INTEGRATED TECHNOLOGY MAKES BELGRADE AIRPORT SAFER AND SMARTER

THANKS TO THE MOTOROLA SOLUTIONS SAFETY REIMAGINED PORTFOLIO ECOSYSTEM

BELGRADE AIRPORT

VINCI Airports took over operations at Belgrade Airport at the end of 2018, having signed a 25-year concession contract to finance, operate and modernise the airport. VINCI Airports is the world's leading private airport operator and manages 65 airports in 12 countries, across Europe, Asia and the Americas. It is the first airport operator committed to achieving net zero emissions across its network by 2050. Modernisation work at Belgrade Airport has been ongoing since 2019 and major works are to be completed by the end of 2023. The work includes terminal expansion, a new runway and taxiways, and extra aircraft parking facilities with a new de-icing pad, as well as additional car parking and access roads. And, having welcomed over 6 million passengers in 2019, by the end of VINCI Airport's contract, the airport will be able to handle a projected 15 million passengers annually, whilst offering significantly improved service levels.

CUSTOMER PROFILE

Organisations:
Belgrade Airport d.o.o.

Partners:
- TeleGroup d.o.o. (Radios)
- All Control d.o.o. (Video)

Industry:
Transportation, Airports

Location:
Serbia

> "A modern airport must be built on a foundation of safety. Motorola Solutions' Safety Reimagined is the first ecosystem that unifies the technologies that keep us safe onto one single platform. We are delighted VINCI Airports is choosing to deploy these cutting-edge solutions to transform Belgrade Airport into a safer, smarter airport of the future."

Branko Angebrant, Managing Director, All Control

> "I was immediately impressed by the scalability, functionality and maturity of this new end-to-end platform. It's easy to maintain but, when we have needed technical support, both All Control and the Motorola Solutions Avigilon team have been professional and fast to respond. This is a long-term investment and I'm delighted that we have decided to continue our collaboration with Motorola Solutions."

Marko Marković, IT Director, Belgrade Airport

BACKGROUND

Motorola Solutions and its local partners – TeleGroup and, more recently, All Control – have been working with Belgrade Airport for many years and the airport has been successfully using a MOTOTRBO™ Capacity Plus system since 2016. The high-capacity system, which also includes the SmartPTT Control Room solution, is used for voice and data communications across the airport; it delivers all the benefits of a digital system, such as excellent coverage, GPS location tracking, clear audio, over-the-air programming (OTAP), priority emergency calls and Transmit Interrupt, central dispatch, and the recording and logging of calls. The airport uses MOTOTRBO Radio Management software to programme its radios, which operate on two VHF and UHF networks running in tandem.

INITIAL REQUIREMENT

When VINCI Airports took over operations, it saw the need to improve security and the monitoring of passenger flow, both during the modernisation phase and long term. It wanted a high-performance video surveillance system with advanced intelligence and analytics, which could integrate existing hardware and be easily migrated. Beyond this, the airport was interested in looking at a wider portfolio of security solutions and radio advancements.

TENDER & TESTING

The local Avigilon sales team worked closely with Safety Reimagined Partner All Control throughout the various presentations and testing of the Motorola Solutions video security system. The airport looked at various suppliers, but the Motorola Solutions system was the only one with the option of an AI NVR that could upgrade the airport's existing IP cameras with next-generation video analytics capabilities. Moreover, the Avigilon AI NVRs were the only ones that could meet the bandwidth throughput and storage requirements, again reducing hardware and CAPEX. All Control provided an AI NVR for a successful testing phase at the airport.

SAFETY REIMAGINED INTEGRATED ECOSYSTEM

Following on from the success of the radio and now the video security systems, the airport is progressively deploying a wide range of integrated hardware and software from the extensive Motorola Solutions Safety Reimagined portfolio. TeleGroup, All Control and Motorola Solutions have worked closely throughout to ensure a successful deployment, including delivering training and ongoing service and support in line with the agreed SLA. Security is obviously key for the airport and all the Safety Reimagined systems need to be fully operational at all times; monitoring and dispatch is centralised at the 24/7 Airport Operation Centre, which houses the DM4000e Series mobile radios, an extensive video wall, dispatch consoles and a number of computers hosting the various software applications. Operators are already starting to work smarter, thanks to the integrated systems and the Avigilon video analytics technology, which automatically alerts operators to cameras that are recording unusual or suspicious footage against configured parameters.

