, VHF and 3G. Then, to ensure that the signals were evenly distributed throughout the campus buildings, a complete LinkNet distributed antenna system was recommended using a hybrid of technologies that included fiber optic and coaxial cables, RF-to-optical signal converters, and

Powerwave's own patented Tap-In™ signal taps. Each building on campus was linked via fiber optic cable to ensure the entire campus was wired. Upon approval, the third and final phase of the process took place, which involved the rapid implementation of the LinkNet solution with minimal disruption to workplace activities.

The Results Because Powerwave was able to provide a single turn-key solution for extending coverage of all wireless service providers throughout the AOL campus and handled all aspects of its execution – including design, manufacture and installation – the job was completed efficiently and cost-effectively. As a result, employees and guests "on-the-go" can now confidently use their assorted wireless devices from 'Anywhere' on the premises. What's more, the success of this installation has prompted AOL to consider extending the same solution to their other North American campuses.

For more about America Online, visit <www.corp.aol.com>.

"The driving force behind AOL's success is our 'Anywhere' philosophy – we believe that information should not be limited by any boundaries. But we knew the challenges of providing indoor wireless access were enormous, from a technical and business perspective. Only Powerwave was able to meet our unique requirements, enabling AOL to have what is likely the world's first multi-service wireless network. We're very impressed with the reliability and freedom that the system delivers."

**Tonia Wells, Telecom Project Manager
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