tyco

Case study

Aviva Stadium
Dublin, Ireland

Tyco's innovative access control, video & fire solutions. All integrated and managed via one victor unified security monitoring platform.

The power behind **your mission**

Johnson Controls

Summary

Building Management System:
victor security monitoring platform. Enabling the central integration of access, video, fire & intrusion systems.

Access Control:
Tyco – CEM Systems AC2000 access control system.

200+ access controlled doors using:
· CEM Systems emerald access terminals & eDCM 300 intelligent 2-door controllers with 3rd party readers.

Video:
· 6 x VideoEdge Network Video Recorder's.
· 250+ Tyco – American Dynamics & Illustra camera's for indoor & outdoor use.

Fire:
Tyco Zettler. 4,000 + fire points.

250+ cameras   **200+** access readers   **4,000+** fire points

A decade after the magnificent Aviva stadium in Dublin had its official opening, this case study reflects on the formation of a successful partnership which saw the state-of-the-art venue equipped with a fully integrated electronic safety and security solution from Tyco, the security brand of Johnson Controls.

"When building our world class stadium in 2010, we looked for world class partners. With Tyco, we are very happy that we made the right decision. We continue to have a very close working relationship with the Tyco team who understand the unique requirements of our stadium and, on an ongoing basis, assist us with the implementation of new leading technologies."

Martin Murphy
Stadium Director, Aviva Stadium

The power behind **your mission**

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As part of a landmark €410m redevelopment project in 2010, Aviva Stadium was built on the Lansdowne Road stadium site, which was one of the oldest sports stadiums in Europe. Since then, Tyco has been working closely with Aviva to provide a highly innovative stadium security solution which utilises the manufacturers' access control, video and fire detection products.

Aviva stadium is home to Ireland's international rugby and soccer teams and has the capacity to hold up to 52,000 visitors per game. As a multi-functional stadium it is also an iconic venue for concerts and corporate events and welcomes over 1 million visitors per year for matches, concerts, conferences and stadium tours.

Requirement

Aviva Stadium required a robust, reliable and highly proven security management solution that would assist them with the challenge of managing large crowds and keeping visitors safe. With so many systems being implemented in the new stadium, they also required a fully integrated solution which could be managed via one single software platform.
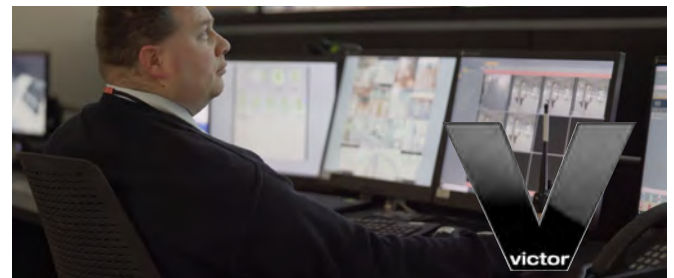
Solution

To meet this need, Tyco successfully provided a holistic solution with the victor security monitoring platform fully integrated with CEM Systems' AC2000 access control, Zettler fire panels, American Dynamics video management systems and Illustra IP high definition cameras, all of which come under the Tyco brand umbrella.

"When designing the stadium in 2010, we spent a lot of time researching the best in class available technologies. As a multi-purpose venue, we need to manage crowds of up to 50,000 at a time and as such, safety and security is our number one concern.

We want people to come to the stadium for an excellent day out, in comfort and in a safe environment. The CCTV, access control and fire technologies from Tyco enables us to do this."

Martin Murphy
Stadium Director, Aviva Stadium

Systems integration – victor

Centralised command and control using victor is the key to better event security at Aviva Stadium, especially during large crowded public events or full capacity matches.

