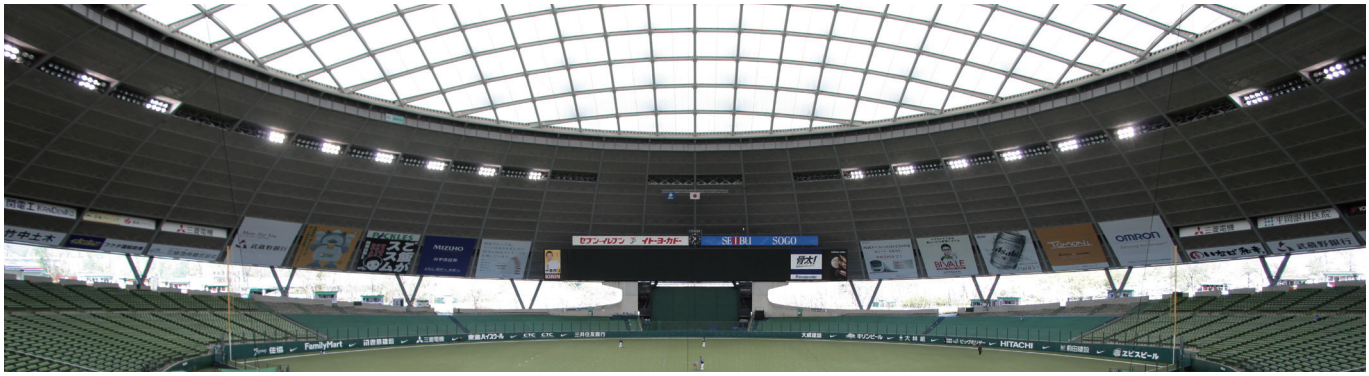
Wi-Fi Provider Transforms Fan Experience in Baseball Stadium

NTT Broadband platform implemented Cisco Connected Stadium Wi-Fi solution at Seibu Dome, providing Internet access and video content.



Executive Summary

Customer: NTT Broadband Platform
Industry: Service Provider
Location: Seibu Dome, Tokorozawa City, Japan
Stadium Capacity: 33,921 People

Challenge

- Provide reliable, high-quality Wi-Fi connectivity at baseball stadium
- Simplify deployment
- Build foundation for stadium owners to increase revenue

Solution

- Implemented Cisco Connected Stadium Wi-Fi Solution, including wireless infrastructure, software, and professional services.

Results

- Delivered high-quality visitor experience by providing 10- to 20-Mbps connectivity
- Simplified deployment and ongoing performance optimization using built-in Radio Resource Management (RRM) feature
- Built foundation for stadium to increase revenues by encouraging sales of tickets, food, merchandise, and advertising

Challenge

The Saitama Seibu Lions are a professional baseball team in Japan's Pacific League, based in Tokorozawa, Saitama, north of Tokyo. In 1979, the team's owners built the Seibu Dome, one of two covered stadiums in the world with a permanent opening to admit natural air and allow home runs to leave the park.

The Seibu Lions constantly look for ways to improve the experience for fans. The stadium had offered complimentary Wi-Fi for many years, but performance had slowed as more fans began bringing smartphones and tablets to games.

The organization saw an opportunity to improve the visitor experience by providing faster Wi-Fi connectivity and exclusive in-venue content, such as a player guide, team videos, and the location of food vendors. "Using smartphones to view video content and share images and information with friends has become part of today's lifestyle," says Mr. Koji Takeuchi, Seibu Lions director. "We wanted to enhance the experience for spectators at Seibu Dome.

Seibu Dome can hold more than 33,000 people, and providing an excellent experience in such a tightly packed venue requires specialized technology. The stadium and team owners asked NTT Broadband Platform (NTTBP), the wireless LAN division of NTT, to provide a solution. "In typical Wi-Fi environments [such as coffee shops or building lobbies], access points are placed to cover as much area as possible," says Mr. Tadao Kobayashi, president of NTT Broadband Platform (NTTBP), the wireless LAN division of NTT. "Considerations are different in a stadium, because of the number and density of users."

Solution

NTTBP met the challenge with the Cisco® Connected Stadium Wi-Fi solution, which includes wireless infrastructure, specialized software, and professional services from Cisco Services. "The Cisco Connected Stadium Wi-Fi solution enabled us to provide a high-quality experience by avoiding signal interference in a high-density environment," says Mr. Kobayashi. "In addition, Cisco Services possesses a high level of technical know-how for high-density Wi-Fi." Although Seibu Dome would be the first deployment in Japan, Cisco Services had experience implementing the solution at AT&T Park in San Francisco and other stadiums.

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NTT Broadband Platform, Inc. President

Mr. Tadao Kobayashi

After performing a thorough site assessment, Cisco Services placed the access points to create hundreds of Wi-Fi microcells throughout the stadium, using narrow-beam directional antennas to precisely control the coverage area (Figure 1). The cells are much smaller than the previous cells, providing more capacity for each visitor so that they can connect at high speeds, send photos, and view video with a consistently good experience. According to NTTBP's measurements, the Wi-Fi network at Seibu Dome now provides 100 times more bandwidth than a Long Term Evolution (LTE) network.

