

OVERVIEW

Located in Madison, WI, Alliant Energy Center is a multi-building complex spanning 164 acres of greenspace and includes over 500,000-square-feet of exhibit space, the 10,000-seat Veterans Memorial Coliseum, and the 29-acre (0.12 km²) Willow Island outdoor campus.

WHAT THEY NEEDED

- An 802.11ac Wi-Fi infrastructure that could support thousands of concurrent Wi-Fi users and devices
- An intuitive, centralized and robust WLAN management platform
- Higher capacity client support per AP
- Seamless integration with its RG Nets gateway appliance.
- PCI-compliant Wi-Fi services for point of sale transactions
- Pervasive performance and signal coverage across entire complex
- Tiered Wi-Fi public access and the ability for the Wi-Fi network to automatically adapt to environmental changes

WHAT THEY DID

- Deployed 13 ZoneFlex T300 outdoor 802.11ac high-capacity access points to cover two new exhibit halls
- Achieved a 4X increase in the number of concurrent Wi-Fi clients that could be supported
- Increased signal strength and Wi-Fi coverage to enable higher data rates and more stable Wi-Fi connectivity
- Centralized Wireless LAN management with remote control over the entire infrastructure using the Ruckus ZoneDirector WLAN controller platform

Ultra High Density Wi-Fi

ALLIANT ENERGY CENTER TURNS TO SMARTER 802.11AC WI-FI AS A TOOL TO DELIVER BETTER CLIENT SERVICE AND CREATE NEW REVENUE STREAMS

The Alliant Energy Center (AEC), a massive multi-building complex in Madison, Wisconsin badly needed better Wi-Fi to support thousands of concurrent wireless users and devices demanding fast and reliable Wi-Fi connectivity.

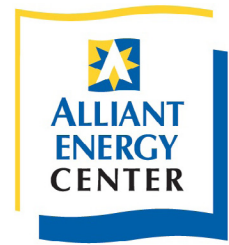
AEC welcomes more than one million people attending over 500 events annually, ranging from local meetings and banquets to large sporting events and major concerts. One such event, the World Dairy Expo, the world's largest dairy exhibition, recently brought over 7,000 attendees from around the world to its complex. With the addition of two new exhibition pavilions, called the Holland Pavilions, that would be used to host the World Dairy Expo within 290,000 square feet of space, AEC needed to upgrade its Wi-Fi infrastructure to deliver the highest possible throughput, reliable connectivity and ubiquitous coverage. They also wanted to use the new 802.11ac standard for greater capacity and speeds within the 5GHz band.

The World Dairy Expo created some unique RF challenges, as thousands of animals were constantly moving around within a massive facility constructed of RF unfriendly materials. This created potential havoc for the propagation of RF transmissions.



ABOVE: The Alliant Energy Center complex, one of the premiere conference centers in the midwest, spans 164 acres and needed to upgrade its Wi-Fi infrastructure to support large-scale events attracting huge numbers of delegates, visitors and vendors, all demanding fast and reliable wireless connectivity.

High Density Wi-Fi



Beyond Wi-Fi speed and client density, AEC's Wi-Fi infrastructure needed to support a variety of applications and user groups ranging from the general public, to vendors, exhibitors, staff and press. These different users groups needed reliable Wi-Fi access for streaming live video from event activities, conducting secure point of sales transactions, accessing online applications to demonstrate their products, ubiquitous Wi-Fi access for the general public and seamless Wi-Fi roaming for administrative staff accessing back office applications.

Unfortunately AEC's legacy Wi-Fi infrastructure was based on older Wi-Fi technology that was simply unable to support the explosive growth of mobile devices and the large numbers of simultaneous wireless users and applications all vying for access to the network. Wi-Fi coverage was spotty, management was cumbersome, performance was erratic and the general instability of the legacy Wi-Fi system made it difficult for AEC to deliver pervasive performance across the 29-acre complex.

