



# Stadium of the Future: Transforming the Retail Space











WHITE PAPER

The arena is no longer just about the experience of watching a sporting event or listening to your favorite band live. Now, a modernized stadium or arena experience encompasses many consumer stages from the planning activities—how to get there, the weather, where to park—to visiting food vendors and restrooms and buying souvenirs on the way out. All of these activities over the course of the fan journey offer an opportunity for retailers to connect with customers and, ultimately, increase the likelihood of a sale.

This is where data comes in.

Data, when harnessed and analyzed correctly, can give retailers great insight into who their customers are, when they will make purchases and what those purchases will be. In addition, retailers can use this consumer-based data to help address pain points in the purchase system, with the ultimate goal of making the customer experience frictionless and enjoyable, and, most importantly, personable. Data is driving the change customers are seeking, and retailers—even on a large scale like an arena—need to collect and act on this information to make maximum consumer satisfaction and transactions.

### Modern arenas are exploring the use of cutting-edge technology for creating the ultimate fan experience:

 <p><b>Interactive Maps</b> help guide customers in their journey and based on personal preferences</p>	 <p><b>Vendor Apps</b> allows customers to purchase food and souvenirs and then pick it up in lockers</p>
 <p><b>Digital Signage</b> directs people to the closest restroom based on location and wait times via technology on the stadium's app</p>	 <p><b>Automated Messages</b> alert staff regarding restocking items or cleaning restrooms</p>
 <p><b>People Counter or Heatmapping</b> tracks crowd movements</p>	 <p><b>Sensor Technology</b> alerts security of potential problems</p>
 <p><b>Queue Detector</b> detects register and restroom wait times to increase fan satisfaction</p>	 <p><b>Intrusion Detectors</b> signals security when people creeping around restrictive areas</p>

But none of these retail upgrades are possible without the right technology combined with fast, secure, reliable connectivity. The next step in your digital transformation hinges on outfitting the arena or stadium with the proper technology. And then making sure that the Wi-Fi has enough bandwidth to connect to IoT devices—from the parking lot to boxed seats. And the Wi-Fi serves not only the retail vendors within the stadium, but the fans themselves. For example, using geofencing and cameras, the retailer's system can locate the entrance of a loyal customer and immediately send a message, coupon, or QR code to the fan via the mobile app.

Such broad customer experiences in such a large venue requires 5G to support and secure IoT devices, AR/VR, the cloud, etc., while still assuring the safest possible experiences, both physically and digitally.

In this whitepaper we will discuss in more detail specific connectivity that a stadium/arena should implement.





## DATA-INSPIRED EXPERIENCES

The sports stadium of the future will be hyper-connected and afford ever-more personalized spectator experiences, blurring the lines between the real and virtual worlds in areas such as retail, hospitality, and food and beverage.

Consider the following scenario: You have season tickets to watch your favorite baseball team. When you arrive at the stadium parking lot, a camera at the entry gate reads your license plate number and identifies you, your buying patterns, and your app usage. So, when you get to your seat, the usher is already on his way with a cold beer—the brand you always order—and the item is automatically charged to your payment app, without ever taking out your wallet. You also notice that when you arrive at your seat, a coupon code pops up on your phone. It's a discount to items sold at the stadium store, good for only the next 24 hours.

During the next several hours of the game, you're immersed in the entire fan experience. You are able to access an AR/VR experience downloaded to your phone that displays key game plays from different angles than the one on the large stadium screen.



## Supply Chain and Distribution

Connectivity plays an important role in relieving supply chain issues. For example, data collected helps vendors know which products need restocking in which areas of the stadium. In more advanced systems, retailers can use data to track the weather, which can assist in purchasing decisions such as increasing the availability of cold drinks on a hot day.

Deploying cloud-based systems to gain real-time inventory information, increase order and shipping efficiency, and assure labor productivity, is not a new concept for retailers. But taking it a step further, implementing IoT technology into the

supply chain process can offer more data points for improving customer satisfaction. For example, vendors can outfit products with connected sensors that transmit real-time information about items as they pass through the supply chain—when the last pretzel is purchased at the food window—and also making delivery date predictions for restocks—which can be key for game day.

Plus, big data can help reduce the communication gap between the stadium, the individual vendor, the customer, and the supply-chain management as it creates a clear path by fusing demand patterns with consumption patterns for a profitable outcome.



## HIGH-TECH INTERACTIONS, VIRTUALLY EVERYWHERE

A high-tech, interactive experience should be the goal for all stadiums, not just a push to drive up the total number of people in the building. But in order to offer this modern experience, large arenas and stadiums need upgraded network infrastructure and robust wireless performance. In fact, evidence exists that a lack of connectivity will stop fans from coming to the games.