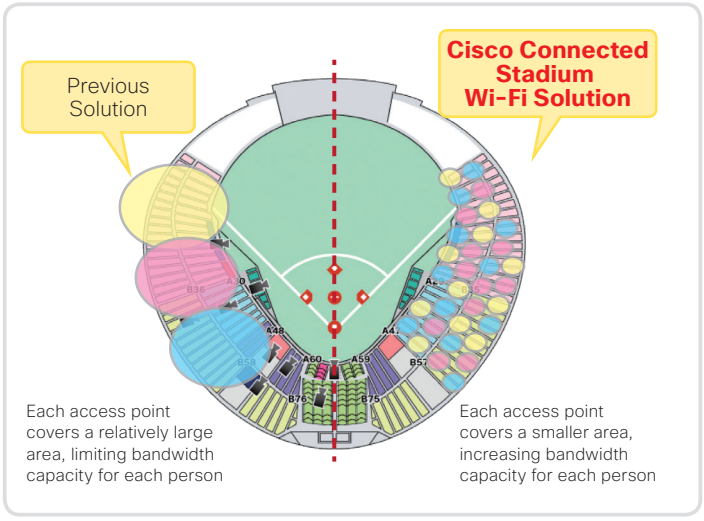

Figure 1. At Seibu Dome, Small Cells Provide 10-20Mbps Capacity

NTTBP also deployed a Cisco Wi-Fi solution in the Seibu Railways station across from Seibu Dome. Baseball fans who travel by train can access Lions Wi-Fi before and after the game, prolonging the game experience.

Results

Enhanced Game Experience for Visitors

When fans arrived at Seibu Dome on March 29, 2013, the first day of the season, they began enjoying the new Lions Wi-Fi service. "This is the first attempt in Japan to provide large-scale, high-density Wi-Fi access covering an entire stadium," says Mr. Kobayashi. From anywhere in the stadium, visitors can use smartphones and tablets for free Internet access and specialized content, including:

- Satama Seibu Lions Player Guide
- Satama Seibu Lions YouTube channel
- Real-time game statistics
- Game schedule
- Food options at Seibu Dome
- Baseball quiz; fans' answers appear on the stadium's big screen
- Satama Seibu Lions website
- Advertisements from game sponsors, providing a new revenue source for the stadium

Any stadium visitor with a wireless device, even visitors from other countries without a local cellular plan, can access the Lions Wi-Fi service.

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Seibu Lions, Inc.
Director

Mr.
Koji Takeuchi

Simplified Deployment with Automated Tuning

Typically, Wi-Fi access points require manual adjustments to provide optimal coverage in stadiums and other high-density environments, no matter how carefully the deployment is planned. NTTBP avoided the considerable time to adjust settings because the Radio Resource Management (RRM) feature built into Cisco Aironet® access points automates adjustments to avoid signal interference. The access points continually optimize their own settings in response to changing conditions, such as the number of fans connecting and the type of traffic. "Easy operation is another significant advantage of the Cisco Connected Stadium Wi-Fi solution," says Mr. Kobayashi.

Next Steps

Now that the Wi-Fi infrastructure is in place, the Seibu Lions organization can add more content and services to further enhance the fan experience. "We are listening to fans to get ideas for services that will attract attention from potential visitors from all over Japan," says Mr. Takeuchi. Ideas include merchandise sales, ticket sales, and location-based services. The stadium might also provide Wi-Fi service for other events held at the stadium, such as concerts.

NTTBP is considering implementing the Cisco Connected Wi-Fi solution in other stadiums throughout Japan. "Creating a unique fan experience can help stadiums attract more visitors," says Mr. Kobayashi. "Furthermore, encouraging food and merchandise sales and ad purchases can increase earnings." These types of Wi-Fi services also offload NTT's cellular network, helping the service provider support more subscribers sending and receiving more traffic.

Technical Implementation

Cisco Services deployed 141 Cisco Aironet wireless access points, 82 inside the dome and 59 outside (Figure 2). To provide coverage for the upper tier of stadium seats, technicians mounted access points on the catwalk above the seats, pointing the directional antennas down toward the seats. To provide coverage for the middle tier, technicians mounted access points at the top of the section, installing patch antennas on seat bottoms, in waterproof enclosures. To provide coverage across the lower tier, technicians mounted access points in steel enclosures on the stadium wall, installed patch antennas on the box lids, and pointed the antennas up towards the seats (Figure 2).

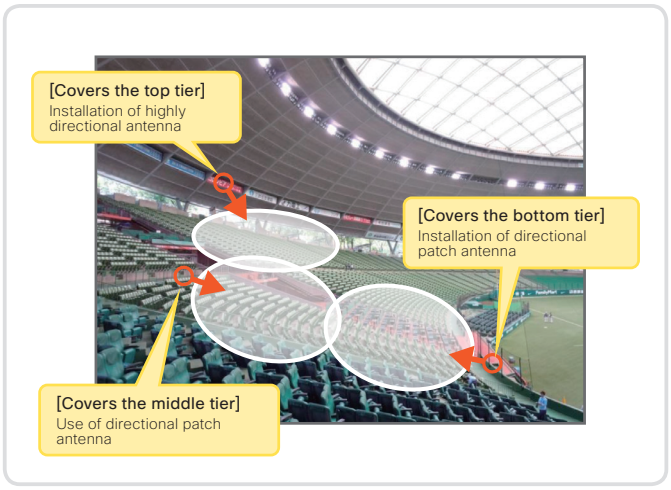

Figure 2. Directional Antennas Provide Coverage in Upper, Lower, and Middle Tiers of Seibu Dome

Product and Services List

Cisco Connected Stadium Wi-Fi Solution:

- Cisco Aironet 3502P and 3602 Access Points
- Cisco Aironet 2.4- and 5-GHz High-Gain Multiple-Input Multiple-Output (MIMO) Stadium Antenna
- Cisco Aironet 2.4- and 5-GHz Directional Antennas
- Cisco 5508 Wireless LAN Controller
- Cisco Assessment, Design, and Implementation Services

For More Information

To learn more about Cisco Connected Stadium Wi-Fi Solution, visit:

www.cisco.com/web/strategy/sports/stadium_wifi.html.

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