Using the Tyco victor unified platform, Aviva Stadium has a single front end software interface for the control and monitoring of over 250+ video cameras, 200+ access controlled doors and 4000+ fire alarm points. victor is also integrated with alarms located in disabled toilet facilities, as well as with Aviva's intrusion detection system, for greater operational efficiencies.

victor provides control room operators with real-time information on any alarm events via a dynamic on-screen interface which can also display data on access control and fire alarm events, along with associated camera footage and analytics. As victor is event-driven, it instantly alerts operators of any system status changes, thus removing the need for them to constantly monitor operator display screens for 'cause and effect' actions.
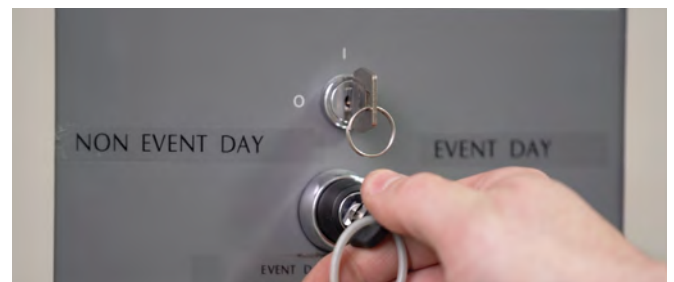
Advanced event, map, and clip management

The easy to use victor interface enables Aviva security to quickly process and respond to alarms and associated live video footage. Featuring advanced multi-layer graphical maps of the stadium, the victor software displays icons which represent the location of access control readers, cameras and fire points. Operators can then quickly click on an icon to zoom into a stadium area to verify what may be occurring. In the event of an emergency, operators can also remotely open a door using the system's 'OneShot' feature.

With sophisticated task-based operator workflows, the ability to run global system reports and an easy to understand victor analytics dashboard, security personnel have total visibility of activity within the stadium.

"Because we have so many different systems in the stadium from CCTV, fire, intrusion and door access control, it would be very difficult and time-consuming for our security staff to monitor all these systems individually. The Tyco victor management makes it easy for our security staff and event operations team to deal with large event data flows and alarms by looking at just one collaborative system, in a very easy to use, efficient and reliable way. It also enables us to work closely with the Gardaí (Irish police) on match days to review video and associated alarm logs if there has been an incident which needs to be investigated."

Miriam McCann
IT Manager, Aviva Stadium

Event day operation mode

To faciltate efficent alarm processing during large events and to allow operators to focus on the areas of the stadium which are of the greatest concern, Tyco's Centre of Excellence team in Belfast developed a stadium-specific event day operation mode for the integrated security system. This enables it to be switched to a carefully planned configuration when large concerts or matches are taking place, with some doors, sounders and alarms temporarily bypassed or isolated.

When set on 'non-event day' mode, the entire system is 'live' with all alarms monitored 24/7 in the main security control room and fire alarms instantly routed to the local fire department.

When the change is made to 'event day' mode, monitoring of the systems are then switched over to the event command and control room. This enables event alarms to be immediately verified and responded to by Aviva security and Gardaí on site.

Fire

Aviva have a large scale fire solution deployed using the Tyco Zettler fire system. Over 4000 fire detection points are integrated and these are also fed into victor graphical maps to provide operators with greater situational awareness.

tyco | CEM Systems

Access Control

The Tyco - CEM Systems AC2000 access control system is ideal for large sites such as stadiums. It offers powerful, highly scalable access control, with sophisticated photo ID badging and the flexibility of deep levels of integration with third party systems.

The Aviva Stadium found AC2000 software applications such as VIPPS (Visual Imaging and Pass Production System) ID badging and AC2000 Time and Attendance particularly beneficial. VIPPS provides Aviva with a cost effective method of producing their own permanent and reusable ID passes for staff and site contractors, whilst AC2000 Time and Attendance provides a configurable tool for the stadium to run reports on the number of hours worked by both full time and temporary staff.

