

Wireless Coverage at Stadiums and Other High Traffic Venues: Visitor Satisfaction and Owner Value

Establish good wireless coverage, and positive returns on your assets

**“...you’re breaking up!”
“...sorry my cell phone dropped the call...”**

We’ve all had the frustration of our cell phone not working in a particular location. In casual conversation, people often ask the familiar question, “I have 4 bars...why won’t my cell phone work at the game?” As wireless technology continues to evolve at an extremely rapid pace, we’re going to be hearing that more frequently. Both private owners and public venues, and their management teams, who operate high traffic locations such as malls, stadiums, arenas, airports, and office buildings, are impacted by the daunting task of managing a technology infrastructure that supports the wireless market.

“I have 4 bars...why won’t my cell phone work at the game”

Today, because most everyone has a cell phone, they have the added challenge of providing the visitor and employee *expected and good* wireless coverage at these sites. Managing the wireless technology infrastructure at any location involves more wide-ranging “know-how” than just simply placing an antenna to boost the quality of cell phone call coverage. The following is an explanation of some general challenges and possible solutions that

location owners and management teams should expect in maintaining a successful and operational wireless infrastructure.

Consumer and Market Demand

Consumer demand for wireless technology will most likely rise because of the popularity of “smartphone” applications. Everyday people are getting more and more comfortable using the thousands of applications that work with them. These phones utilize wireless “space” a little more comprehensively than the regular cell phone. As consumers, we are utilizing this wireless space more commonly than we ever have and the popularity is not just a passing trend. In fact, cell phones are really becoming a handheld computer, where one could complete such tasks as paying a bill or confirming a shipment. So, it’s not surprising that people want their cell phones to work everywhere; after all they’re paying for a service. It’s common knowledge that cell phones, whether they are “smart” or not, just don’t work well in certain places. Many of us are attracted to locations that get good “service” or “reception.” For example, a parent may choose to go to a shopping mall that has better service where they are certain the babysitter can reach them. Wireless internet service, which is used more and more each day, at hotels, coffee shops, and other public venues is becoming as expected as seeing walls and floors; and they’re offering this service for

free. The more we utilize wireless technology, the more location owners and management teams need to pay attention and ensure their venue isn’t “...the one that doesn’t have good cell phone coverage.”

Wireless technology is also driving the emergence of applications that allow site management to become more efficient, therefore, money-saving. Site owners should educate themselves



*Water Front Park Stadium
Louisville, KY*

on what these devices and applications can actually do for them. There are over tens of thousands of apps available for smartphones allowing you to interact with almost any business, personal, or fun program possible. Soon, there will most likely be the equivalent of a high definition TV in everyone’s pocket. Imagine an application where you go into a grocery store, grab a cart, and your mobile device monitors what you put in it, interacts with your bank and pays for the items as you walk out of the store. You never spoke to a cashier or stood in a line while wireless information about what you bought will be sent to a computer that manages inventory and revenue.

Wireless technology and consumer technology (telephones and personal computers) are working together. Everyone will be sharing the same wireless “space” to do all of this.

Resolute Infrastructure of Many Moving Parts

Whether upgrading an existing location or building a new one, wireless technology is comprised of a lot of resolute components. It’s like a puzzle - as you put one piece in to get closer to solving it, another could be knocked out of place. You then, are no closer to solving it than you were before, and in some cases even farther away. Add agreements, with all parties involved, real estate, plus merging technologies, antenna equipment, and other factors like walls, glass and doors, it is easy to become intimidated by the thought of juggling them all without one dropping. However,

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if all pieces are properly considered, the system will perform to its intended ability. It’s more than just a couple of antennas and wireless service providers. Police, fire and other public and emergency services also depend on the system to function properly to communicate in an emergency. Their

operations can also be compromised if the system isn't functioning properly. The biggest mistake site technology teams make is that they don't consider the big picture-- the "puzzle pieces" and people required to maintain a wireless system. It becomes a larger project that ties into managing the location itself. Location owners should understand at a high level what does and doesn't work to make the system function.

Team Skill and Knowledge

Putting together the right team to manage a location's wireless infrastructure is critical to achieving successful results. Technology is only as good as the people in place to govern and manage it. Consumer technology (such as your laptop computer or server) has emerged somewhat separately from wireless radio frequency technology. It is difficult to find and recruit a team of people who can match the knowledge and skills needed because of this.

Technology leaders can be the best engineers with decades of experience but may have limited exposure to traditional wireless

Most existing site technology teams will lack the necessary experience to implement a fully operational wireless system. As the two technologies are now interfacing, or "talking and interacting" with each other, the teams that manage them must be aware of how this works. Technology leaders can be the best engineers with decades of experience, but

may have limited exposure to traditional wireless. These teams typically consist of very smart people who can "speculate" about how to manage the details of the big picture, but often fall short. This is not the fault of the team, it's more a product of how the two technologies have coexisted and evolved. Speculation can lead to more money being spent correcting the problem. These teams should have historical knowledge, understanding of the wireless business and the foresight to manage the technology successfully.

Standing Agreements: Historical Precedent and Multiple Parties

To understand the wireless landscape one must also understand the agreements that may be in effect, in many cases, for existing antennas. Agreements are contracts that give, for example, permission for antenna locations and the real estate on which they sit and may define the systems' purpose. Old and new agreements must be considered. These agreements could involve one party or multiple parties. There could be many agreements for a single system alone. The types of parties involved are: wireless service providers, equipment providers, location managers and owners, etc. The challenge is, when you update a wireless location, you must find out what agreements exist to move forward with your plan.



