Problem. Solved.

Bringing High-performance, Scalable Wi-Fi into the Arena

COMMSCOPE®

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The public needs its Wi-Fi, and people now expect to connect not just at the local coffee shop, but virtually everywhere they go. From bookstores to ball fields, Wi-Fi has become a "must have" service for venues of all kinds, and the modern arena is no exception.

With the range of events now being held in today's sporting arenas - from basketball games to home shows, from political conventions to Monster Truck rallies - come a number of Internet-related activities in which patrons want to engage.

These include looking up statistics, tweeting, uploading videos, sending pictures and instant messaging, to name a few. In the arena, all of these activities have one thing in common: the need for a fast, reliable, massively scalable Internet connection. For arena owners and service providers, this creates an opport unity to offer high-qualityWi-Fi as a means of enhancing the customer experience and building a loyal fan base all their own.

The Problem:

Arena Dynamics are a Challenge
to Wi-Fi Deployment

When it comes to deploying high-quality Wi-Fi, the layout, usage and construction of an arena create several unique challenges. Architecturally, arenas cover massive amounts of square footage, they feature unique topologies and obstacles, they host thousands of people at a time, and their usage patterns shift throughout and between events. And for many arenas, Wi-Fi service even needs to extend outside of the building so attendees can connect before and after the event.

Interference poses another challenge. In an arena, there is often significant competition for the 2.5 and 5 GHz Wi-Fi frequencies, which are unlicensed and available for anyone to use. Here, concession aires use Wi-Fi for their networked POS systems, owners of luxury suites create their own Wi-Fi networks, and individual patrons set up personal hotspots for their friends. In a recent audit of a large outdoor sporting venue, CommScope documented over 200 unique access points, all of which had the potential to pose interference issues if not taken into account.

Finally, the costs of constructing a Wi-Fi network in an arena can be prohibitive if not managed carefully. This is due to the high labor costs associated with mounting access points and connecting them to network and power resources. When technicians need to drill through thick concrete walls, gain access to hard to reach areas, or pull cabling over long distances, the installation time can add up fast, and the cost can even outweigh that of the infrastructure itself. The many challenges of the arena including layout, construction, usage, interference and installation costs must all be addressed when creating a plan for Wi-Fi deployment in this unique environment.

Benefits for Service Providers and Arena Managers

· High-performance, highly scalable service

· Wi-Fi coverage for any event type

· Minimal building impact

· 10 - 15% construction savings

CommScope Solution:

Wi-Fi Deployment Techniques that are Customized for the Arena

Delivering a high quality, reliable Wi-Fi experience in an arena - and doing it cost effectively- requires thorough research and planning, sound network design and expert installation practices. The CommScope process begins by working closely with the venue management team and/or its service provider partner to develop Wi-Fi service and business goals. These include the number of users and service rates the network will support, key service locations, and budget guidelines for both infrastructure and installation. In addition CommScope gathers and analyzes critical information on existing access points and frequencies, optimal service locations, current and potential private users of Wi-Fi, physical obstructions, existing power and backhaul infrastructure, and the overall condition of the plant.

CommScope then conducts real world surveys through the course of multiple events, where RF engineers measure existing Wi-Fi spectrum usage, characterize attendee movement throughout the arena and survey the access to physical plant resources under live event conditions. All this information is used to finalize a comprehensive design that provides coverage wherever it is needed, overcomes any interference issues, ensures proper scalability, and performs well for every type of event.

Once finalized, the network design is then deployed, using right-sized access points and a minimally invasive construction process to deliver the desired service experience while adhering to budget guidelines. In the deployment phase, technicians draw on a wealth of tools and techniques to meet the unique needs of the arena. These unique structures often call for a range of mount points to be employed, including rooftops, overhangs, beneath stands, and under seats. Specialized mounting solutions are often selected to ensure that access points are clear of major obstructions and optimized for coverage and throughput. These include parapet mounts, corner mounts and non penetrating roof mounts.

To reduce the cost and complexity of installation, CommScope chooses access point mounting locations that minimize construction costs without sacrificing Wi-Fi performance or coverage. This often means choosing mount points that limit labor-intensive construction tasks associated with hard to-reach locations, long cabling runs, extensive drilling and installing new conduit. In addition, CommScope best practices call for the selection of the most efficient entry points for power and network backhaul resources, leveraging existing infrastructure wherever possible.
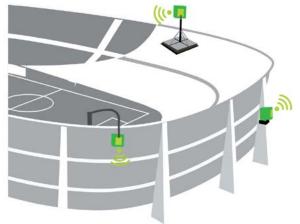

Figure 1 – Reaching critical service areas requires the use of several mounting locations
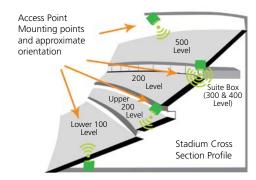

Figure 2 – Customized deployment solutions solve the unique challenges of the arena

Once activated, the Wi-Fi network is then tested using sophisticated heat mapping techniques that measure service performance and identify any coverage gaps. After final adjustments are made, the Wi-Fi network is ready for use by concertgoers, sports fans, convention attendees or participants in virtually any type of event at the arena.

The Result:

High-Performance Arena Wi-Fi for Every Attendee - At Every Event

By factoring the unique building, network, service, spectrum, construction and business dynamics of the arena into Wi-Fi design and deployment, venue owners and service providers can deliver a high-performance networked experience to event attendees. This means providing access to every guest who wants to use the network, even when an event draws tens of thousands. It also means ensuring bandwidth goals are met, and avoiding coverage weak spots or issues caused by congest ion or interference. In addition, this comprehensive approach to arena Wi-Fi helps minimize building impact and construction costs, which can be reduced by ten to fifteen percent when adhering to CommScope best practices for installation.

CommScope pushes the boundaries of communications technology with game-changing ideas and groundbreaking discoveries that spark profound human achievement. We collaborate with our customers and partners to design, create and build the world's most advanced networks. It's our passion and commitment to identify the next opportunity and realize a better tomorrow. Discover more at commscope.com.

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