Case Study

NEC

The NEC looks to unified security for major technology upgrade across security and business systems

Just eight miles from Birmingham, the NEC (National Exhibition Centre) occupies a 610-acre site, making it the largest exhibition centre in the UK. With more than 186,000 square metres of covered exhibition space through 20 interconnecting halls, the venue welcomes around 2.1 million visitors each year to over 140 diverse trade and consumer events, including shows like BBC Gardeners' World, BBC Good Food Show and Spring Fair, and one of the security industry's main European shows, IFSEC.

Business challenge

As the busiest exhibition centre in Europe, the NEC are committed to providing the highest level of safety and customer service from the moment a visitor arrives at the exhibition centre to the moment they leave.

After almost 20 years, the NEC began realizing the limitations of its 170-camera analogue-based system: it provided deteriorating image quality and was limited in terms of coverage due to lack of cabling infrastructure. The NEC were also inhibited by underperforming system capabilities when trying to efficiently conduct security investigations. More challenges also became apparent to the NEC when they began looking to add new cameras in the car parks; and adding or integrating new access control technology with other security and business systems.

In similar respects, although the NEC had seen success with their traffic management system, the technology was slowly becoming obsolete, and requirements to expand the system to further improve in-and-out traffic as well as visitor parking, were simply unfeasible with the current system.

At this point, Gary Masters, NEC Group Security and Traffic Operations Manager, spearheaded a project that went far beyond any system upgrade.

NEC's security needs

The NEC were looking ahead this time. Instead of merely replacing their video surveillance system and growing their existing traffic management system, the NEC wanted to invest in a fully-fledged technology upgrade throughout the entire exhibition centre. The NEC wanted to start from the ground up, rebuilding its network infrastructure to accommodate new systems for video surveillance, access control, video analytics, traffic management, as well as road-side messaging and advertising. This initiative, named Project Mercury, supported their objective to be the venue of choice, attracting even more big-ticket shows.

According to Gary Masters, the NEC had some very specific criteria for its new technology platform: "We were looking for an IP-based, open-architecture system that would be able to integrate with our other systems. We needed every system to be scalable, as we didn't want to be tied down again in the future and above all, we wanted our platform to be very user friendly."

What the NEC were looking for was an intuitive platform from which they could manage the entirety of their security and public safety systems, including a more robust and scalable automatic number plate recognition (ANPR) system for car counts, improved parking applications and some law enforcement applications.

With funding in place, Project Mercury began with the issuance of a public tender placed in the Official Journal of the European Union. Each bidder was to develop their own technical design alongside product recommendations. After much deliberation, Gary Masters and the team at the NEC recruited the help of Vindex Systems, a UK-based Genetec certified integrator. Their plan was to implement Genetec Security Center, unified platform with Omnicast video surveillance and AutoVu ANPR systems.

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Genetec™

"The overall solution presented by Vindex Systems was the preferred option. We looked at the Genetec product and liked what we saw and what we had heard about it, so we were happy to go ahead with Security Center as the platform from which to manage all of our systems," confirmed Gary Masters.

The right solution

Today, the NEC have doubled their surveillance coverage with over 350 cameras now being managed through the Omnicast/Security Center system from the Venue Operations Centre. Benefiting from the flexibility and openness of the Genetec security platform, the NEC were able to select the cameras that best suited their needs.

All the internal cameras are Axis Communications PTZ and fixed IP cameras, with resolutions ranging from SMPTE compliant HDTV to 3 and 5 MP, and wide dynamic range cameras located at the entrances. The latter provides better image quality in varying lighting conditions, so they can clearly identify people coming into the building. Outside in car parks, the NEC used Bosch HSPT (High Speed Positioning System) cameras that provide a 120-metre infrared coverage in the car parking areas; and affixed externally on the building are Bosch AutoDome HD PTZ analogue cameras. WI-FI enabled encoders were used to connect the analog cameras back to the NEC's Venue Operations Centre. This was done through a new a point to multipoint wireless mesh network which was built by Vindex Systems to extend coverage throughout the massive property.

The NEC have about 120 TB of storage for video recordings which they use for continuous recording as well as archiving of event information. In order to maximize their storage capacity and optimize the bandwidth on their new Alcatel-based network, the NEC are leveraging features in Omnicast like multistreaming. For instance, where dual streaming is set for most cameras, the NEC have configured the system to record higher frame rates and resolutions for recordings triggered by motion detection alarms and basic lower quality video is preserved for long-term archiving.

Also connected to the network are 16 new AutoVu Sharp ANPR cameras, and another 26 AutoVu Sharp EX ANPR cameras which were added to help preserve hardware investments and easily migrate from their existing traffic management system. Essentially, 42 lanes into the exhibition centre are now equipped with Genetec's AutoVu LPR system and the NEC have even deployed a mobile AutoVu Sharp camera on a patrol vehicle.

For the NEC, the ease of migration, the high plate read rates and accuracy of the AutoVu system has been well received. Beyond traffic management, they are also using AutoVu to monitor shuttle bus frequency, to grant access to one of the venues pre-booked Express parking areas and to be alerted when a "wanted" vehicle is identified. According to Paul Austin, Director at Vindex Systems, "The West Midlands Police receives all the number plate reads to their police control room and uses the system to check against hotlists for wanted criminals, stolen vehicles or for general investigations as part of a much wider ANPR network on the public roads and motorways."