There are over 200+ door access readers installed throughout the stadium. These help control access to private or sensitive areas such as broadcasting rooms, as well as to control lifts and movement through turnstiles. Aviva utilises the access control system to differentiate site access between matches and concerts - with the North stand closed off during concerts for all except authorised engineers and equipment personnel who require access to the stage.
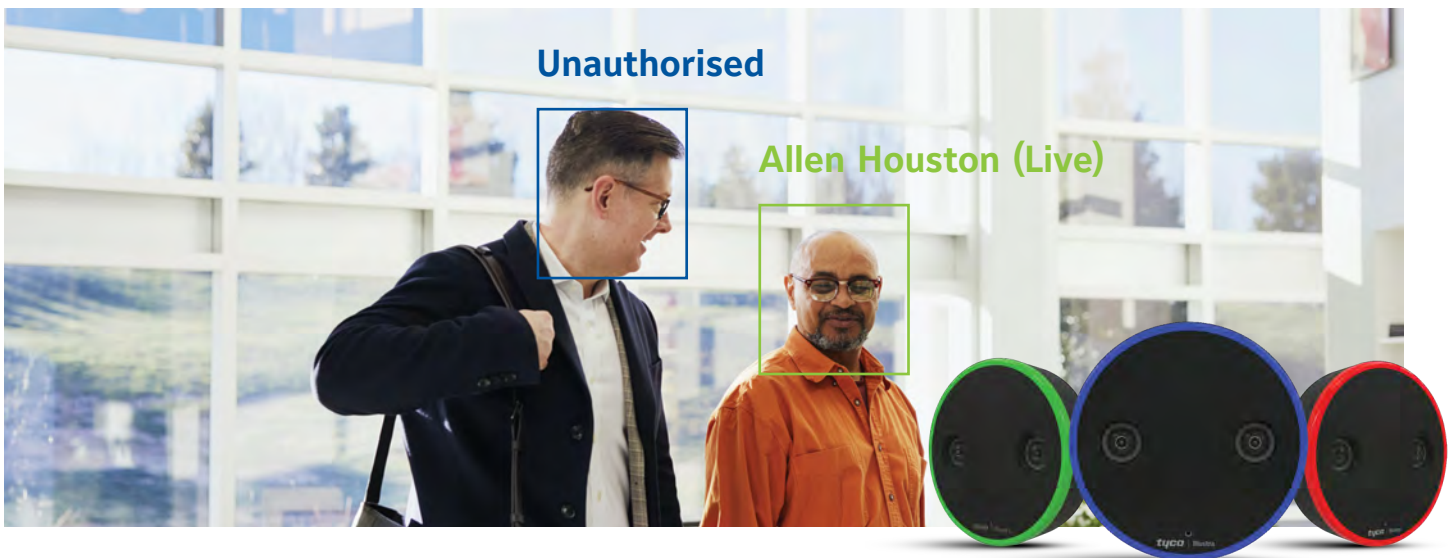
emerald access terminals

CEM Systems innovative emerald touch screen readers have also been installed at Aviva which are being used for door access and for branding purposes.

emerald is a multi-functional access control terminal that features a highly secure IP smart card reader, door controller, on-board Power over Ethernet technology, integrated Voice of IP intercom and a range of revolutionary built-in smart applications, all of which are incorporated into a single aesthetically attractive device. Within Aviva, emerald controls access to key areas such as the comms room, the entrance to the players' lounge and the stadiums command and control room. For ease of use, emerald features an intuitive, touch-screen display which enables security staff to instantly change threat levels right at the emerald terminal. This enables security to react instantly and adjust security levels at the door in response to a perceived threat.
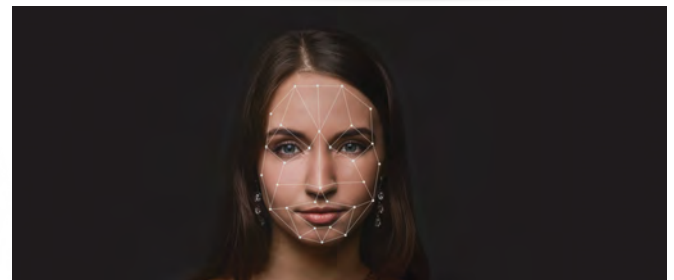
When not in use, the emerald terminals have also been programmed to display the stadium's logos and promotional messages.

Unauthorised

Allen Houston (Live)

Tyco Insight - facial recognition

For dual access control authentication, Aviva has also recently implemented a trial project using the new, state-of-the-art Tyco Insight frictionless access solution. Empowered by Tyco artificial intelligence (AI) and deep learning algorithms, Illustra Insight combines the functionality of access management software and a leading-edge facial recognition camera, to simultaneously recognise multiple people as they approach an entrance. It also includes intercom and voice recognition functionality to greet and inform credential holders as they arrive or move around the stadium.

