SPORTS & ENTERTAINMENT

# AVIVA STADIUM

**Secure network infrastructure provides exceptional entertainment and matchday experience for staff, media and over 57,000 fans at Dublin's most iconic stadium**

## Overview

The Aviva Stadium is a sports arena located on the south side of Dublin city. It opened in 2010 on the site of the former Lansdowne Road Stadium.

With a capacity of 51,700, it is co-owned by the Irish Rugby Football Union and the Football Association of Ireland.

The stadium hosts various events including international football matches, rugby internationals, European club rugby games, concerts and other entertainment and community events. The venue typically runs around 15-20 major events per year and attracts customers from across the globe.

The stadium's usage is carefully managed to maintain the quality of the playing surface, which is crucial for its primary sports. The team managing the stadium prides itself on providing a top class experience for customers, players, coaches, media, commercial partners and staff.

The Aviva Stadium is a treasured part of the fabric of cultural and sporting life in Ireland.

## Business Challenge

In today's digital age, sports fans and concert goers expect seamless connectivity while attending live events. And whether the space caters for 1,000 or 51,000, they expect to be able to share their personal experiences on social media channels with friends and family. Similarly, TV broadcasters and online/offline media need to share live streams and high resolution images with their audiences. Staff need to operate Point of Sale devices and CCTV for operations keeps fans safe while cheering on their favourite team.

With the stadium's events growing in scale and digital engagement becoming more integral to the fan experience, the team identified the need for a secure and resilient network infrastructure that could grow in line with these demands. It would need to serve all stakeholders including fans, staff and media and future-proof connectivity for five to 10 years.

Following a competitive tender, Agile Networks together with its technology partner, Juniper Networks were chosen for the project.

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# Live only happens once

Live events don't support a second take. There's one precious opportunity to enjoy a live soccer game or major international pop act. If the supporting network infrastructure isn't up to scratch, it can have serious operational and financial consequences. To guarantee great user experience and high service levels for customers, staff, hospitality partners and media, stability, speed and resiliency are the order of the day.

Stadium operations are complex and encompass every activity that happens on the day of a live event. It starts at ticketing where automatic turnstiles use a network-connected ticketing app to validate all patrons as they enter. 95 per cent of all customers use a digital ticket in this way.

EPOS or electronic point of sale systems use the wired network to process card payments. Redundancy with automatic failover to wireless connectivity provides backup. This is critical as the stadium manages all food and beverage purchases through a cashless payment system.

*"By delivering client-to-cloud automation, insight and self-driving actions, Juniper Networks' AI Native Now continues to stand out from the rest of the industry for ease, scale, cost and performance."*

Ronan McCarthy, Head of Sales for Ireland, Juniper Networks

*"With 51,000 people in the stadium, the demand on the network is such that it's critical our infrastructure works when we need it to work and it has to be reliable, redundant and available."*

Vincent Naughton, Head of IT, Aviva Stadium

The operations team use the network to manage three big screens, two in the north and one in the south. They beam latest scores and action replays as well as close ups of major stars as they perform.

An IPTV infrastructure powers over 200 televisions, scattered throughout the facility while hundreds of PTZ (Pan, Tilt, Zoom) cameras use the network to push live feeds back to the event control room and to the CCTV recording infrastructure. This is a critical part of security operations and plays a key role in keeping all patrons safe and secure during their visit.

Domestic and international media use the network extensively on matchday to send high-resolution imagery and bandwidth-intensive video streams back to base.

Finally, the fan experience wouldn't be complete without the pleasure of posting live videos and images to social media. Sharing the excitement and thrill of watching a favourite pop act or sporting team is an integral part of the Aviva Stadium experience.

## Technology At A Glance

### Indoor and Outdoor Wi-Fi

AP-43 (indoor) and AP-63 (outdoor)

- 802.11 ax (Wi-Fi 6) - 2.4 GHz, 5 GHz
- Internal/external antenna options
- Dedicated third radio for scanning
- IoT sensor for humidity, pressure, temperature

APs automatically connect to the Juniper Mist cloud, download configurations, and join the appropriate network. Firmware updates are retrieved and installed automatically, ensuring that the network is always up to date with new features, bug fixes, and security updates.

## Access Points


**The AP43 is a high-performance Wi-Fi 6 access point, integrating patented virtual Bluetooth LE (vBLE) and Internet of Things (IoT) capabilities to deliver unprecedented user experience**

JUNIPER NETWORKS

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# Reliability critical to stadium operations

Recognising demands for greater digital engagement by all stakeholders, Vincent Naughton, Head of IT at the Aviva Stadium decided on a full network upgrade, encompassing LAN switching, firewalling, cyber security and Wi-Fi infrastructure.