Some expectations today's fans and retailers include:



Heatmapping for efficiencies with labor: the technology informs management where the biggest lines and crowds are so that they can staff appropriately.



Grab-and-go technology that lets customers pay for items automatically without having to check out with a cashier.



Heatmapping combined with People Counter to provide stadium owners with data for picking prime locations for additional revenue opportunities (ie: Street teams, vendors, marketing spotlights, signage).



Guest “infotainment” services, such as letting guests watch HD video and alternate camera angles. It also gives fans the ability to unlock team content and provides up-to-the-minute stats and even real-time social promotions via their mobile device.



## CHALLENGES

While all of this technology goes into an optimal fan experience, outfitting a stadium with the proper bandwidth and Wi-Fi requires partnering with a telecommunications company that can avoid latency and dissatisfied customers.

- **Challenge No. 1**

The continuing growth of applications that require internet or cellular connection such as IoT or autonomous mobile robotics—in combination with the dense population and social requirements of fan-based activities—requires high digital bandwidth.

- **Challenge No. 2**

The increasingly complicated interactions of data between device, machine, and human processes creates the need for a system that can handle this complexity.

- **Challenge No. 3**

Digital connections for so many customers and staff in a large environment—with many obstructions—without any disruption.

## HOW DOES 5G HELP WITH THESE CHALLENGES?

As network speeds become less of a concern, visitors to sporting venues will discover that their connected devices can easily handle all manner of additional functions.

**When the retailer chooses to implement 5G for the stadium, they are able to offer:**



Enhanced security and privacy so that sensitive data stays within the network.



Improve mobile capacity, reliability, coverage, and latency, which can be engineered to specific needs.



Create opportunities for innovation of processes and operating models and increased insight via wireless coverage in areas previously unsupported by public networks or limitations of Wi-Fi or cables; the ability to realize the tremendous promise of emerging technologies such as IoT, AI and AR/VR; and increased mobility for machinery, sensors, and robotics, therefore, improving the ability to respond cost-effectively to market needs.

## NON-INVASIVE SECURITY

Could the frisking of fans upon entry become a thing of the past? Companies are beginning to experiment with solutions that identify people using facial biometrics as they walk past a sensor at full walking speed. Once inside, eventgoers can also buy drinks, merchandise, and enter VIP areas just by showing their face.

Retailers hope to make these non-invasive security checks a reality, but plenty of challenges still remain such as a lack of internal security expertise, increased security threats, and the need to meet regulatory requirements for data protection before some of the technology is ready for mass release.

## THE VALUE OF A STRATEGIC PARTNER

Connectivity will power the sports arenas of the future. Retailers that expect to provide an agile, personalize and premium customer experience need to leverage a robust connectivity architecture to facilitate the digital transformation it requires. As they assess network providers, retailers should consider a partner that offers unrivaled industry experience, embraces a collaborative mindset and is focused on building a true partnership with their organization.

T-Mobile offers all these benefits. We have industry segment advisors with relevant experience who act as industry consultants and partner with internal teams to collaborate and deliver customized business solutions. On the technology side, we offer network technologies that drive cost efficiencies, such as dynamically optimized rate plans based on usage, automation that reduces staff time or the need for additional headcount, and solutions that reduce the ongoing expense of maintaining legacy systems. We also have expertise in emerging technologies, a comprehensive security portfolio, and ultra-capacity and extended range network coverage—not just across high-band frequencies. Retailers need a network provider that can help them build a true ecosystem. As retailers assess potential providers, they should prioritize these capabilities and choose a partner that largely checks all these boxes.

A network provider's partnership ecosystem is another important factor. T-Mobile collaborates with other vendors to bring holistic network, software, and hardware solutions to retail clients. We also offer global wireline services, giving retailers the flexible, scalable connectivity they need to build a more agile and connected enterprise.

With future-proof, secure, and reliable connectivity both at the retail location and headquarters, the refueling/convenience industry is unrestricted to meet their customer service needs now, and pivot, adding microservices to facilitate the needs of the future. From easy fill-ups to custom food orders to non-existent checkout lines, customers benefit from seamless, personalized interactions.



To learn more about T-Mobile for Business retail services solutions  
[visit our website](#) or chat with us at 844-983-2351.

**5G:** Capable device required; coverage not available in some areas. Some uses may require certain plan or feature; see T-Mobile.com. 5G use cases are still emerging and new devices being created; see details on current 5G capabilities & services.