Mississippi State Upgrades Cellular for Capacity Crowds

CASE STUDY

Initially founded as a land-grant college in 1862, Mississippi State University (MSU) currently serves 17,000 students on its campus in Starkville, Mississippi. Campus facilities include not only a liberal arts undergraduate college and graduate school, but also schools of forest resources, architecture, and accountancy. In addition, MSU offers the nation's largest college of veterinary medicine under one roof.

Like most colleges, MSU's football team, the Bulldogs, has a large and loyal base of supporters. Davis Wade Stadium at Scott Field, home of the Bulldogs, was built in 1936 and has since been expanded to support more than 55,000 fans, and 50 skyboxes and 1700 club-level seats. All football season, those seats are filled.

Capacity Crowds Challenge Infrastructure

As the primary cellular provider serving the largest percentage of the subscribers in the Starkville area, Cellular South supported campus wireless service through their macro network with several nearby cell sites. The provider, serving Mississippi and parts of Alabama, Tennessee, and Florida, has a strong commitment to delivering quality service to its customers, but the growing popularity of mobile phone use and text messaging during MSU football games began causing capacity constraints. Despite the macro cellular network infrastructure in place, some subscribers at football games were experiencing failed call attempts.

CASE STUDY

Crowd sizes have soared since the addition of new seats and skyboxes, exacerbating the problem. One prime example was during the November, 2007 game against MSU arch-rival Alabama, with a record crowd of 56,118 fans on hand. Right before halftime, Alabama was on the MSU goal line about to score. MSU intercepted the ball and ran it back for a touchdown to take the lead—resulting in over 30,000 call attempts. Many of these calls were blocked.

"Whenever our customers hit the Send button, the call must go through regardless of how many simultaneous call attempts are made," says Mitchell Jordan, manager of RF design at Cellular South.

Jordan had used outdoor distributed antenna systems (DAS) for other coverage- and capacity-strained situations, and he immediately settled on an outdoor DAS solution to address the stadium's issues. "Typical cell sites are designed to cover several square miles," he says. "It can be difficult to manage the RF in a small geographic area. We needed a customized coverage and capacity solution. A dedicated BTS and DAS combination was the most efficient way to improve capacity and control the RF to handle the subscribers in the stadium."

Although he considered offerings from other vendors, Jordan began negotiations with ADC in March of 2008 and soon after signed a deal. He had used ADC's FlexWave™ DAS products on other projects, and had been impressed with their technical performance capabilities as well as with ADC's service and support organization.

Deploying the DAS

The deployment began summer 2008, with a goal of having the system up and running for the first home game. Cellular South deployed two small base stations, while ADC's installation team connected a FlexWave Host Unit to each BTS, and deployed 6 FlexWave Remote Units feeding 18 antennas at strategic locations throughout the stadium. The system uses singlemode fiber to transport digitized RF.

The FlexWave installation was smooth. However, network optimization delayed the system turn-up, as ADC installers and engineers adjusted antenna power levels and performance settings. Throughout the process, says Jordan, "ADC was very supportive. They had engineers on-site working whenever we needed them, and they even sent down a principal engineer to help troubleshoot a reverse-link problem that might not have even been associated with the DAS."

Today, fans at MSU football games no longer have to experience the frustration of having a "four bar" signal without being able to send a text message or make a call. The FlexWave DAS system allowed Cellular South to use a precision, site-specific solution to address a problem, and to do it far more quickly and cost-effectively than by augmenting the general macro network coverage in the area.

And for Mitchell Jordan, his choice of ADC has once again been the right one. "ADC's service is outstanding and the products offer a solid approach to addressing problems like this," he says. "I'd definitely use ADC again in other situations."

Challenges and Solutions

Challenge: Blocked calls during football games

Solution: Outdoor DAS delivers quality of service improvements by directing capacity in one specific area

Challenge: Macro network capacity exhaustion

Solution: Offload the macro network during football crowd's peak traffic

Challenge: Need an alternative strategy to improve network performance

Solution: Efficient, cost-effective, small and manageable equipment with minimal investment and turn-up time

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