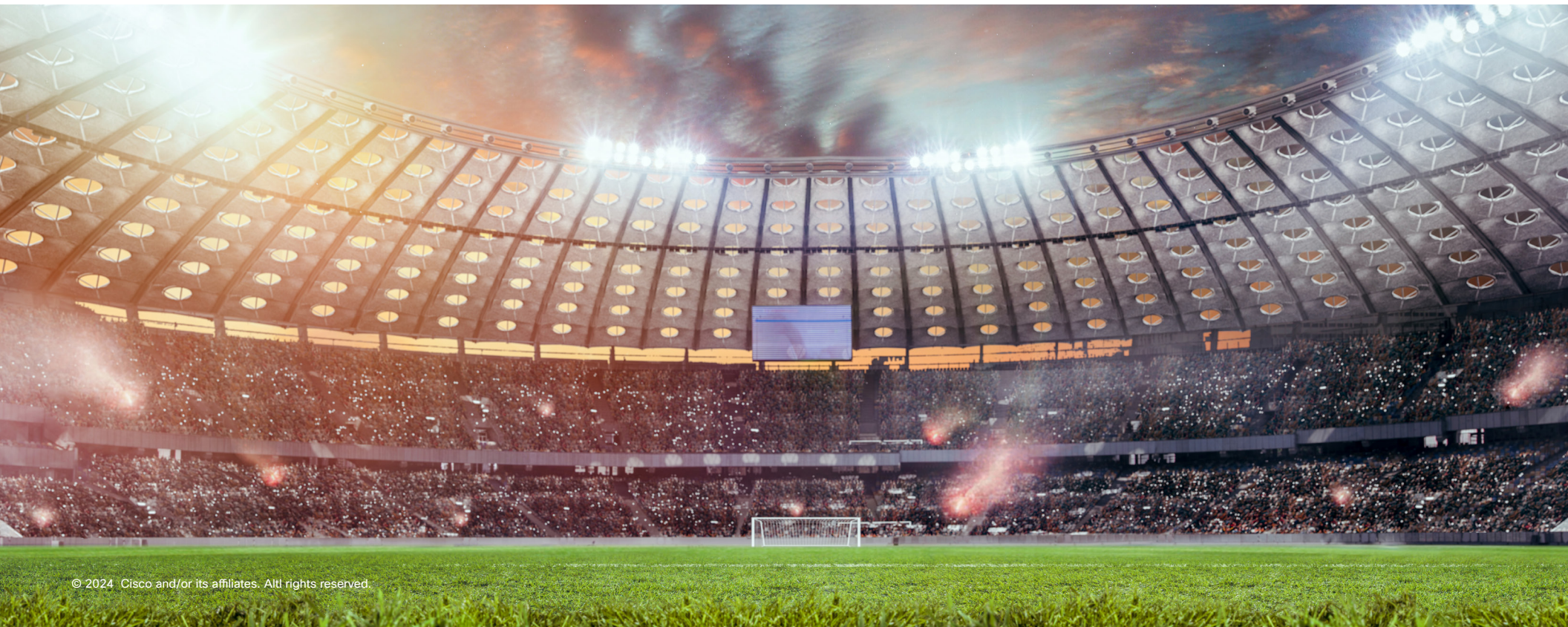


Wireless Solutions for Large Public Venues

In recent years, there has been a significant increase in the demand for robust and high-speed Wi-Fi in Large Public Venues (LPVs). Wi-Fi networks offer numerous opportunities, but they also present challenges for stadiums and other LPVs. It is crucial to deploy a Wi-Fi network that can meet the growing expectations of fans and partners while keeping the total cost of ownership in check.



Here are some of the opportunities that Wi-Fi networks bring to stadiums and other venues:

- **Enhanced and personalized fan experience:**

Fans expect a seamless entrance to venues with mobile ticketing, the ability to instantly share their experiences on social media, and the convenience of ordering food and merchandise. They also desire interactive services like maps, replays, and game statistics, like what they experience when watching games at home. Personalized and immersive experiences are also highly valued.

- **Improved operational efficiency and lower total cost of ownership:** Venue automation and connectivity to IoT devices can enhance security, facility management, crowd control, sustainability, and more. Real-time data collection from connected devices helps venue management optimize operations and provide personalized fan experiences.

- **Increased revenue and business growth:** Wi-Fi networks offer new opportunities for monetization, such as targeted advertising and promotions based on user data. Sponsorship deals from companies looking to showcase their products in the venue or fan apps are also possible.

