

Deliver the ultimate fan experience while lowering your network costs



Highlights:

Increasingly, event attendance depends on a venue's ability to satisfy fans' intensifying thirst for mobile connectivity and social interaction. The answer lies in replacing legacy copper infrastructures with scalable, cost-efficient optical fiber and a single, converged design. Benefits include:

- Higher quality of service
 - 30–50 percent reduction in network costs¹
 - Easier, centralized network management
 - Agile platform for business development
 - Better security, integrated into the network
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How converged fiber networks are reinventing sports and entertainment venues for a mobile world

Today's tech savvy sports and entertainment fans expect a fully immersive event experience from the moment they leave their homes. Creating the ultimate fan experience means meeting fans where they are, providing them with a platform to interact seamlessly and securely, and giving them fast, uninterrupted access to rich, analytics-driven content, personalized for their needs and optimized for the devices they carry. Converged fiber networks with passive optical network (PON) and distributed antenna system (DAS) technologies are bringing these kinds of capabilities to the sports and entertainment industry, lowering network costs and complexity while creating new opportunities for business innovation and growth.

Connectivity is everything

Mobile technologies have paved the way for a more personalized, engaging event experience, allowing fans to get closer to what's happening on the field and increasing their desire to share it with others. For sports and entertainment venues, the pressure is on to deliver a digital experience that is so compelling it surpasses the comfort, convenience and cost of staying home. However, luring fans away from their own living rooms is becoming increasingly difficult to do, especially as advanced wireless capabilities become the residential norm.

Consistent, high quality connectivity is key, and young fans in particular are leaving stadiums and other venues that aren't able to provide it. Today they expect to have continuous smartphone access to social media and mobile apps. But that's just a start. Increasingly venues will be expected to deliver a more personalized experience. Some are already accomplishing that, notifying fans automatically about seat upgrades and best parking, sharing exclusive video feeds and instant replays from multiple camera angles, and enabling fans to place and receive concession orders without ever leaving their seats. All of these activities will become a standard part of the in-stadium experience—but not without the right network.



Meet intensifying demand for connectivity and social collaboration

To engage fans and deliver an immersive mobile experience, venues require a network that is flexible, intelligent and high capacity. Traditional approaches have used multiple network infrastructures and relied on layered Ethernet switches and copper cabling. These infrastructures are inherently limited, unable to deliver the bandwidth, range or reliability to meet current requirements. Moreover, they are costly to operate, necessitating considerable space, power and personnel to deploy and maintain.

Passive optical networks with a converged fiber infrastructure overcome these limitations by replacing copper cabling and switching equipment with space- and energy-saving optical fiber and by integrating multiple networks and services on a single network infrastructure. The result is a simplified network that can deliver the scalable bandwidth required for today's cloud, mobile, analytics and security applications at the speed and intensity today's fans demand. Fiber optimizes network performance and agility for densely populated user groups while significantly lowering cost and complexity.

Converged fiber networks can be deployed and operated at one-third less than the cost of traditional networks.² This is achieved through service integration and a smaller equipment footprint, which speed installation and reduce power, cooling and space requirements. Quality of service is centrally monitored through a single management console that provides consolidated access to virtually all network devices and ports, simplifying administration. This translates into extremely reliable and highly secure connections. Fans can connect at higher speeds throughout the entire stadium complex with a consistent mobile experience.

Significant cost savings with converged fiber

The comparative cost benefits of moving to fiber versus maintaining existing copper networks over a five-year period in terms of equipment, construction, maintenance, support, space and power consumption typically project up to:

- 40 percent less power and 70 percent less space consumption
- 70 percent lower electronics costs
- 60 percent lower cable and installation costs
- 75 percent lower technical support costs³

One network for all

Converged fiber networks allow a full range of IT, communications and building services to operate over the same shared infrastructure. That means one network for everything from wired and wireless voice, video and data to security surveillance, IPTV, digital signage, access control, building management systems and lighting. The cost benefits of this convergence cannot be overstated.

A converged fiber network with distributed antenna system technology enables wireless carriers to broadcast their signals over the same network infrastructure. It enables a stadium to provide pervasive, high-speed wireless coverage not only inside the facility but also to key transition areas surrounding it, such as tailgating areas and parking structures. As fans move from one area to another, advanced features like capacity steering and location services enable an enhanced fan experience by directing fans to seats, shorter concession lines and venue promotions with a consistent mobile connection.

