The Miami Marlins

Advanced wireless network becomes valuable player at state-of-the-art MLB ballpark

Photo courtesy of the Miami Marlins, L.P.

Business Profile

In 2012, the National League Miami Marlins began playing ball in the newly constructed, LEED Gold Certified 37,000-seat Marlins Park, where they resolved to keep everyone at the ballpark connected to the team and the world via a new Wi-Fi network from Meru.

Challenges

- Plan and deploy Wi-Fi that provides consistent, predictable performance in a huge concrete structure with a retractable roof and operable glass wall.
- Meet rising consumer expectations for fast connections and high performance as BYOD proliferates.
- Create scalable wireless infrastructure that can easily be expanded in phases to scale capacity.
- Enable seamless roaming in a very high-density environment of 37,000 spectators.
- Integrate wireless deployment efficiently with massive new-build construction.

Deployment Summary

- Meru Professional Services designs layered implementation for pervasive coverage of the entire ballpark.
- Controllers deployed in N+1 configuration provide high reliability for enhanced guest experience and uninterrupted business.
- Meru E(z)RF simplifies network analysis and management.

Benefits

- 100-percent wireless coverage for Marlins Park.
- Seamless mobility for everyone in the ballpark.
- Enhanced guest experience via engaging wireless content and services.
- Easy capacity expansion for increasing BYOD demand, without rip and replace.
- Elimination of contention and interference for uninterrupted wireless POS transactions.
- Timely, efficient coordination of network installation with building construction.

"After we finished the deployment, a third-party RF survey gave us a full thumbs up for 100 percent coverage of the ballpark. So I'm very proud of that. Meru did a great job in designing the solution for us."

- David Enriquez
  Senior Director of IT
  Miami Marlins

Wi-Fi makes fans at home at the ballpark

Everything about Marlins Park is state of the art—from its sustainable design and construction, to the retractable roof that changes the experience of summertime baseball in Florida, to the pervasive wireless network that enhances the game experience for spectators who bring their own mobile devices.

When the Miami Marlins began designing the new ballpark back in 2009, they integrated a Meru wireless network with their plans to provide spectators with the best guest experience possible. "We had an opportunity to build a park that would be state of the art and that had to include an enhanced guest experience with the ability to communicate and interact in a way that is literally just like being at home," said David Enriquez, Senior Director of Information Technology for the Marlins.

Photo courtesy of the Miami Marlins, L.P.

BYOD, social media, and rising guest expectations

Creating an in-venue digital wireless experience that is "just like home" required some forward-thinking. When planning began in 2009, the iPhone 3G had just been released, and the iPad was still a year away. The MLB At Bat app available at the time provided real-time game stats on the iPhone only. By 2013, At Bat had added live audio broadcasts and video of game highlights, expanded to all major mobile platforms, and surpassed 6 million downloads on opening day. Facebook added 96 million users in the U.S, and YouTube page views quadrupled to 4 billion a day. Everywhere you looked on the mobile landscape, things were changing quickly.

Progressing toward their wireless future, the Marlins knew they needed a flexible, expandable network

capable of delivering high performance in the high-density, 37,000-seat ballpark. "Our initiative to address Wi-Fi needs for the present and the future was driven by three factors—the social media boom that society is undergoing, the ever-increasing number of mobile devices coming into the ballpark, and the rising expectations of our guests," said Enriquez.

As the Marlins formed the vision for an enhanced guest experience, Enriquez visited numerous venues around the country and surveyed users at home. "Everywhere, we saw a trend toward more and more capabilities for Wi-Fi at the ballpark. We needed to provide that connectivity and coverage to help ensure that they were having the high quality experience that they clearly expected."

The Marlins incorporated their wireless requirements into the new ballpark design from the very beginning. The franchise issued an RFP in 2009, and, from the top five competitors, awarded the project to Meru Networks.

Full coverage for fan access

The Marlins went all-in for fan access, instead of starting with partial deployment to specific areas only such as the entry gates, press boxes, or premium seating. Because Marlins Park is owned by Miami-Dade County, the Marlins decided that free wireless service must be accessible to all county residents who attend events there, wherever they sit. Meru Professional Services, working closely with the building engineers, designed a layered solution to cover the

Photo courtesy of the Miami Marlins, L.P.

entire ballpark, from the first-base line to the rafters of the Vista Level and everywhere in between.

"After the initial deployment, MLB provided us with a third-party RF survey which gave us validation for 100 percent coverage of the ballpark. I'm very proud of that. Meru did a great job in designing the solution for us," said Enriquez.

Fast, fair access for all users

Photo courtesy of the Miami Marlins, L.P.

Meru Airtime Fairness technology makes the Marlins network equally accessible for all devices, whether users have computers, tablets, or smartphones, and it prevents slower devices from dragging down network performance for everyone. The Meru Mobile**FLEX** architecture enables the Marlins to segregate and isolate devices and applications onto different channels layered in the same area to eliminate contention for access and bandwidth. In the Clevelander nightclub, where the media often films interviews, channel-layering prevents the point-of-sale devices used by the wait staff from being disrupted by the wireless cameras.