Wireless Carrier Facilities

Some of the existing contracts that manage the air "space" have been made throughout the years and can be difficult to re-negotiate. This could mean that entities outside the agreements may have to be involved. Those contracts may have to be re-negotiated, which could require a lot of research to make them contemporary. Agreements for additional service providers that run the electrical, the power cabinets, air conditioner, etc. may be effected. Some of those will impact your wireless antenna system. In addition there are compliance regulations from the FCC, OSHA and other agencies that have to be considered. Each



Data networks stream wireless content.

element of the system and its outside influences must be tested for appropriate compatibility. If, in testing, one of the parts doesn't work, an agreement may have to be re-negotiated if it impacts the functionality of the wireless system. It takes a special knowledge of precedent in the wireless industry to fully comprehend and negotiate existing and new agreements that are required to successfully implement a communication system.

This is not just cell phone coverage--it's a total communications system. More phone applications are coming out every day. It's not simple "plug and play" antenna coverage. The system must grow and evolve simultaneously with technology. The wireless antenna network at a

venue, for example--its structure, maintenance and evolution--will be impacted by the bandwidth and the introduction of new applications. Location leaders should also think beyond the wireless system itself.

New Dallas Cowboy Stadium, Arlington, TX – A Case Study

The Dallas Cowboys Technology Team very recently asked themselves,

What impact would glass, concrete and steel have on our wireless infrastructure...?

what impact would glass, concrete and steel have on our wireless infrastructure and vice versa?" They realized that they needed the inner-workings of the wireless system to be available and working faster to reach their goal of an unmatched visitor at the new stadium in Arlington, Texas, located in the heart of the Dallas/Fort Worth Metroplex area. After doing research to further understand their problem, they spoke with several consulting companies to validate their findings. The companies they spoke with seemed more concerned with being associated with The Dallas Cowboys than their goal. Their methods and approaches were not substantial enough to accomplish the objectives set forth by the Cowboys' IT Team and owners. A wireless consultant contracted by the Dallas Cowboys suggested they speak to Telecommunications Properties, Inc. (TPI.)

Advantages of an Unrivaled Solution

"TPI understood and shared our vision," says

Pete Walsh, CIO of the Cowboys. TPI validated ideas and possibilities to the Dallas Cowboys before they could even bring them up. They had the relationships and access to high level authorities with the carriers and vendors to implement solutions. The venue owners want their visitors to have the best cell coverage possible. No site leadership team wants their venue criticized, especially for poor cell phone coverage. TPI took ownership of the Cowboys' goal and had an "up-front appreciation" for the task of implementing the wireless antenna system. TPI demonstrated they understood the work and went beyond the expectations of the owners. "I was trying to solve THEIR problem for them, not sell them." says Jimmy Chiles, TPI CEO. TPI was brought on board the Cowboys Stadium location team to help them manage all the parts and parties related to the wireless antenna infrastructure.

"TPI's communication skills, personal approach and integrity made this project happen so successfully...beyond expectations"

"TPI's agenda included understanding every aspect of the structure and plan at the new stadium", says Walsh, "They were prepared to deal with the complications and knew the magnitude of getting everything right." TPI has a history of excellent relationships with the carriers and can easily manage and accomplish project tasks more effectively. This highly unique approach includes burrowing into the detail.

TPI's project methodology encompasses experience and knowledge in engineering, technology, equipment, contracts and real estate.



Dallas Cowboy Stadium, Arlington, TX

Their knowledge and techniques are especially effective because they are merged with excellent project management. "TPI's communication skills, personal approach and integrity made this project happen so successfully, way beyond our expectations. TPI understands what technology can and cannot do." says Bill Haggard, Director – Enterprise Infrastructure Dallas Cowboys. "They know the commercial side of the business and the cost, the impact, and the time it takes to do it. TPI is good at getting competitors in there to work together." says Sean White, Manager, North America Projects Wireless Innovations Groups of Andrews, a CommScope Company. TPI has 25 years of negotiating in the telecommunications industry from a business perspective. It is easy for them to work with all carriers and equipment vendors because they understand all the "puzzle pieces." Business plans are logical and detailed because of TPI's negotiations, historic acumen, and visions into the future of the wireless industry. "Our big event, the NBA all star game... we'll be prepared because of TPI," according to Walsh.

Easily Tracked Revenue Streams

If a location sets up a massive infrastructure to empower an unmatched visitor experience it should work properly and could provide site management efficiencies and revenue streams. On the Dallas Cowboy Stadium project, TPI exceeded its leaders' expectations in negotiating with carriers and knowing what the market could bear. TPI's long term industry relationships facilitate this. Old models, typically used to measure returns, were difficult and not cost effective. It costs more to calculate and account for them than they were actually worth. There are new ways to track financial returns. Today they can be tied to how the phone is used and can evolve with new technology. This makes

"The financial opportunities could present themselves if you get the right solution"

them easier to track and change. "The financial opportunities could present themselves if you get the right solution," says TPI CEO, Jimmy Chiles. Location owners could now look forward to a wireless communication system that provides increased visitor satisfaction *and* revenue streams. Wireless service providers, equipment carriers and other parties involved could benefit as well. "TPI has everyone's best interests in mind," says White.

Many location teams feel that using a company like TPI is both beneficial and profitable. This is largely due to thorough knowledge

of how all the components fit and the parties relate within the wireless industry. "The evolution of the system would not be where it is today unless TPI were in place." says Haggard of the Cowboys. TPI's very deliberate agenda, according to Chiles, is to help high traffic venue owners meet and exceed revenue goals and visitor expectations with a successfully implemented wireless infrastructure.



Landline networks connect wireless facilities.

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