AVIGILON VIDEO SECURITY

The airport already had over 600 IP cameras, which it has now 'made smart' using Avigilon's AI NVRs; 100 Avigilon cameras, including H5SL dome and bullet cameras and H5A Series dome and bullet cameras, have also already been deployed; and more will be installed in the coming years, in line with the airport modernisation and expansion. The airport has also replaced old PTZ cameras in the corridors and stairways with H5A Dual Head Cameras, as these provide a greatly improved field of view. All video footage is stored on the AI NVRs, with a further two NVRs providing system redundancy, and operators are currently using Unusual Motion Detection (UMD), Focus of Attention and Appearance Search video analytics technology to detect perimeter or restricted area breaches, to track people or baggage of interest, to identify missing persons and to highlight unusual behaviour, for example. Zoran Skoko,

Motorola Solutions Products:

- Land Mobile Radio system comprising MOTOTRBO Capacity Plus VHF and UHF systems with DR 3000 repeaters, DP4000e and DM4000e Series radios, IMPRES™ batteries, IMPRES Battery Fleet Management and IMPRES Remote Speaker Microphones, MOTOTRBO Radio Management software and SmartPTT Control Room Solution
- Fixed Video Security solution comprising Avigilon Network Video Recorders (AI NVR Premium Plus 160 TB), Avigilon Unity Video analytics and management software (previously known as Avigilon Control Center, ACC™ 7) and a range of Avigilon cameras including H5SL Series Cameras (dome and bullet lenses), H5A Series Cameras (dome and bullet lenses) and H5A Dual Head Cameras
- Broadband push-to-talk communications comprising WAVE PTX™ service, WAVE PTX Radio Gateway, TLK 100 WAVE PTX portable radios and WAVE PTX Mobile application*
- MOTOTRBO Ion Portable Smart Radios and Evolve LTE Handhelds*
- Mobile Video Security solution comprising VB400 Body-Worn Cameras, multi-port docks and RFID reader (to allocate cameras to specific staff members)*
- Radio Alert

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*In testing phase for planned deployment

> **"From the perspective of management of the system, the Avigilon platform brought something that we didn't have in the past: inbuilt health monitoring of all the components. It seems like the system almost autonomously takes care of itself, so we can focus on directing operations and responding to incidents, rather than keeping the system running. This saves a lot of time. Another key benefit is Avigilon Unity Cloud Services, which allow us to safely access the system from any remote location, including the mobile app. It also provides better insight into system usage and system health, through integrated statistics."**
>
> Ivan Stanojevic, IT Desktop Support and Service Desk Team Leader, Belgrade Airport

Security Development Director, comments: "Our new video system enables our security department to respond much faster in critical situations. The Appearance Search functionality allows operators to find all recorded instances of a person in a matter of seconds, while Focus of Attention allows operators to manage potentially problematic situations much more efficiently, without losing any focus on the rest of the system."

RADIO ALERT

The airport has integrated its Avigilon Unity Video software (previously known as Avigilon Control Center, ACC) and MOTOTRBO radio systems to enable Radio Alert. Alarms resulting from the Avigilon analytics are automatically pushed to radios in the form of text messages and/or text-to-voice alerts. Security personnel can then acknowledge alarms directly from their radios and quickly investigate.
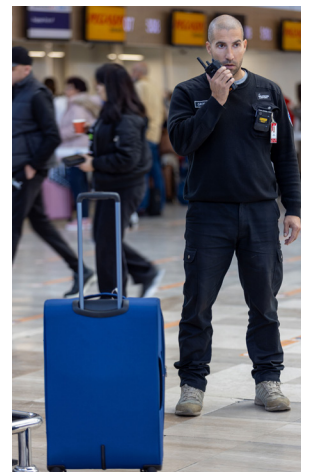
WAVE PTX

WAVE PTX is a broadband push-to-talk service from Motorola Solutions that provides group communications over 3G, 4G and Wi-Fi networks. The airport has been trialling a WAVE PTX Radio Gateway to allow use of WAVE PTX as an extension of its existing MOTOTRBO two-way radio network. Some mobile workers are starting to use WAVE PTX TLK 100 radios, and the airport is looking to potentially deploy the Evolve smart handheld device and the MOTOTRBO Ion radios in the future. Meanwhile, the airport has also tested the WAVE PTX Mobile app, which is ideal for the VINCI Airports' management team as it allows them to use their mobile phones to communicate with radio users at the airport even while travelling off-site. Veljko Dimic, Project Leader IT Infrastructure, clarifies: "Our new management is very future-oriented and always tries to find new opportunities to improve operations, cut unnecessary costs, but also gain new revenues, wherever possible. Therefore, we are always interested in new technologies optimised for easy usage and maintenance. Firstly, we started renting radios to airline companies and other businesses who needed to stay connected to airport operations, as an additional source of revenue which we used to maintain the radio system. And when Motorola Solutions introduced the WAVE PTX platform for our region, we were the first in line to test it. Cloud platforms and subscription models are not new to us and we asked TeleGroup to run some trials, connecting WAVE PTX to our current radio system. I was a bit sceptical about voice and latency, but the audio is really clear and not distorted. So, we decided to deploy WAVE PTX, TLK 100s and the mobile app. This is an ideal option for both our rental customers and our employees, especially those that need to stay in touch, even when they are off-site."
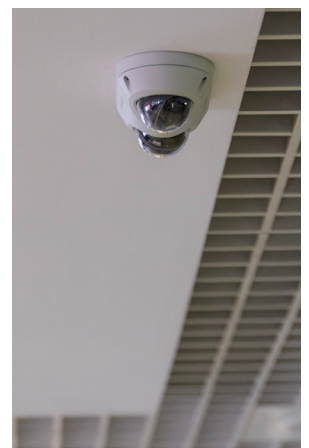
VB400 BODY-WORN CAMERAS