AMB Sports & Entertainment seizes the archetype fan experience⁴

With a new stadium slated to open in 2017, AMB Sports & Entertainment (AMBSE), which includes the Atlanta Falcons, Atlanta United FC and Mercedes-Benz Stadium, recognized it had an opportunity and an obligation to reinvent the stadium experience for its increasingly connected fan base. The company was committed to delivering an unparalleled interactive game and event day fan experience and leveraging the latest mobile, analytics, cloud and security technologies to push relevant, timely and personalized content.

Understanding what was at stake, AMBSE is deploying a converged fiber network to provide fast, reliable connectivity and pervasive high-density (HD) WiFi coverage stadium-wide. The converged fiber network with PON/DAS is designed to provide fans and guests with greater control by integrating physical security, power and point-of-sale systems onto the same fiber backbone. Unique features like a 360-degree, 63,000-square foot HD halo scoreboard above the stadium ceiling and more than 3,000 video displays will bring Falcons and Atlanta United fans closer to the action than ever before. Specialty services like paperless ticketing, in-seat ordering and better crowd management will improve the fan experience. At the same time, personalized offers, viewer polls and upcoming event notifications will provide the organization with new sources of revenue.

The AMBSE objective is to reset the bar for the game-day and event experience while creating a prototype for sports and entertainment venues everywhere.

Opportunities for business innovation and growth

The ability to deliver apps and services to stadium-goers anywhere they are, on virtually any device they choose, is good for business. It makes attending an event in person a better experience and makes fans more likely to return. But it also allows venues to take advantage of fans' fascination with digitally-delivered content and social media. To that end, converged fiber networks provide a platform for customer satisfaction and revenue growth.

These networks allow fans to stay connected, not just to download information but also to share the experience with others. Before an event starts, fans can tweet and post to Instagram and Facebook, announcing to friends where they are. In the process, they are promoting the venue and the benefits of attendance, paving the way for future ticket sales.

Improvements in network efficiency enabled by fiber convergence allow funds and space to be shifted to new business initiatives. Venue operators gain enhanced bandwidth needed to deploy new mobile, cloud and analytics capabilities. During an event, pervasive connectivity increases opportunities to sell food and drink, merchandise, seat upgrades and tickets to upcoming events. Once customers' preferences are understood through data collection and analytics, it's possible to tailor engagement strategies, customer service, marketing offers and upselling based on their likes and interests. Venue operators can determine which new products to develop and how to market them.

Analytics-driven security and operational efficiency

With the ability to integrate massive amounts of data from various sources, a converged fiber network can take advantage of sophisticated analytics for improving security and operational efficiency. It facilitates the use of intelligent video surveillance and analytics to identify and investigate potential threats in real time. Venue operators can use the resulting insights to enhance safety and security controls. Plus they can combine security insights with other operational data feeds (about weather, traffic hot-spots, and the like) to make more informed decisions and mitigate risk.

IBM builds converged fiber networks

With fans leading the charge, the race is on to create an unforgettable stadium experience. We design next-generation networks with converged fiber infrastructures that take full advantage of cloud, mobile, analytics and security technologies to keep fans connected and coming back.

At IBM, we've made it our business to understand our clients' needs and objectives. We provide network solutions in the context of those requirements. We design, deploy and manage networks that drive business growth and innovation. IBM NextGen Campus Networks leverage converged fiber technologies using PON and DAS to meet increasing demand for high-speed, flexible bandwidth while dramatically lowering costs, energy consumption and operational complexity. These networks can be easily configured for the user and bandwidth density of your venue, and they are modularly structured so you can deploy advanced features as needed.

Our ability to bring together all of the software, applications and technologies required for effective networking today—from LAN, wireless and WiFi to building automation systems, intelligent video analytics and security—allows you to create a superior event experience for your fans and your business.

For more information

To learn more about IBM NextGen Campus Networks with converged fiber infrastructures and the savings potential for your organization, contact your IBM representative or IBM Business Partner, or visit:

ibm.biz/PON_DAS_network



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^{1,2} In IBM client engagements, PON has been shown to reduce capital costs by 30-55 percent and ongoing operational costs by 30-70 percent. Individual results may vary.

³ Savings calculated by IBM's total cost of ownership (TCO) assessment. Individual results may vary.

⁴ IBM, "New Atlanta Stadium to Showcase Next Generation Fan Experience with IBM Technology." February 19, 2015.



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