"For our customers, wireless access has literally become an essential and expected utility, like power," said Julie Gallagher, Director of Operations & Event Services at the Alliant Energy Center. "With the remarkable growth of wireless users and smart mobile devices, our customers are demanding fast and reliable online access for a myriad of applications. With recent advances in Wi-Fi technology, we knew we needed to upgrade our infrastructure with state-of-the-art technology that could handle the high client densities we were experiencing while delivering the performance and coverage that customers now expect," said Gallagher.

After evaluating wireless LAN solutions from Cisco/Meraki, Meru and Ruckus Wireless, AEC standardized on the new Ruckus T300 802.11ac smart Wi-Fi outdoor access points for its new Holland Pavilion buildings. According to AEC, the Ruckus T300 solution required fewer access points than competitive solution while providing the ability to support more concurrent client connections.



ABOVE: The ZoneFlex T300 802.11ac Smart Wi-Fi access point was selected as the standard to support AEC's Wi-Fi upgrade. Only 13 APs were needed to provide complete coverage and pervasive performance throughout AEC's new facilities.



After surveying the complex, Enterprise Systems Group (ESG), AEC's system integration partner, found that only 13 ZoneFlex T300s were needed throughout the two new buildings to cover 300,000 square feet of conference and exhibit space and support thousands of delegates attending the World Dairy Expo. This was 50% fewer APs than recommended by competitive

Wi-Fi suppliers. Access points were deployed using standard 802.3af power over Ethernet and mounted 40 to 50 feet high on the ceiling and under catwalks throughout the facility.

"The Ruckus ZoneFlex T300s were the ideal solution due to their lightweight and small form factor design, high client capacities and the ability to easily mount them virtually anywhere using the existing PoE switching infrastructure," said Michael Buckna, data services manager at Enterprise Systems Group. "At one point, during the busiest time at the World Dairy Expo we were stunned to see most access points consistently support over 150 concurrent clients, and at one point, we saw more than 260 client connections on a single T300."

According to ESG, over a 24-hour period during the World Dairy Expo, the network supported thousands of concurrent clients and transported more than 110 gigabytes of network traffic over Wi-Fi, more than five times that of its legacy Wi-Fi infrastructure.



High Density Wi-Fi



“With Ruckus we now have in place a high-density Wi-Fi solution that delivers utility-grade reliability and blazing performance. This helps us better serve our own customers and turn Wi-Fi into a revenue generating asset.”

Julie Gallagher

Director of Operations
and Event Services

Alliant Energy Center

“We consistently experienced very strong signal strength from the Ruckus infrastructure with a signal-to-noise ratio for all the APs between 20 and 30 dB, even as the environment constantly changed,” said Buckna. “This translated into higher data rates for clients and more stable Wi-Fi connections with fewer dropped packets.”

A Ruckus ZoneDirector 3000 smart WLAN controller was installed within AEC’s data center for remote monitoring and management of AEC’s entire Wi-Fi infrastructure. The ZoneDirector 3000 was enabled with a variety of advanced features and facilities such as simplified guest access, ChannelFly, automatic channel selection technology that uses historical traffic statistics to optimize the use of the unlicensed RF spectrum, client isolation to prevent client devices from directly communicating with others clients on the same wireless network, and per client bandwidth thresholds per SSID to better manage and control the consumption of wireless capacity. In addition, the ZoneDirector provided an ideal solution for PCI compliance through the use of advanced encryption, wireless intrusion protection and rogue AP detection. According to ESG, at one point, over 155 rogue devices were identified on the network.

Also integral to the AEC deployment was having the Ruckus ZoneDirector interoperate directly with the RG Nets rXG gateway platform. The rXG was instrumental in the remediation of credit card payments, firewalling and rate limiting traffic and delivering a range of value-added IP services such as DNS, DHCP, content filtering, managing LANs and dynamic VLAN assignment to client devices to help reduce media contention.

Having passed the high client density requirements faced during The World Dairy Expo, AEC is now looking to expand its new Ruckus Smart Wi-Fi infrastructure within its exhibition hall and the 10,000-seat Veterans Memorial Coliseum and views reliable Wi-Fi services as a revenue generating services it can now confidently offer it’s customers and visitors.



ABOVE: AEC used Smart Wi-Fi to deliver reliable wireless connectivity for point of sale applications at the World Dairy Expo.



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