Single access control & facial enrolment process

Insight facial recognition cameras are also fully integrated into the CEM AC2000 access control system for high levels of seamless two factor access control authentication. (Card and/or facial recognition). This integration uniquely offers Aviva one seamless software enrolment process for capturing both ID cardholder details and their corresponding biometric templates. Facial enrolment is then stored via the AC2000 access control system at the same time as the cardholder's details are enrolled.

tyco | American Dynamics
Illustra

Video - High definition, scalable IP video with built-in analytics

Over 250+ American Dynamics and Illustra IP video cameras (ranging from flex PTZ cameras, mini domes, fish eyes and fixed cameras) are installed throughout Aviva Stadium. These IP66 rated cameras are suitable for indoor and outdoor use and have been successfully used to monitor the perimeter of the stadium, as well as the seating areas, the pitch and administrative offices. Cameras are also installed at a tunnel which leads to the local train station (DART) to monitor crowd behaviour and manage crowd flow during match days and concerts.

"The use of state-of-the-art cameras is really important for us to patrol a stadium of this size. It enables us to have a small team of security personnel who are able to monitor the entire stadium 24/7, day or night. To assist them, we have also recently installed Illustra ProGen 3 cameras into the pitch which have proved ideal for closely monitoring crowds."

Miriam McCann
IT Manager, Aviva Stadium

Illustra ProGen3 Mini-Dome

The high definition Illustra ProGen 3 mini-dome with built in IR illumination has proved to be an ideal solution for monitoring activity within the pitch bowl, whatever the

lighting conditions. Featuring Electronic Image Stabilisation, which keeps the field of view steady in windy conditions and Smart Wide Dynamic Range technology that greatly improves the quality of images captured in varying lighting environments, this true day/night camera is able to capture clear, sharp images day or night, whilst aiding security officers on patrol.

System resilience & end to end encryption

The cameras are managed across six VideoEdge network video recorders, with approximately 32 cameras controlled by each device. Innovative features such as videoEdge NVR Tricklestor which provides video storage redundancy and Intellizip smart video compression and streaming, enable Aviva Stadium to minimise its network bandwidth requirements and data storage costs.

The video surveillance system also benefits from Intelligent Video Analytics which are a feature of the VideoEdge NVR's. The collected behavioural metadata can be used to provide a smart intelligent way of searching through recorded video.

To ensure Aviva Stadium is able to always record images captured by the cameras, a secondary 'virtual' VideoEdge server has also been deployed to instantly come into operation in the unforeseen event that a primary server develops a fault.

The American Dynamics and Illustra IP cameras are also able to take advantage of the stadium's network infrastructure as they support Power over Ethernet (PoE). This avoided the need to provide a separate power supply and cabling for each camera and as such, significantly reduced on site time and system installation costs.

GDPR compliance – Facial redaction

To assist Aviva with GDPR compliance, Tyco additionally designed a video redaction tool within victor to effectively blur out the faces of bystanders when sharing incident images of people of interest with the police.

The future

Moving forward and using Tyco AI technology and powerful algorithms, Aviva are also planning to utilise intelligent Tyco video automation features such as object classification, behavioural analytics and person re-identification. Person re-identification will enable video data to recognise and capture an individual throughout diverse stadium camera locations during the course of an incident.

"Aviva stadium has had a long and fruitful relationship with Tyco and because of that our security system is extremely reliable and efficient. The support we get is outstanding and we know we are in safe hands for the future as they will always be guiding us towards the latest technology/innovations in security. The products are backwards compatible for future proof capability and we are confident that moving forward, the solutions implemented by Tyco will always provide the best possible solution for the security and safety of the stadium".

Miriam McCann
IT Manager, Aviva Stadium

Aviva Stadium strives to provide a top class event experience for players, coaches, performers, spectators, media, commercial partners and staff. Tyco strives to provide world class security. Together we stand shoulder to shoulder to be an iconic model of security and operational excellence within stadiums.

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AVIVA STADIUM

For more information visit
www.tyco.com

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