The airport has also just started testing the VB400 Body-Worn Cameras, as an extension of the Avigilon Unity Video platform. All encrypted video footage can be live-streamed to the Airport Operation Centre via Wi-Fi, as well as being stored on the NVRs. The robust body-worn cameras have all the functionality the mobile airport teams will need, such as long battery life, pre/post record, GPS and flexible mounting

> **"Motorola Solutions can offer so much more than we first realised; and we are delighted to see that their video security technology is just as reliable and high-performance as their radios, which we have, of course, been using for many years. We rely on the radios to provide clear communications around the airport, and integrating WAVE PTX as well means that we now have greater choice for our comms and can even stay in touch when off-site and out of radio coverage. The easy scalability of all the systems is also key, as we will need to grow them in line with the airport's expansion."**
>
> Veljko Dimic, Project Leader IT Infrastructure, Belgrade Airport

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options. Zoran Skoko continues: "It's impossible to cover every corner and angle with a fixed surveillance system. No airport has achieved that. Not only would it be too expensive but it would also be technically impossible. That's why we're delighted our patrol teams can start wearing the body-worn cameras to extend the reach of the Avigilon video system to areas where there are no fixed cameras deployed. Our operators also really appreciate the capability to securely export the recorded video to the Avigilon platform for storage and the ability to analyse the footage later, like they can with the fixed cameras. Now, we can easily cover more ground and capture moments that would have otherwise been missed."

ENHANCED SECURITY: RESPONSE TIMES HAVE NEARLY HALVED

The Safety Reimagined ecosystem is helping the airport to effectively manage potential or escalating situations. Personnel can detect, analyse, communicate and respond quickly to any security or operational issues (response times have nearly halved), so greatly enhancing the safety and experience of all airport users, as well as proactively protecting property and assets. Real-time information and alerts are more easily shared across teams, so they can

work more smartly, and users have access to unified data, evidence and incident reports. User feedback on all parts of the ecosystem has been exceptional.

MOVING FORWARD

The airport will be rapidly expanding its operations over the coming years and the Safety Reimagined ecosystem will grow in parallel. The Capacity Plus system will be replaced by Capacity Max to boost capacity and functionality, and the airport is planning to deploy Orchestrate, the user-friendly, cloud-based business automation tool which will enable airport staff to configure and automate specific workflows for the Safety Reimagined technologies. Veljko Dimic summarises: "We plan to use Avigilon Unity Cloud Services to lease the video security system to third party users, like shops and stores who need a camera on their premises; we can then provide secure remote access. This will be beneficial to all parties, as the retailers and airline companies won't have to invest in their own platform, we'll have more camera coverage, and the additional revenue can be reinvested into the system."

Benefits:

- This total, scalable safety ecosystem from a sole supplier, integrating existing hardware and new technology, ensures Belgrade Airport is a safe, smart airport, whilst minimising CAPEX
- The flexible Avigilon video security element has allowed the airport to bring advanced analytics to existing IP cameras, whilst all the new high-resolution AI-enabled Avigilon cameras and body-worn cameras are increasing video coverage and minimising blind spots
- The integrated solutions, such as WAVE PTX and Radio Alert for alarm response, enable faster, more accurate incident management and crime prevention, ultimately enhancing the safety of all airport users
- This is an ongoing deployment and the airport will continue to deploy and integrate further technology from the extensive Motorola Solutions portfolio of unified safety solutions

"My department needs to monitor all the operational aspects of the airport from one remote point. That wasn't possible with our previous system, but we now have access to every relevant camera. Even more importantly, utilising Radio Alert, my operatives receive every relevant alert directly onto their radios, which has a direct impact on the smooth operation of the airport and subsequently the airport users' experience. Having also seen how our security teams use the body-worn cameras, we are looking into the possibility of our ground teams using these to record the process of airplane cargo loading, for video proof that they have handled everything professionally."

Vladimir Plemic, Airport Operations Manager, Belgrade Airport

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