Seamless mobility, from the field to the Vista Level

Wherever guests go in Marlins Park, their experience should be uninterrupted. Instead of the user's device bouncing around among APs looking for a connection, the network takes charge and manages the connection. "For us, the Meru network is very easy to configure, monitor, and manage, with almost no training," said Enriquez. "For users, there is no disconnect, and the experience is seamless as they roam about the park. If a fan wants to listen to the At Bat broadcast of the game on the way to picking up a Cuban sandwich, no problem."

More productive operations

The Meru infrastructure provides a secure Wi-Fi network for more productive back-office operations. The sales team accesses Marlins' internal protected network on iPads to manage seat selection during sales events and seat relocations during games. Handheld point-of-sale

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and ticket scanning devices are isolated to the A band to prevent contention with guest devices. The Meru network enables operations personnel to control lighting and building management systems (BMS). In addition, says Enriquez, "The Meru wireless network gives us a portable network operations center that we can access from anywhere in the building to control any of the 7,000 physical Ethernet ports in the building."

Twenty-five percent capacity—just the beginning

Working within the budget constraints of a publicly funded facility, the Marlins set a starting target for Opening Day 2012 of 9,300 simultaneous connections, or 25 percent of the maximum attendance. "The coverage model of 100 percent penetration and 25-percent capacity worked well," said Enriquez. "We could tell that by monitoring guest activity in targeted areas in the ballpark. We also polled users—from the ticket-takers at the gate, to the operations folks in the backrooms, to the attendants in the luxury suites—to make sure their wireless handheld devices were working well. Everyone was happy with wireless service. It was a very successful season."

It was so successful, in fact, that the Marlins have already set a new target of 40-percent capacity for 2014. The expanded capacity will facilitate outreach to guests through electronic surveys, raffle sales, and other tools. But mainly, the franchise wants to stay ahead of BYOD proliferation. "We see people coming in with a smartphone and a tablet. Soon a good percentage will be using two devices rather than one," said Enriquez."The Meru design gives us a good method of growth and control for services that we wanted to provide."

Photo courtesy of the Miami Marlins, L.P.

A layered design for growth and reliability

The scalable solution designed for Marlins Park by Meru Professional Services consists of four layers, each with a controller and an assigned number of APs. For example, one layer covers the entry gates and ballpark Level 1, while another covers the suites on ballpark Levels 4 and 5. "When we want to expand capacity, it's easy for us to add APs and reconfigure the controller for one layer without affecting the others," Enriquez said.

For high availability, a fifth controller acts as a hot standby. In addition, the Marlins have expanded capacity at the gates by installing two sets of APs, one primary and one secondary, enhancing the reliability and performance of the access control system.

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Designed for a challenging environment

In designing the Marlins Park infrastructure, Meru Professional Services had to work with a challenging environment. The park is a huge concrete structure, with a retractable roof and an operable left-field glass wall, and is located in a residential area with hundreds of RF sources in the neighborhood that could cause interference. The layered approach solves the difficulties, says Enriquez. "The design succeeded in balancing AP deployment to provide predictable performance whether the roof is open or closed. The layered approach works very well for us."

Photo courtesy of the Miami Marlins, L.P.

In addition to designing the network, Meru Professional Services remained a close working partner during the entire construction project. As Enriquez explains, "Meru Professional Services collaborated with the engineering team responsible for designing the ballpark so that Wi-Fi network architecture fit into physical design of the building. Installation of the wireless network also had to be integrated in the build-out of the ballpark and coordinated with the schedules of many other contractors. Meru Professional Services really came through for us."

Headed for a 100-percent capacity future

With a flexible, scalable wireless infrastructure in place providing 100 percent coverage, the Marlins foresee a day in the not-too-distant future when they will reach 100 percent capacity as well. "Wi-Fi service is not something that we can take lightly any more. Any facility, such as ours, that exists to satisfy a guest experience needs to embrace a 100-percent coverage/capacity model within the next three to five years," concludes Enriquez. "Providing a guest experience that is very close to the experience at home will be crucial."

About Marlins Park

Marlins Park is located in the heart of Miami, on the historic Orange Bowl site. The ballpark features an open 360-degree Promenade Level, giving fans a live view of the playing field no matter where they are, as well as incredible food options at The Clevelander, Taste of Miami, concessions and retail locations on the West Plaza. Marlins Park represents the next generation of ballparks. Its curvilinear shape and contemporary design renders Marlins Park an innovative structure veering far from the traditional. A leader in environmental design, Marlins Park features a state-of-the-art retractable roof and six operable glass panels overlooking the downtown Miami skyline. The pioneering design of Marlins Park will set the tone for ballparks to come. Please visit www.marlins.com for more information.

About Meru Networks

Meru Networks (NASDAQ: MERU) is a market leader in the development of mobile access and virtualized Wi-Fi solutions. Meru's Mobile**FLEX** wireless architecture addresses the ever-growing need for higher bandwidth and higher client densities. The Meru Identity Manager solution greatly simplifies secure device on-boarding and the company's unique Context Aware Layers enable dedicated channel assignments for specific applications, devices and usage scenarios. Meru customers include Fortune 500 businesses as well as leaders in education, healthcare and hospitality. Founded in 2002, Meru is headquartered in Sunnyvale, Calif., with operations in North America, Europe, the Middle East, Asia Pacific and Japan. Visit www.merunetworks.com or call (408) 215-5300 for more information.

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