

CASE STUDY



UNITED  
KINGDOM



HOSPITALITY

# ELEVATING FAN EXPERIENCE TO THE TOP OF THE LEAGUE WITH A SMART, SECURE AND DIGITAL STADIUM



**TOTTENHAM  
HOTSPUR**

Building one of the smartest, most connected stadiums in the world to make match day unforgettable for tens of thousands of fans. From cashless transactions to intuitive wayfinding, technology is enabling new levels of safety and engagement, putting control of game day experiences directly into the hands of the fans.



*Audere est Facere.* To Dare Is to Do. It is the motto of Tottenham Hotspur Football Club, and it is an approach to life the club holds dear. Dream big!

It must also have been a consideration for the designers of Tottenham Hotspur's new stadium. Completed and opened in Spring 2019, the Tottenham Hotspur Stadium has already been acclaimed as the best football stadium in the world.

The new stadium has a capacity of 62,062, more than 40% larger than Tottenham Hotspur's previous ground, with one huge, single-tier stand holding 17,500 fans.

### TRANSFORMING THE FAN EXPERIENCE

In 2018, Tottenham Hotspur broke into the Top 10 of the world's richest football clubs (a Forbes ranking saw their value rise by 17%).

The new stadium is a huge part of Tottenham Hotspur's commercial plans. The stadium is designed to be multi-purpose. The grass pitch slides away to reveal an NFL football pitch, with Tottenham Hotspur planning to host two NFL games a year for the next 10 years. The stadium will also host concerts, conferences and events. It is home to the largest club shop in Europe, and the longest bar in the UK.

Tottenham Hotspur also wants to maximise revenues for every match day. It wants to create a longer, more engaging match day experience, encouraging fans to arrive early and stay longer.

"When you start with a blank piece of paper, and you decide to build a brand new stadium, then you have an opportunity to design and build your technology platform



### REQUIREMENTS

- Delighting fans and visitors with the most immersive and connected experiences
- Create the most technologically advanced sports stadium in the world, capable of hosting a variety of events
- Extend the business and revenue opportunities for the club and its partners
- Ensure high-performance network connectivity for fans, partners, media and building management systems

### SOLUTION

- Aruba 802.11ac indoor access points
- Aruba weatherproof outdoor access points
- Aruba 7240 series Mobility Controllers (HA configuration)
- Aruba Campus Access switches
- FlexFabric 12908E data centre core switches
- FlexFabric 5940 data centre access switches
- ClearPass Policy Manager for secure network and guest access
- AirWave Network Management
- Intelligent Management Center (IMC)
- Aruba Bluetooth with Low-Energy Beacons
- Meridian Mobile App Platform
- Enabling the Tottenham Hotspur App
- HPE Pointnext Services

### OUTCOMES

- Improves the fan experience with the launch of a new App, featuring wayfinding, e-ticketing, and audio and video content
- Establishes high-performance wireless coverage throughout the site, with the capacity to allow 40,000 people to live stream video simultaneously
- Supports a broad range of service enablement partners
- Building management systems, from CCTV, to secure access, media, energy and lighting
- IPTV and digital signage, experience ribbon boards, displays, and screens
- Stadium field of play lighting and stadium effects lighting
- Turnstile access systems, lifts, and escalators
- Match day production and content distribution
- Secures role-based access and consistent experience for staff, season ticket holders, visitors, and commercial partners



“Creating a technology infrastructure to support an enhanced fan experience requires solutions that can meet the growing demands of visitors that come to our new stadium. With Aruba Experience Edge Architecture and our partnership with Hewlett Packard Enterprise, we’ve built one of the most technologically advanced stadiums in the world.”

**SANJEEV KATWA**

Head of Technology, Tottenham Hotspur Football Club

from scratch,” says Sanjeev Katwa, Tottenham Hotspur’s Head of Technology. “Technology is a key part of the design of this new building, from equipment rooms to cable runs. We’re not just bolting on technology - we’re making it part of the fabric of the stadium.”

From the start of the project, the technology team at Tottenham Hotspur was determined to make the network as important (to the building) as the other key utilities: electricity, water and gas.

**The Most Technologically Advanced Stadium in the World**

Aruba technology is an inherent part of the new stadium with over 22,500 network points installed and 1,228km of network cabling. There are more than 1,670 Aruba Access Points across the site, from pitch-side to the retail concourses, managed by high availability clusters of Aruba 7240 Mobility Controllers. AirWave Network Management

monitors the wireless LAN, while Aruba ClearPass manages SSIDs and network access policies for the public, employees, and partners. In addition, there are nearly 700 Aruba BLE Beacons to provide wayfinding and location-based services, linked with the Tottenham Hotspur mobile App, and supported by the Aruba Meridian Mobile App Platform.

The farm of HPE servers and storage running critical applications and services are supported by a redundant pair of data centres comprising HPE FlexFabric 12908E switches in the core and over 70 HPE FlexFabric 5940 DC ToR and EoR switches. The stadium connectivity is delivered through over 450 Aruba 3810M Campus Access Switches. The LAN architecture is managed by the HPE Intelligent Management Center platform – IMC.

The connectivity allows for 65% of the crowd to simultaneously stream live video. The design and install were managed and delivered with the support of HPE Point-next Services and its intelligent-venues and IoT solution expertise.

**A Game-changer**

Katwa says the stadium is a game-changer in terms of the fan experience. “We believe we’ve transformed how fans feel about coming to a sports venue. We have an infrastructure that is scalable, resilient and secure. What we need isn’t something that’s right for year one or two. We need a technology platform that scales as we move forward.”

The new stadium includes a significant amount of LED signage, public Wi-Fi access, fixed and mobile point of sale, supporting a 100% cashless journey, all connected to the network.

A new, Tottenham Hotspur App is perhaps the most visible difference for fans. The new App offers wayfinding to their seats (or to friends), and even stores match day tickets to be scanned at turnstiles. Naturally, the App is home to a wealth of multimedia content.

**OPERATIONALLY SMART**

The stadium is also operationally smart. The platform is integrated into the venue’s architecture to provide real-time monitoring for preventative maintenance and





personalised visitor experiences, including aspects such as temperature and lighting conditions.

The stadium's electrical infrastructure will be monitored constantly from Schneider Electric's remote field services bureau, while the company's product experts will also be on-site to personally monitor the stadium's power infrastructure on match days.

In addition, the network supports over 650 CCTV cameras, door access systems, stadium lighting and elevators. As well as supporting more entertainment-related elements including TV studios, full broadcast capabilities, video galleries, 1800+ IPTV screens, and the largest in-bowl sound system.

### Competing for the highest honours

Most commentators agree the stadium takes Tottenham Hotspur to the next level. It provides a platform from which the club can compete for the highest honours in the game.



Sanjeev Katwa says the Aruba architecture enables the club to continue to keep the fan experience fresh over time.

"We know fans want to be connected at all times," says Katwa. "We can now engage with them at all levels. We challenged Aruba to meet our vision, and we believe the solution we have in place exceeds those expectations."