To achieve these outcomes, the deployment of Wi-Fi networks needs to address several challenges:

- **Capacity and coverage:** The network must support high density of users, as tens of thousands of concurrent users in proximity require access. Access should be provided not only in seating areas but also in concourses, entrances, exits, and high-traffic zones.
- **Bandwidth and speed:** Users require sufficient bandwidth to support streaming, and large uploads and downloads, as well as high-speed and low-latency connections for real-time interactions.
- **Infrastructure and hardware:** Wireless networks in stadiums and venues are prone to interference due to building infrastructure, so access points need to be able to be placed strategically to handle high density and avoid interference. Directional antennas and beamforming technologies are needed to optimize Wi-Fi signal strength and coverage. High-capacity backhaul connections to the internet are also required to handle large volumes of data traffic. In addition, hardware equipment needs to be ruggedized to withstand water, dust, and extreme temperatures for open venues.

The use of Artificial Intelligence (AI), Augmented Reality (AR) and Virtual Reality (VR) have the potential to significantly transform LPV experiences as well. These technologies hold great potential to revolutionize the way

fans engage with live events, providing more personalized, immersive, and interactive experiences. These applications will increase the demands on the network as they need bandwidth, speed, capacity, and coverage to work well.

Helping you succeed and provide exceptional experiences

Cisco® has more than 15 years' experience delivering solutions for successful deployment in sports, media, and entertainment. [Our portfolio is designed to enhance digital guest experiences, improve operational efficiency, and generate new revenue streams.](#) Beyond just wired and wireless networking, we offer collaboration tools, comprehensive cybersecurity, and management solutions that deliver enhanced insights and automation. This ensures a more secure, consistent, and scalable infrastructure that is easier to manage, more flexible, and more resilient than ever before.

We've added an outdoor Wi-Fi 6E solution to our best-in-class portfolio that is specifically designed to deliver high performance in large public venues:

- **Cisco Catalyst® IW9167E-STA Heavy Duty Access Point:** Comes pre-assembled with an integrated Wi-Fi 6E 75° wide beam outdoor directional panel antenna that is ideal for deployments in handrails and short distance overhangs in LPVs.

Wi-Fi 6E extends Wi-Fi 6 connectivity into the 6-GHz spectrum. This expansion represents the most significant increase in the available spectrum for Wi-Fi since its inception, enabling new use cases that require high-performance connectivity.

The benefits of Wi-Fi 6E include:

- Greater capacity that supports a high density of clients
- Less interference with broader channels
- Higher throughput that supports high-performance and bandwidth-heavy applications
- Lower latency for applications that need fast response time

The Cisco Catalyst IW9167E and IW9167I outdoor access points are certified for standard power operations on the 6GHz band in the US and will soon be certified in Canada. This enables you to fully enjoy the benefits of Wi-Fi 6E, utilizing the expanded spectrum on the 6GHz band.

- **Cisco Catalyst IW9167E-STA2 Heavy Duty Access Point:** Comes pre-assembled with an integrated Wi-Fi 6E 35° narrow beam outdoor directional panel antenna that is ideal for deployments in mid- to long-range distances in LPVs.
- **Cisco Catalyst IW9167I Heavy Duty Access Point:** Comes with a Wi-Fi 6E omni-directional antenna that is suitable for areas near seats or where overhead mounting is limited.

Our access points combine the power of Wi-Fi 6E with hardware technology specifically designed for high-performance in high-density environments in LPVs. Additionally, these access points support numerous mounting options that cover different LPV configurations (Figure 1). All the access points come in a heavy-duty design that withstands extreme temperature ranges. The integrated antennas simplify deployment and improve aesthetics.