The team at Agile Networks started the project with a robust network design, which identified the need for additional cabling in selected parts of the facility. This was swiftly followed by deployment of Juniper Networks' core switches in the form of QFX5110 switches and EX3400 switches at the edge.

The QFX5110 switches deliver up to 2.56 Tbps wire-speed switching with low latency and jitter, along with full Layer 2 and Layer 3 performance. The EX3400 switches are access devices and represent a cost-effective solution for the stadium's converged data, voice, and video demands.

Network security is bolstered using a twin approach of SRX Series firewalls and Juniper Networks' Advanced Threat Prevention Cloud (ATP Cloud).

*"We have a new addition to the team called Marvis, which is Juniper's Virtual Network Assistant. With Marvis the user inputs in plain English the type of problem they're trying to solve. Marvis will then use its AI engine to look for an answer to the query. In 95% of the cases, Marvis will solve the problem."*

Declan Goode, Account Manager, Agile Networks

The SRX1500 firewalls deliver powerful performance with consistent throughput across applications and usage patterns. They support intrusion prevention, application visibility and control, and content security features, including antivirus, antispam, and web filtering.

Juniper ATP Cloud is a cloud-based detection service that uses the power of AI to identify attacks and protect all hosts on the network. The service assesses risk from encrypted and decrypted network traffic and connecting devices, and distributes that intelligence throughout the network to stop attacks and drastically decrease the attack surface before a breach occurs.

*"With Marvis Minis we leverage unsupervised machine learning to simulate the stadium's critical applications, proactively highlighting issues, validating network configurations and resolving problems before they have a chance to negatively impact Stadium services and digital experiences."*

Ronan McCarthy, Head of Sales for Ireland, Juniper Networks

## Technology At A Glance

### Marvis Minis

Marvis Minis is an extension to Marvis, Juniper's Virtual Network Assistant.

Marvis Minis is a practical manifestation of Juniper's native AI in action, acting as a virtual IT team member, providing advanced insights and automation for enterprise networks.

Marvis Minis continuously ingests more data, using its growing knowledge base to proactively correct issues in real time, reducing the number of trouble tickets, and accelerating issue resolution.

- Simulates user connections to learn network configurations
- Identifies potential issues before they affect users
- Works with Mist AI to validate network setups and detect problems
- Continuously learns from new data to improve its performance
- Automatically corrects issues in real-time
- Reduces IT support tickets and speeds up problem resolution
- Operates across wireless, wired, and SD-WAN networks

## Delivering exceptional user experience

The network upgrade, based on Juniper Networks' technology and professional services from Agile Networks has been a resounding success. Vincent's objective of elevating fan experience while delivering high-performance, robust and reliable network connectivity to all other stakeholders has been achieved, effortlessly.

Networking-related support tickets have been virtually eliminated and Marvis Minis ensures the network is constantly learning and using power of AI to configure the wireless for optimum performance.

Cyber threats are mitigated and dashboard-based reporting through an intuitive interface displays real-time network status on demand.

> *"We're excited about the possibility of future enhancements to our network. For example, we're currently looking at a Shared Vision trial, which allows visually impaired users in the stadium to have a better experience. And we're also looking at new technologies such as wayfinding and queue management that directs fans to queues with shorter wait times if they're connected to an app."*
>
> Vincent Naughton, Head of IT, Aviva Stadium

With a stable, future-proofed network infrastructure, Vincent and his team are excited about the potential to offer other services to improve the fan experience. Better queue management and an enhanced experience for visually-impaired guests may soon be a reality.

## Benefits At A Glance

- High-performance, reliable and resilient network to support the needs of all stadium stakeholders
- Superior user experience at every corner of the stadium, thanks to Marvis Minis. This constantly adjusts Wi-Fi speeds and Access Point handoff right down to user level for optimal connectivity
- High-speed connectivity for bandwidth-hungry streaming services
- Elimination of network support tickets thanks to Marvis, Juniper's Virtual Network Assistant
- Improved security posture mitigates risk of malware and other malicious network traffic

> *"The benefits of our upgraded network are substantial. Our new Wi-Fi provides exceptional resilience, handling peak usage seamlessly. With application awareness and improved response times, users enjoy a smoother, more reliable online experience."*
>
> Vincent Naughton, Head of IT, Aviva Stadium

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