Case Study: Grand Wayne Convention Center

Enterprise Wireless LAN Powered by Samsung Delivers Seamless Wi-Fi to Conference Attendees

Customer Need
The Grand Wayne Convention Center (GWCC) had an existing wireless network with basic service, but it needed a better network and Wi-Fi infrastructure to support larger events with more connected users. The new solution needed to provide seamless coverage in large, open areas such as the convention hall and pre-function common areas, as well as in smaller meeting rooms.

Samsung Solution
Samsung partnered with Applied Technology Group (ATG), an Indiana-based company that implements enterprise technology solutions, to overhaul GWCC’s wireless network. The new solution includes a custom-designed Wi-Fi infrastructure that meets the convention center’s unique requirements and expectations for future growth.

Results
Samsung and ATG implemented the new solution in less than three weeks. Since then, GWCC has hosted several large events with thousands of Wi-Fi users and live video streaming, without any problems or customer complaints. Upkeep on the new system requires minimal effort from the client’s IT department, and GWCC hasn’t experienced any issues or needed to place a single support call.
Located in Fort Wayne — Indiana’s second largest city — the Grand Wayne Convention Center (GWCC) is one of the most popular meeting facilities in the Midwest. The 225,000 square-foot building hosts 220,000 guests each year for more than 300 events and 50 conventions.

GWCC features stunning architecture, state-of-the-art meeting technology and 18 meeting rooms, ranging from 600 to 50,000 square feet. Meeting spaces include a convention and exhibition hall, ballrooms, smaller meeting rooms, gallery spaces and more than 30,000 square feet of pre-function and public areas.

GWCC is a nonprofit entity, owned and operated by the Allen County Fort Wayne Convention and Tourism Authority.

In today’s hyperconnected business landscape, users expect uninterrupted Wi-Fi connectivity. Proactive enterprises are already upgrading their wireless networks for a seamless experience anywhere, anytime. This is particularly critical for businesses like the Grand Wayne Convention Center (GWCC), which hosts a large number of users at one time.

GWCC’s existing wireless network couldn’t keep up with the increased demand for wireless connectivity. At 30 or more devices, the network became sluggish and unusable, requiring manual setup of local access points just to support events.

Besides being unproductive, it also impacted customer satisfaction. “The majority of our biggest conventions are repeat customers, going back nearly 30 years,” says Rick Browning, technical director for GWCC. “With clients not being happy about our wireless limitations, we knew many of them wouldn’t come back unless we did something about it.”

To keep customers happy and attract additional large events, GWCC needed a new network. Browning knew an off-the-shelf solution wouldn’t work well as the building’s unique floor plan created several Wi-Fi challenges. Supporting high densities of users meant installing multiple access points in large open spaces, some of which have 30-foot-high ceilings. This created the potential for co-channel interference, which occurs when multiple access points using the same radio frequency are within a device’s line of sight. GWCC also wanted to ensure the building’s beautiful wood surfaces wouldn’t be damaged by mounting devices.

After considering several proposals, GWCC chose Samsung WLAN devices, which would be implemented by Applied Technology Group (ATG). “We looked at several options,” says Browning. “Samsung offered the most for the money and presented the most thought-out design, which I felt confident would meet our needs.”

The Customer Need: Unique Space, Unique Challenges
The Samsung Solution: A Custom-Designed Wireless Network Solution

Samsung wireless networks are built on the same technologies employed in LTE cellular network solutions, of which it is a leading global manufacturer. For GWCC, Samsung and ATG designed a customized infrastructure that would meet the company’s specific requirements and expectations for future growth.

The new network infrastructure includes a large controller that supports as many as 20,000 users and more than 40 access points throughout the building. To avoid problems with co-channel interference, ATG installed specialized patch antennas in open areas with high client density and high ceilings. These antennas focus the coverage patterns from each access point and reduce signal overlap.

The Samsung access point devices also leverage Samsung Air Equalizer technology, which guarantees airtime fairness to all devices in crowded places and provides a 30 percent higher throughput than access points from other manufacturers. While many access points slow down to the speed of the slowest performing connected device, Air Equalizer enables the network to communicate with slower and faster devices separately, ensuring the highest speed possible for each device. When multiple devices are connected to an access point, there will likely be a mix of newer and older devices that operate at different speeds. Every device has an equal amount of time to communicate with the access point at its intended speed. In addition, the solution that Samsung provided features a self-organizing network (SON), which continually adjusts power and channels for optimal settings that result in better performance. SON also reduces IT’s burden of having to continually make network adjustments.

Mark Gilpin, partner at ATG, explains that he was most impressed by Samsung’s network design expertise and the flexibility of the solution. “Samsung’s flexibility enabled us to meet the specific requirements of a facility such as the Grand Wayne, which was not a normal wireless access situation,” says Gilpin. “For most office buildings, you simply take the square footage and come up with a number of wireless access points. Then you just have to install it. But Grand Wayne might have a group of 5,000 people who are all directed to a specific website at the same time. With the Samsung solution, we were able to put in a system that works for that need.”

Craig Stace, also a partner at ATG, says, “I was very impressed with Samsung’s willingness to come on-site and help us ensure Grand Wayne had the exact solution they needed. The implementation went very smoothly, and we haven’t gotten a single support call from the customer.”

Quick Profile:

WEC 8500 WLAN Controller

- Enterprise WLAN controller optimized for large-scale organizations
- Accommodates up to 3,000 APs (1,000 APs in single configuration mode)
- Self-optimized to suit other APs, users and the environment
- Improved continuous coverage, less interference
- Provides higher efficiency and a better user experience

WEA303e Access Points

- 802.11n with three spatial streams
- External type, delivers data rate of up to 450 Mbps
- Built-in security monitoring module (WIPS)
- Samsung’s AirEqualizer ensures optimized Wi-Fi services by allocating equal airtime to multiple devices
- Self-organizing network (SON) technology allows high level of quality management and reduces design cost

WEA412i Access Points

- 802.11ac with two spatial streams
- Delivers data rate of up to 867 Mbps
- Samsung’s AirMove technology ensures seamless handover among APs
- Self-organizing network (SON) allows high level of quality management and reduces design cost
The Results:
A Satisfied Customer with Satisfied Convention Guests

Not only did GWCC need a new solution, it needed it installed quickly. Two weeks after the implementation began, Fort Wayne’s mayor would be giving his State of the City address at GWCC, and a local television station planned to live stream the event.

“I knew this time frame was asking a lot,” says Browning. “I had already decided that if it wasn’t going to happen in time, my team would just have to set up local area networks like we had been doing for large events. But Samsung and ATG got together and got it all working. When the event started, I dialed up the live stream and walked the entire building, and I didn’t see one dropout. I knew then that it was going to work great.”

One of the largest events GWCC has hosted since the implementation — the Willow Creek Global Leadership Conference — had more than 1,200 attendees with 700 devices connected at the same time. “We got no complaints,” says Browning. “In fact, we got some pretty nice Twitter comments about the great free Wi-Fi we offer.”

Browning noted that keeping the Samsung solution up and running required very little effort from his team, and so far there haven’t been any interruptions with the technology. If an access point goes down, he gets an alert via email and can take care of it immediately.

“In the past, it was always a concern each morning about whether the convention that day would complain about the wireless network and we would have to do a portable system for free, or whether staff would have trouble connecting,” says Browning. “Now I don’t even think about it. I know it’s going to work, and the antenna placement enables us to keep all of our wireless energy inside the building. Even if we have 4,000 people in the convention hall, I am convinced the Samsung solution will be able to handle it.”

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