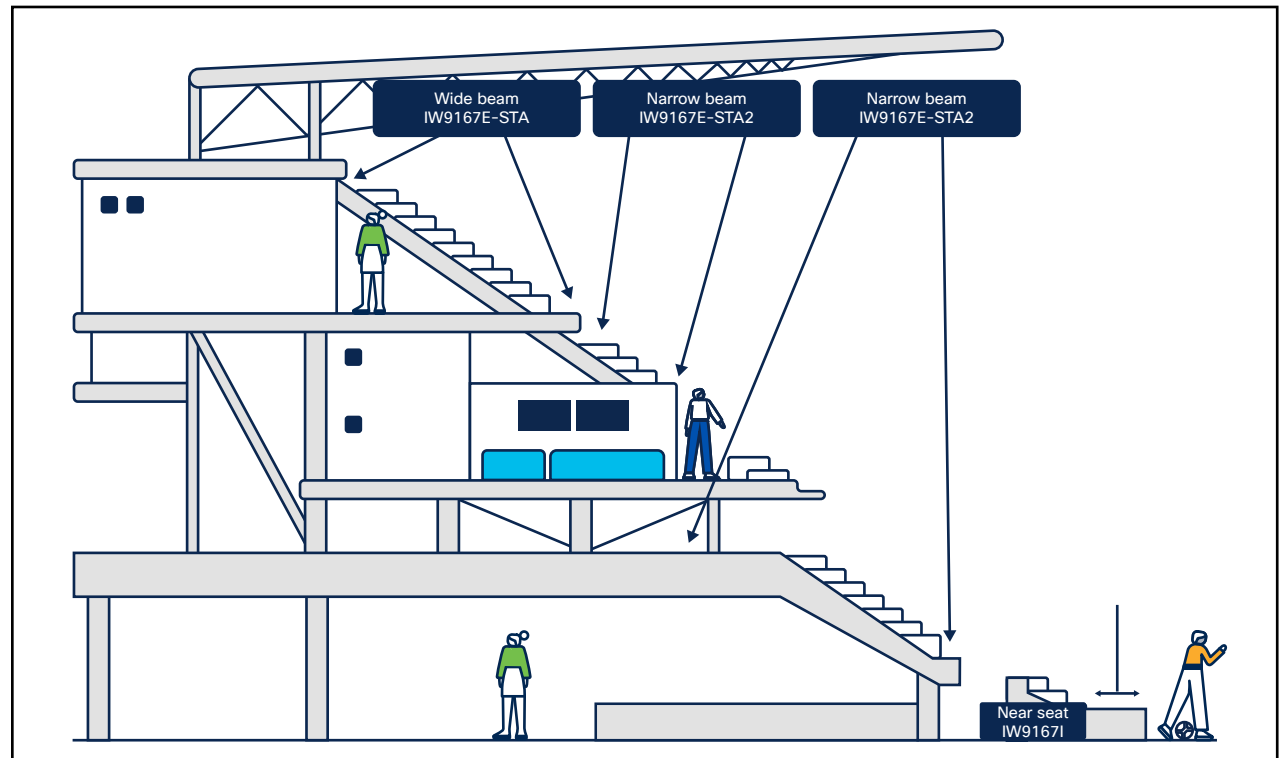



Figure 1. Cisco Wi-Fi 6E access points come pre-assembled with antennas designed specifically to support different mounting options so you can cover your whole venue.

The table below summarizes key aspects of these Wi-Fi 6E access points for LPVs. Make sure you review the [datasheet](#) for more details.

Table 1. Wi-Fi 6E solution for high-density deployments such as LPVs

	Catalyst IW9167E-STA 	Catalyst IW9167E-STA2 	Catalyst IW91671 
Radio	(3) 4x4 802.11ax radios 2.4GHz, 5GHz, 6GHz Scanning radio (internal antenna)	(3) 4x4 802.11ax radios 2.4GHz, 5GHz, 6GHz Scanning radio (internal antenna)	(3) 4x4 802.11ax radios 2.4GHz, 5GHz, 6GHz Scanning radio (internal antenna)
Antenna	Built-in directional panel antenna 75° wide beam	Built-in direction panel antenna 35° narrow beam	Internal omnidirectional
Ethernet	(1) 5G Multigigabit RJ45 + (1) SFP+	(1) 5G Multigigabit RJ45 + (1) SFP+	(1) 5G Multigigabit RJ45 + (1) SFP+ Optional M12 adapter
Other	BLE (integrated antenna) GPS/GNSS (integrated antenna)	BLE (integrated antenna) GPS/GNSS (integrated antenna)	BLE (internal antenna) GPS/GNSS (internal antenna)
Certifications	IP66/IP67 -40C to +70C	IP66/IP67 -40C to +70C	IP66/67 -50C to 65C
Dimensions	14.5 x 14.5 x 4.3 in 36.9 x 36.9 x 11 cm	14.5 x 14.5 x 4.3 in 36.9 x 36.9 x 11 cm	11.5 x 10.5 x 3.0 in 29.2 x 26.7 x 7.6 cm
Weight	17 lbs. (7.7 kg)	17 lbs. (7.7 kg)	8 lb. (3.6 kg)

You might also be interested in:

- Discover all Cisco Catalyst IW9167 Heavy Duty Access Points: cisco.com/go/iw
- Read the [Cisco Catalyst IW9167 Heavy Duty Series Data Sheet](#)