The flexibility of Security Center encompassed other business systems integrations as well. Beyond Omnicast video and AutoVu ANPR, the NEC's Security Center platform successfully integrates a third-party access control solution with over 400 doors. Agent Vi's real-time video analytics software, Vi-System, is also integrated, thereby allowing real-time detections of security and safety incidents by providing alerts in the Venue Operations Centre client. Other third-party intrusion detection systems and intercom systems are also running within the unified security platform.

"The simplicity and user friendly design of Security Center has been what we have enjoyed the most," said Gary Masters. "Pair that with its stability and reliability, and we could not be happier with our choice."

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The benefits

Within their Venue Operations Centre that is equipped with 12 46-inch displays across five operator desks, the NEC are doing both passive and active monitoring. When there is a show in place, they up the number of operators working from the unified security platform, and Vindex Systems provides on-site technical support for troubleshooting and maintenance.

"Our operators have adapted extremely well to the new technology," said Gary Masters. "In fact, the transition went much better than expected, and we have achieved some excellent outcomes resulting in arrests because of the new system. Users are able to easily review the data, moving between systems to track incidents and provide excellent quality evidence."

More than security, the NEC have thought outside the box and are leveraging Security Center for two very unique business applications. On the video side, they have set up a dedicated exhibitor server and are leasing video surveillance services to exhibitors at a show. With temporary Axis cameras installed, this revenue-generating application is facilitated by partitions in Security Center.

Key Features

AXIS P5534

The AXIS P5534 PTZ Dome Network Camera offers HDTV-quality video and 18x zoom for indoor surveillance applications. With an IP51-rated protection against dust and dripping water, it is ideal for use at airports, train stations, warehouses, shops and schools. Day and night functionality ensures high image quality in low light conditions.

- HDTV 720p and H.264
- IP51-rated protection against dust and dripping water
- High Power over Ethernet, compliance with IEEE 802.3at
- 18x optical zoom
- Advanced Gatekeeper functionality

On the ANPR side of the system, the NEC have made a VIP parking service available to visitors by using AutoVu for gated access control. Exhibitor attendees can now go online and book their VIP parking in advance, using their vehicle number plate. Upon entering the car park, the AutoVu Sharp camera will scan their number plate, compare it to the pre-paid database and then allow or deny entry.

The NEC also have plans to continue to grow the Omnicast installation. Their first objective is to provide remote video access to the police. Beyond that, the NEC's next aim is to implement the same security system design at their sister venue The National Indoor Arena in central Birmingham. Thanks to the Federation features of Security Center, which seamlessly bridge independent sites as one virtual system, the NEC will be able to monitor all activities across all their sites from their main Operations Centre; while still keeping server and storage facilities independent. Extending Security Center's cutting-edge capabilities across all sites is a testament to the NEC's belief in unified security, to which Gary Masters corroborates:
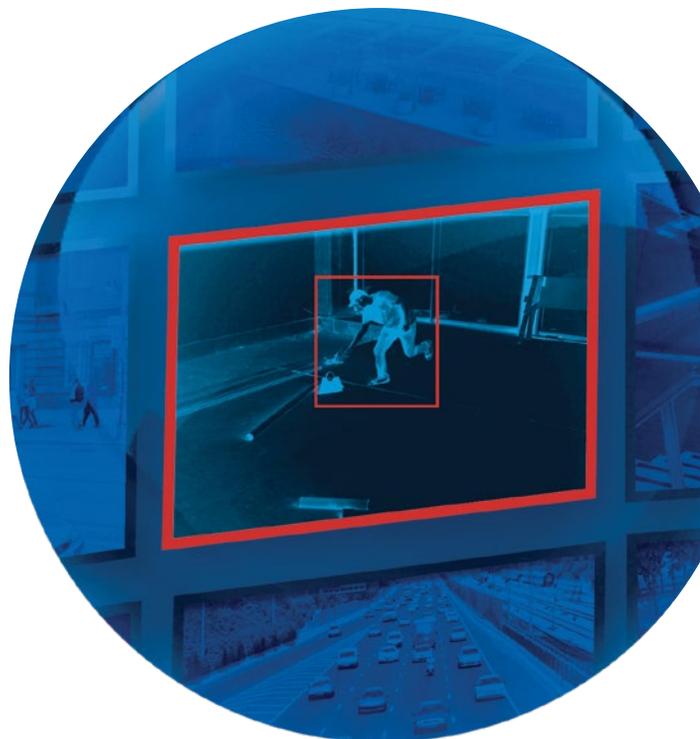
"Integrating systems improves the operational ability of our team. Bringing systems together in a single interface is simply more user-friendly and more efficient," he concluded. "We have had a number of successes with the system since it was introduced. The improved video surveillance quality, the easy to use interface, and the ability to move between video and ANPR systems has resulted in identification of offenders and resulted in prosecutions."

Agent Vi's Real-Time Video Analytics

Agent Video Intelligence (Agent Vi) is a leading provider of open architecture, video analytics software deployed in security, safety and business intelligence applications worldwide. Vi-System is Agent Vi's real-time video analytics software, which transforms standard surveillance networks into intelligent and effective detection and alert systems. Vi-System boasts superior detection performance, high scalability, installation simplicity and ease of use, making it the most advanced, comprehensive and cost effective real-time video analytics solution on the market.

Highlights:

• i-LIDS® certified video analytics solution

• Diverse analytics rules suite for crowd management, sterile zone monitoring and business intelligence applications

• Seamless integration with existing surveillance infrastructure from Genetec and Axis